

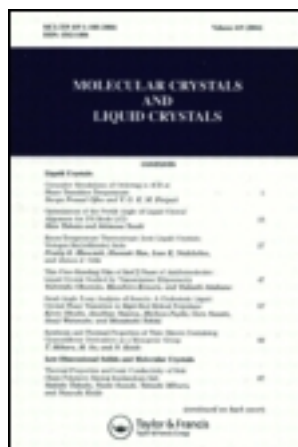
This article was downloaded by: [Tomsk State University of Control Systems and Radio]

On: 20 February 2013, At: 13:12

Publisher: Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954

Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Molecular Crystals and Liquid Crystals

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/gmcl16>

Spectroscopy of Molecular Crystals, A Bibliography for 1982

E F Sheka^a, V S Makarova^a & T A Krivenko^a

^a Institute of Solid State Physics Academy of Sciences of the U.S.S.R., Chernogolovka, 142432, U.S.S.R.

Version of record first published: 20 Apr 2011.

To cite this article: E F Sheka, V S Makarova & T A Krivenko (1984): Spectroscopy of Molecular Crystals, A Bibliography for 1982, *Molecular Crystals and Liquid Crystals*, 114:4, 305-391

To link to this article: <http://dx.doi.org/10.1080/00268948408082171>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae, and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages

whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Spectroscopy of Molecular Crystals

A Bibliography for 1982

Compiled by E. F. SHEKA, V. S. MAKAROVA, and T. A. KRIVENKO

Edited by E. F. SHEKA

*Institute of Solid State Physics
Academy of Sciences of the U.S.S.R.,
Chernogolovka, 142432 U.S.S.R.*

(Received June 13, 1984)

CONTENTS

1. Introduction	306
2. Books and Reports of Meetings	306
3. Spectra of Aromatic Molecules in Gaseous and Condensed States	308
1. Electronic states	308
2. Singlet absorption spectra	312
3. Triplet absorption spectra and ESR spectra	314
4. Electronic-vibrational interaction and vibronic spectra	315
5. Vibrational spectra	318
6. Raman spectra	322
7. Fluorescence	325
8. Phosphorescence	329
9. Dissipation and migration of molecular excitation energy, time constants	330
10. Laser excitation, stimulated emission and light generation	336
11. Spectroscopy of photochemical reactions	340
4. Absorption and Luminescence Spectra of Intermolecular Complexes	344
1. Charge-transfer complexes	344
2. Excimers, dimers and other homomolecular complexes	345
5. Spectra of Pure Molecular Crystals	346
1. Phonon spectra	346
2. Electronic and vibronic states and absorption spectra	348
3. Fluorescence and phosphorescence	350

6. Spectra of Impurity and Disordered Molecular Crystals	346
7. Exciton Problem of Molecular Crystals	355
1. Lattice dynamics and phonon spectra	355
2. Singlet exciton and cooperative effects	359
3. Triplet excitons	361
4. Exciton-phonon interaction (shape of bands, energy dissipation, vibronic spectra)	362
5. Excitons in mixed crystals	363
6. Excitonic mechanism of energy migration	365
8. Photoconductivity of Molecular Crystals.	
Photoelectronic emission	366
9. Effects of High Exciton Concentration in Non-metallic Crystals	368
10. Molecular Crystal Structure. Thermodynamic Data	368
11. Neutron Spectroscopy of Crystals	371
12. Author Index	372

1. INTRODUCTION

The 1982 Bibliography continues the series of annual issues of Bibliographies Spectroscopy of Molecular Crystals. The full list of these issues from 1957–1968 may be found in *Molecular Crystals and Liquid Crystals*, **6**, 175(1969). The issues for 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, and 1981 are published *ibid.* **14**, 329(1971), **17**, 55(1972), **19**, 331(1973), **26**, 87(1974), **30**, 239(1975), **33**, 261(1976), **39**, 259(1977), **46**, 25(1978), **54**, 59(1979), **61**, 251(1980), **73**, 105(1981), **91**, 197(1983) and **104**, 1(1984).

As all previous issues, the 1982 Bibliography is established on the basis of scientific-bibliography work carried out in the Institute of Solid State Physics in Chernogolovka.

2. BOOKS AND REPORTS OF MEETINGS

1. Agranovich, V. M., and Mills, D. L., Ed., Surface polaritons. Amsterdam, New York, North-Holland, xvi, 704 p. (1982) (Eng).
2. Belyakov, V. A., and Sonin, A. S., Optics of cholesteric liquid crystals. Moscow, Nauka, 360 p. (1982) (Russ).
3. Bloembergen, N., Nonlinear optics and spectroscopy, *Revs Mod. Phys.* **54**, N 3, 685–695 (1982) (Eng).
4. Blumstein, A., Ed., Liquid crystalline order in polymers. New York, San Francisco, London, Academic Press, (1978) (Eng).
5. Boardman, A. D., Ed., Electromagnetic surface modes. Chichester etc.: Wiley, 786 p. (1982) (Eng). (*Eur. Spectrosc. News*, 1983, N 49, p. 35)

6. Califano, S., Schettino, V., and Neto, N., Lattice dynamics of molecular crystals. Berlin, Heidelberg, New York, Springer-Verlag, 309 p. (1981) (Eng) (Lecture notes in chemistry. 26).
7. Cardona, M., and Güntherodt, G., Ed., Light scattering in solids II, basic concepts and instrumentation. Berlin, Heidelberg, New York, Springer-Verlag, xi, 281 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 48, p. 36).
8. Clark, R. J. H., and Hester, R. E., Ed., Advances in infrared and Raman spectroscopy. Vol. 9. Chichester etc.: Wiley, 400 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 49, p. 30).
9. Clarke, R. H., Ed., Triplet state ODMR spectroscopy: Techniques and applications to biophysical systems. New York and Chichester, John Wiley and Sons, x, 566 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 47, p. 37).
10. Clerc, J. T., Pretsch, E., and Seibl, J., Structural analysis of organic compounds by combined application of spectroscopic methods. Amsterdam, Oxford, New York, Elsevier, 288 p. (1981) (Eng) (*Eur. Spectrosc. News*, 1983, N 49, p. 36).
11. Cognard, J., Alignment of nematic liquid crystals and their mixtures, *Mol. Cryst. and Liquid Cryst.*, Suppl. N 1, 1-77 (1982) (Eng) (P.A. 85:55832).
12. Dashevskii, V. G., Conformational analysis of organic molecules. Moscow, Khimiya, 272 p. (1982) (Russ).
13. De Jeu, W. H., Physical properties of liquid crystalline materials. New York, London, Paris, Gordon and Breach Science Publishers (1980) (Eng).
14. Dörner, B., Coherent inelastic neutron scattering in lattice dynamics. Berlin, Heidelberg, New York, Springer-Verlag, 96 p. (1982) (Eng). Ref.: p. 91-94. (Springer tracts in modern physics. Vol. 93).
15. Disordered systems and localization. Proceedings of a conference. Berlin, Germany: Springer-Verlag, xii, 308 p. (1981) (Eng) (Conference held at: Rome, Italy. Date May 1981) (P.A. 85: 63750).
16. Eisenthal, K. B. et al., Ed., Picosecond phenomena III. Berlin, Heidelberg, New York, Springer-Verlag, xiii, 401 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 47, p. 37).
17. Eng, R. S., and Ku, R. T., High resolution linear laser absorption spectroscopy—review, *Spectrosc. Lett.* 15, N 10-11, 803-929 (1982) (Eng).
18. 15th European Congress on Molecular Spectroscopy, *J. Mol. Struct.* 79 (1982) (Eng) (Conference held at: Norwich, England. Date 7-11 Sept. 1981) (P.A. 85:74152).
19. Garetz, B. A., and Lombardi, J. R., Ed., Advances in laser spectroscopy. Vol. 1. Chichester etc.: Wiley, 256 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 49, p. 30).
20. General discussion on high resolution spectroscopy, *Faraday Disc. Chem. Soc.* N 71 (1981) (Eng) (Conference held at: Bristol, England. Date 13-15 April 1981) (P.A. 85:74147).
21. Kaplan, I. G., Introduction in the theory of intermolecular interactions. Moscow, Nauka, 312 p. (1982) (Russ).
22. Kitaigorodskii, A. I., Zorkii, P. M., and Belskii, V. K., Structure of organic substance. Data of structural investigations. 1971-1973. Moscow, Nauka, 511 p. (1982) (Russ).
23. Kondratenko, A. V., Mazalov, L. N., and Topol', I. A., High-excited states of molecules. Novosibirsk, Nauka, 177 p. (1982) (Russ).
24. Koptiug, V. A., Ed., Spectral atlas of aromatic and heterocyclic compounds. Vyp. 20. Infrared, ultraviolet and Raman spectra of compounds of pyrimidine series. Novosibirsk, 184 p. (1981) (Russ).
25. Lascombe, J., and Huong, P. V., Ed., Raman spectroscopy, linear and nonlinear. Chichester and New York, John Wiley and Sons, xxxii, 834 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 47, p. 37).
26. Laser spectroscopy V. Proceedings of the fifth international conference. Berlin, Germany: Springer-Verlag, xi, 495 p. (1981) (Eng) (Conference held at: Jasper, Alta., Canada. Date 29 June-3 July 1981) (P.A. 85:63748).

27. Lifshits, I. M., Gredeskul, S. A., and Pastur, L. A., Introduction in the theory of disordered systems. Moscow, Nauka, 360 p. (1982) (Russ).
28. New methods of spectroscopy. Novosibirsk, Nauka, 223 p. (1982) (Russ).
29. Papousek, D., and Aliev, M. R., Molecular vibrational-rotational spectra. Amsterdam, Oxford and New York, Elsevier, 323 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 47, p. 35).
30. Patashinskii, A. Z., and Pokrovskii, V. L., Fluctuation theory of phase transitions. Moscow, Nauka, 382 p. (1982) (Russ).
31. Person, W. B., and Zerbi, G., Ed., Vibrational intensities in infrared and Raman spectroscopy. Amsterdam, Netherlands: Elsevier, xvi, 466 p. (1982) (Eng) (P.A. 86:69802).
32. Phillips, J. P., Bates, D., Feuer, H., and Thyagarajan, B. S., Organic electronic spectral data. Vol. 18. Chichester etc.: Wiley, 1070 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 49, p. 30).
33. Physics abroad. Collection of popular science articles. Laser chemistry. Superconductivity. Solid state physics. Moscow, Mir, 217 p. (1982) (Russ).
34. Rabek, J. F., Experimental methods in photochemistry and photophysics (Parts 1 and 2). Chichester etc.: Wiley, 1138 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 49, p. 35).
35. Rashba, E. I., and Sturge, M. D., Ed., Excitons. Amsterdam and New York, North-Holland, xvi, 717 p. (1982) (Eng).
36. The second All-Union conference on metalloorganic chemistry. Abstracts. Gorkii, 380 p. (1982) (Russ).
37. Seventh conference on the utilization of ultrasonic methods for studying the properties of condensed matter, *Acta phys. slovac* **32**, N 1, (1982) (Eng) (P.A. 85:63733).
38. Seventh international conference on the internal friction and ultrasonic attenuation in solids, *J. phys. Colloq.* **42**, N C-5, pt. 1 (1981) (Eng) (Conference held at: Lausanne, Switzerland, Date 6-9 July 1981) (P.A. 85:38360).
39. Stability of process of crystal growth from the melt. Moscow, NIITEKhim., 48 p. (1982) (Russ).
40. Strokach, N. S., Shigorin, D. N., and Shcheglova, N. A., Electron-vibrational spectra of polyatomic molecules. Moscow, Nauka, 144 p. (1982) (Russ).
41. Third conference on electrical and related properties of organic solids, *Mater. Sci.* **7**, N 1, (1981) (Eng) (Conference held at: Wdzydze Kiszewskie, Poland. Date 18-23 June 1981) (P.A. 85:33224).
42. Tu, A. T., Raman spectroscopy in biology, principles and applications. Chichester, New York, John Wiley and Sons, xvi, 448 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 48, p. 38).
43. Vereshchagin, A. N., Anisotropy characteristics of polarizability of molecules. Moscow, Nauka, 308 p. (1982) (Russ).
44. Wendin, G., Breakdown of the one-electron pictures in photoelectron spectra. Berlin, Heidelberg, New York, Springer-Verlag, 130 p. (1981) (Eng) (*Eur. Spectrosc. News*, 1983, N 48, p. 36).
45. Windawi, H., and Ho, F. F.-L., Applied electron spectroscopy for chemical analysis. Chichester etc: Wiley, 224 p. (1982) (Eng) (*Eur. Spectrosc. News*, 1983, N 49, p. 30).

3. SPECTRA OF AROMATIC MOLECULES IN GASEOUS AND CONDENSED STATES

3.1. Electronic states

46. Abdel-Kader, M. M., Magnetic properties of some aromatic compounds, *Chem. Phys. Lett.* **93**, N 3, 297-302 (1982) (Eng).

47. Adnan, S. S. Z., Bhattacharyya, S., and Mukherjee, D., Application of a spin-adapted coupled-cluster based linear response theory: direct calculation of π - π^* singlet and triplet excitation energies of conjugated systems, *Chem. Phys. Lett.* **85**, N 2, 204–211 (1982) (Eng) (P.A. 85:34278).
48. Amos, R. D., A theoretical study of hyperpolarizability effects in the measurement of molecular quadrupole moments, *Chem. Phys. Lett.* **85**, N 1, 123–125 (1982) (Eng) (P.A. 85:29505).
49. Armand, J., Bois, C., Philoche-Levisalles, M., Pouet, M.-J., and Simonnin, M.-P., Structure in the solid state and conformational analysis in solution of 1,4-diacetyl-1,4-dihydro-2,3-diphenylpyrazine, a potential antiaromatic heterocyclic compound, *Can. J. Chem.* **60**, N 3, 349–354 (1982) (Eng) (P.A. 85:75310).
50. Ata, M., Sedoyama, O., and Yamaguchi, H., Magnetic circular dichroism spectra of 1,5-naphthyridine, *Chem. Phys. Lett.* **90**, N 2, 133–135 (1982) (Eng).
51. Aufderheide, K. H., Generalized localized atomic orbitals, *J. Chem. Phys.* **76**, N 4, 1897–1909 (1982) (Eng).
52. Aufderheide, K. H., and Chung-Phillips, A., Localized atomic orbitals for atoms in molecules. 3. Polyatomic molecules, *J. Chem. Phys.* **76**, N 4, 1885–1896 (1982) (Eng).
53. Baraldi, I., Dipole moments and electronic charge distributions of the $^{1,3}(n)$ excited states of formaldehyde, benzaldehyde and benzophenone. A theoretical study at the indo level including the doubly- and triply-excited configurations, *THEOCHEM* **4**, N 4, 345–354 (1982) (Eng) (P.A. 85:75185).
54. Bazyl, O. K., Maier, G. V., Kopylova, T. N., and Danilova, V. I., Theoretical and experimental investigation of the nature of electron-excited states, spectral-luminescent properties and lasing ability of pyrene and its phenylethynyl substituents, *Zh. Prikl. Spektrosk.* **37**, N 1, 80–86 (1982) (Russ).
55. Bechtold, W. E., Babcock, E. E., and Goldstein, J. H., NMR studies of some monohalosubstituted fluorobenzenes oriented in a lyotropic mesophase, *Spectrochim. acta* **38A**, N 2, 271–274 (1982) (Eng).
56. Bews, J. R., and Glidewell, C., Molecular fragmentations. 6. Structures and energies of the valence isomers of benzene, and their molecular cations and anions, *THEOCHEM* **3**, N 3, 197–204 (1982) (Eng) (P.A. 85:43801).
57. Bews, J. R., and Glidewell, C., Molecular fragmentations. 7. Structures and energies of mass spectral fragments derived from benzene, *THEOCHEM* **3**, N 3, 206–215 (1982) (Eng) (P.A. 85:43802).
58. Bigelow, R. W., and Freund, H.-J., The core-hole excitation spectrum of benzene: A symmetry-adapted CNDO/S equivalent-core study including “spin-symmetry breaking” configurations, *J. Chem. Phys.* **77**, N 11, 5552–5561 (1982) (Eng).
59. Bondybey, V. E., English, J. H., and Miller, T. A., Ground-state splitting and structure of the 1,2,3 trifluorobenzene radical cation from low-temperature gas-phase and matrix spectra, *J. Mol. Spectrosc.* **90**, N 2, 592–595 (1981) (Eng) (P.A. 85:39440).
60. Bondybey, V. E., Vaughn, C., Miller, T. A., English, J. H., and Shiley, R. H., Spectroscopy and decay dynamics of several methyl- and fluorine-substituted benzene radical cations, *J. Amer. Chem. Soc.* **103**, N 21, 6303–6307 (1981) (Eng) (P.A. 85:43901).
61. Borodavkin, A. V., Dolin, Yu. S., Morozov, Yu. V., and Savin, F. A., Electronic structure, photoreactivity and UV-spectroscopic properties of some 5-substituted biological pyrimidine derivatives, *Mol. Photochem.* **9**, N 6, 403–442 (1979) (Eng).
62. Bräuchle, Ch., and Voigtländer, J., The zero-field splitting parameter D of the triplet state T_1 of benzenoid hydrocarbons described in terms of basic molecular subunits, *Tetrahedron* **38**, N 2, 279–285 (1982) (Eng).
63. Burzynski, R., and Luty, T., Diamagnetic anisotropy of molecular complexes of 1,3,5-trinitrobenzene with anthracene and carbazole, *Chem. Phys.* **72**, N 3, 441–446 (1982) (Eng).
64. Cassidei, L., Sciacovelli, O., and Forlani, L., Analysis of the ^{19}F NMR spectrum of octafluoronaphthalene, *Spectrochim. acta* **38A**, N 7, 755–757 (1982) (Eng) (P.A. 85:90581).

65. Christen, D., Griffiths, J. H., and Sheridan, J., The microwave spectrum of imidazole: complete structure and the electron distribution from nuclear quadrupole coupling tensors and dipole moment orientation, *Z. Naturforsch. A* **36**, N 12, 1378–1385 (1981) (Eng) (P.A. 85:39390).
66. Distefano, G., Guerra, M., Colonna, F. P., Jones, D., Consiglio, G., and Spinelli, D., Intense shake-up satellites in the XPS spectra of planar and sterically hindered *N*-piperidyl-nitrobenzenes and -nitrothiophens, *Chem. Phys.* **72**, N 3, 267–279 (1982) (Eng).
67. Domenicano, A., Shultz, G., and Hargittai, I., Molecular structure and ring distortions of *p*-difluorobenzene as determined by electron diffraction, *J. Mol. Struct.* **78**, N 1–2, 97–111 (1982) (Eng) (P.A. 85:43895).
68. El'kin, M. D., and Kredentser, E. I., Calculation of the average values of the geometric parameters of polyatomic molecules, *Zh. Strukt. Khim.* **22**, N 3, 155–157 (1981) (Russ) (P.A. 85:75150).
69. Ellenbogen, J. C., Feller, D., and Davidson, E. R., Ab initio calculation of the properties and the geometry of the lowest triplet state of pyrazine, *J. Phys. Chem.* **86**, N 9, 1583–1588 (1982) (Eng).
70. Flament, J. P., and Gervais, H. P., Vibronic contributions to the $n \rightarrow \pi^*$ absorption band of cyclopentanone. An ab initio SCF-RPA calculation, *J. Mol. Struct.* **90**, N 3/4, 351–362 (1982) (Eng).
71. Fukuda, E. K., and McIver, R. T., Jr., Electron affinities of SO_2 and nitrobenzene, *J. Chem. Phys.* **77**, N 10, 4942–4948 (1982) (Eng).
72. Gagulin, V. V., Guryanova, E. N., and Chayanov, B. A., Influence of temperature on the value of dipole moments of 2,2-disubstituted 1,1-dinaphthyl molecules, *Zh. Fiz. Khim.* **56**, N 4, 1043–1044 (1982) (Russ).
73. Galeeva, A. I., Maier, G. V., and Danilova, V. I., Quantum-chemical investigation of spectral properties of 2,5-diphenyloxazole (PPO) and its substituents, *Zh. Prikl. Spektrosk.* **36**, N 1, 162 (1982) (Russ).
74. Gribov, L. A., and Prokof'eva, N. I., On the possibility to determine the complete set of polyatomic-molecule electrooptical parameters using quantum-mechanical calculations, *Opt. and Spektrosk.* **52**, N 5, 928–931 (1982) (Russ).
75. Gryczynski, I., and Janic, I., Electric dipole moments in the lowest singlet excited state of 2-aminomethylpyridines determined by solvatochromic method, *Acta phys. pol.* **A61**, N 5, 509–513 (1982) (Eng).
76. Gutman, I., Topological properties of benzenoid systems. 9. On the sextet polynomial, *Z. Naturforsch. A* **37**, N 1, 69–73 (1982) (Eng) (P.A. 85:49263).
77. Hassan, M. M. A., Loutfy, M. A., and Madani, A.-A. E., PMR determination of camphor and parachlorophenol in camphorated parachlorophenol, *Spectrosc. Lett.* **15**, N 9, 679–688 (1982) (Eng).
78. Huang, T.-H., and Sharp, J. H., Electronic transitions of vanadyl phthalocyanine in solution and in the solid state, *Chem. Phys.* **65**, N 2, 205–216 (1982) (Eng) (P.A. 85:61938).
79. Jones, D. W., and Mokoena, T. T., ^1H and ^{13}C NMR chemical shifts of methyl-substituted benz a anthracenes, *Spectrochim. acta* **38A**, N 4, 491–498 (1982) (Eng) (P.A. 85:65020).
80. Kresin, V. Z., Collective excitations in π -electron systems, *J. Phys. Chem.* **86**, N 12, 2187–2190 (1982) (Eng).
81. Kuball, H.-G., and Altschuh, J., Optical activity of oriented molecules. Comparison of the optical rotatory dispersion and the circular dichroism through the Kramers-Kronig transform, *Chem. Phys. Lett.* **87**, N 6, 599–603 (1982) (Eng).
82. Kukolich, S. G., and Shea, J. A., The microwave spectrum and molecular structure of the furan-argon complex, *J. Chem. Phys.* **77**, N 10, 5242–5243 (1982) (Eng).
83. Kuroda, Y., and Fujiwara, Y., Nitrogen-15/nitrogen-14 isotope effects on the carbon-13 nuclear magnetic resonance chemical shifts of azobenzene and benzo [c] cinnoline, *J. Phys. Chem.* **86**, N 25, 4913–4918 (1982) (Eng).

84. Kuts, V. S., Radchenko, N. F., and Pokhodenko, V. D., Influence of nature of interacting molecular orbitals on magnetic resonance parameters of free radicals and their complexes with aromatic molecules, *Teor. and Eksp. Khim.* **17**, N 2, 196–202 (1981) (Russ) (P.A. 85:80681).
85. Latajka, Z., Ratajczak, H., Orville-Thomas, W. J., and Ratajczak, E., CNDO/2 molecular orbital calculations of the hemi-Dewar and valene structures of naphthalene, *THEOCHEM* **3**, N 1–2, 91–95 (1981) (Eng) (P.A. 85:34303).
86. Lazzaretti, P., Rossi, E., and Zanasi, R., Paramagnetic vortices and proton magnetic shielding in aromatic molecules, *Nuovo Cimento D* **1**, ser. 1, N 1, 70–80 (1982) (Eng) (P.A. 85:75461).
87. Lee, L. K., Sabelli, N. H., and LeBreton, P. R., Theoretical characterization of phthalocyanine, tetraazaporphyrin, tetrabenzoporphyrin, and prophyrin electronic spectra, *J. Phys. Chem.* **86**, N 20, 3926–3931 (1982) (Eng).
88. Maier, G. V., and Konstantinova, E. V., Calculation of absorption spectra in electron-excited states of 1,2-benzanthracene, phenanthrene and some azaphenanthrenes, *Izv. VUZ. Fiz.* **5**, 126 (1982) (Russ).
89. Marchese, F. T., and Jaffe, H. H., The calculation of ground and excited doublet state molecular polarizabilities by the CNDO/S-CI method, *THEOCHEM* **3**, N 1–2, 97–102 (1981) (Eng) (P.A. 85:34313).
90. Martin, R. L., and Wadt, W. R., Geometry of the $n\pi^*$ states of *p*-benzoquinone. A comparison of valence-bond and configuration-interaction descriptions, *J. Phys. Chem.* **86**, N 13, 2382–2387 (1982) (Eng).
91. Matsuoka, Y., and Norden, B., Linear dichroism study of 9-substituted acridines in stretched poly(vinyl alcohol) film, *Chem. Phys. Lett.* **85**, N 3, 302–306 (1982) (Eng).
92. Möbius, K., Fröhling, W., Lendzian, F., Lubitz, W., Plato, M., Winscom, C. J., Multiple magnetic resonance studies on organic molecules in their ground and excited states, *J. Phys. Chem.* **86**, N 23, 4491–4507 (1982) (Eng).
93. Modelli, A., Jones, D., and Distefano, G., ETS study of the negative ion states of *t*-butyl and trimethylsilyl derivatives of ethylene and benzene, *Chem. Phys. Lett.* **86**, N 4, 434–437 (1982) (Eng).
94. Modelli, A., and Distefano, G., LCBO: an easy method to predict valence ionization energies. Application to substituted benzenes, *Z. Naturforsch. A* **36**, N 12, 1344–1351 (1981) (Eng) (P.A. 85:39310).
95. Momicchioli, F., Baraldi, I., and Bruni, M. C., A new indotype procedure for conjugated non-rigid molecules. I. Ground-state conformations and barriers to internal rotation, *Chem. Phys.* **70**, N 1, 2, 161–176 (1982) (Eng).
96. Morales, R. G. E., Polarizability change in the excited electronic states of nonpolar aromatic hydrocarbons, *J. Phys. Chem.* **86**, N 13, 2550–2552 (1982) (Eng).
97. Nemoto, F., Takaoka, A., and Ishizu, K., Transannular electron delocalization in the 1,8-diphenylnaphthalene radical anion studied by ENDOR, *Chem. Phys. Lett.* **86**, N 4, 401–404 (1982) (Eng).
98. Orlov, V. V., Mamaev, V. M., and Gloriov, I. P., A study, based on the INDO method, of the interatomic contributions to the magnetic shielding of the ^1H nuclei in porphine, azaporphyrins, and phthalocyanine, *Zh. Strukt. Khim.* **22**, N 2, 64–68 (1981) (Russ) (P.A. 85:39320).
99. Privalova, N. Yu., and Fofonova, R. M., Acid-basic properties of fluorescein in normal and first excited states, *Zh. Fiz. Khim.* **56**, N 12, 3023–3025 (1982) (Russ).
100. Ritchie, G. L. D., Molecular quadrupole moments and magnetic anisotropies of non-dipolar 1,3,5-trisubstituted benzenes, *Chem. Phys. Lett.* **93**, N 5, 410–414 (1982) (Eng).
101. Ritchie, G. L. D., and Vrbancich, J., Solution-state conformations of 1,3,5-triphenylbenzene, triphenyl-*s*-triazine and tri(2-pyridinyl)-*s*-triazine: a Kerr and Cotton-Mouton effect study, *J. Mol. Struct.* **78**, N 3–4, 279–288 (1982) (Eng) (P.A. 85:49471).

102. Samsonov, B. F., Terpugova, A. F., Cheglov, E. I., Kolesnikova, A. N., and Mymrina, R. A., Application of CNDO/ V^{N-1} method to the calculation of electronic transitions. $\pi \rightarrow \pi^*$ transitions in complex molecules, *Izv. VUZ. Fiz. N* 5, 126 (1982) (Russ).
103. Shcheglova, N. A., Shigorin, D. N., and Lesnenko, L. G., Spectroscopic manifestations of conformational modifications in 1-phenyl-4(5)-methoxy-antraquinone molecules in hydrocarbon solutions at 77 and 4,2 K, *Zh. Fiz. Khim.* 56, N 7, 1679–1686 (1982) (Russ).
104. Shchekatolina, S. A., and Dykhanov, S. M., Application of the Pariser-Parr-Pople method for the energetic analysis of the electronic structure of molecules, *Zh. Strukt. Khim.* 22, N 3, 152–155 (1981) (Russ) (P.A. 85:75149).
105. Sircar, R., and Gupta, R. C., Application of wide-line PMR technique to the study of some aromatic compounds, *Indian J. Phys.* 56A, N 1, 55–60 (1982) (Eng).
106. Sobry, R., and Van den Bossche, G., Anisotropies diamagnetiques cristallines et moléculaires du naphthalene, *Acta crystallogr. A* 38, N 2, 286–287 (1982) (Fr).
107. Srihari, D., Ramanamurti, D. V., Venkatacharyulu, P., and Premaswarup, D., Substituent group effects on the NQR frequency of ^{35}Cl in benzene sulphonylchlorides, *Indian J. Pure and Appl. Phys.* 20, N 1, 71–73 (1982) (Eng).
108. Srivastava, S. K., and Srivastava, Sushil K., Electronic structure and spectra of *o*-benzoquinone, *Indian J. Pure and Appl. Phys.* 20, N 1, 76–77 (1982) (Eng) (P.A. 85:43757).
109. Tsekhanskii, R. S., A bridge effect in electronic spectra of benzidine dyes analoges and their substantial properties, *Zh. Fiz. Khim.* 56, N 10, 2473–2476 (1982) (Russ).
110. Van der Meer, B. J., Jonkman, H. Th., Kommandeur, J., Meerts, W. L., and Majewski, W. A., Spectrum of the molecular eigenstates of pyrazine, *Chem. Phys. Lett.* 92, N 6, 565–569 (1982) (Eng).
111. Vinogradskii, A. G., The structure of protonated forms of phthalocyanines, *Zh. Fiz. Khim.* 56, N 7, 1831–1833 (1982) (Russ).
112. Vysotskii, Yu. B., Zemskii, B. P., Zemskaya, E. A., and Alekseev, N. N., Spectral characteristics of sulfur-containing aromatic heterocyclic compounds in the MO LCAO method, *Zh. Strukt. Khim.* 22, N 3, 13–21 (1981) (Russ) (P.A. 85:75321).
113. Waite, J., Papadopoulos, M. G., Nicolaides, C. A., Calculations of induced moments in large molecules. 3. Polarizabilities and second hyperpolarizabilities of some aromatics, *J. Chem. Phys.* 77, N 5, 2536–2539 (1982) (Eng).
114. Warman, J. M., De Haas, M. P., Hummel, A., Varma, C. A. G. O., and Van Zeyl, P. H. M., Dipole moment changes in the singlet and triplet excited states of 4-dimethylamino-4'-nitrostilbene detected by nanosecond time-resolved microwave conductivity, *Chem. Phys. Lett.* 87, N 1, 83–86 (1982) (Eng).
115. Wu Guo-Shi, and Liao Mu-Zhen, A FORTRAN IV general computer program for quantum chemistry ab initio calculation MQAB-80, *J. Qing Hua Univ.* 21, N 2, 15–26 (1981) (Chin) (P.A. 85:43771).
116. Zgierski, M. Z., and Pawlikowski, M., State mixing and CD spectra of chiral molecules consisting of two identical chromophores, *Chem. Phys. Lett.* 93, N 6, 613–616 (1982) (Eng).

3.2. Singlet absorption spectra

117. Al-Chalabi, A. O., Assignment of new transitions from the S_1 state and from the excimer state in pyrene, *Chem. Phys. Lett.* 90, N 3, 218–220 (1982) (Eng).
118. Antonov, V. S., and Shibanov, A. N., Mass-optical spectrum of molecule anthracene, *Opt. and Spektrosk.* 52, N 3, 390–392 (1982) (Russ).
119. Aristov, A. V., Maslov, V. G., Semenov, S. G., and Shevandin, V. S., Interpretation of electronic absorption spectra and polarization spectra of rhodamines in solutions, *Opt. and Spektrosk.* 52, N 2, 201–203 (1982) (Russ).

120. Balfour, W. J., and Ram, R. S., The near-ultraviolet vapour phase absorption spectrum of anisole, *Chem. Phys. Lett.* **92**, N 3, 279–282 (1982) (Eng).
121. Baranova, N. B., Levshin, L. V., Reva, M. G., and Ryzhikov, B. D., The influence of soluted substance molecules nearest surroundings on their absorption spectra, *Vestn. Mosk. Univ. Fiz., Astron.* **23**, N 5, 8–12 (1982) (Russ).
122. Boitsov, V. M., The behaviour of electronic spectra of complex molecules in liquid solutions, *Zh. Prikl. Spektrosk.* **36**, N 3, 515 (1982) (Russ).
123. Cooper, D. E., Frueholz, R. P., Klimcak, C. M., and Wessel, J. E., Resonance-enhanced two-photon ionization spectra of naphthalene, *J. Phys. Chem.* **86**, N 25, 4892–4897 (1982) (Eng).
124. Davidson, A. T., The effect of the metal atom on the absorption spectra of phthalocyanine films, *J. Chem. Phys.* **77**, N 1, 168–172 (1982) (Eng).
125. Ernstring, N. P., Asimov, M., and Schäfer, F. P., The electronic origin of the $\pi\pi^*$ absorption of amino coumarins studied in a supersonically cooled free jet, *Chem. Phys. Lett.* **91**, N 3, 231–235 (1982) (Eng).
126. Fabian, W., Theoretische Untersuchungen zum Absorptionsund Lumineszenzverhalten substituierter aromatischer Verbindungen, *J. Mol. Struct.* **90**, N 3/4, 249–264 (1982) (Ger).
127. Fainberg, B. D., To the theory of absorption and radiation of light by molecular systems with many-well potentials, *Opt. and Spektrosk.* **53**, N 1, 176–180 (1982) (Russ).
128. Fischer, G., Ross, I. G., and Puza, M., Electronic spectrum of 2,6-naphthyridine: a case for two n, π^* states, *Spectrochim. acta A* **38**, N 6, 603–610 (1982) (Eng) (P.A. **85**:75307).
129. Glagoleva, O. N., Reva, M. G., and Ryzhikov, B. D., The nature of deformations of UV absorption spectra of complex organic molecules, *Zh. Prikl. Spektrosk.* **36**, N 5, 776–780 (1982) (Russ) (P.A. **85**:75401).
130. Goel, R. K., and Agarwal, M. L., Electronic and vibrational spectra and thermodynamic functions of 3- and 4-methoxy benzonitriles, *Spectrochim. acta A* **38**, N 6, 583–590 (1982) (Eng) (P.A. **85**:75464).
131. Goel, R. K., and Agarwal, M. L., Electronic and vibrational spectra of 6-amino-2-methylpyridine, *J. chim. phys. et phys.-chim. biol.* **79**, N 10, 765–770 (1982) (Eng).
132. Goel, R. K., and Agarwal, M. L., Near ultraviolet absorption spectra of some di-substituted pyridines in vapour phase, *Acta phys. pol.* **A62**, N 3–4, 277–283 (1982) (Eng).
133. Hino, S., Veszpremi, T., Ohno, K., Inokuchi, H., and Seki, K., Absorption spectra of volatile aromatic hydrocarbon films in the vacuum ultraviolet region, *Chem. Phys.* **71**, N 1, 135–144 (1982) (Eng).
134. Kazachenko, L. P., and Kruglik, E. K., Separating of overlapping electron spectra of complex molecules into individual bands, *Zh. Prikl. Spektrosk.* **36**, N 3, 442–445 (1982) (Russ).
135. Kostyuchenko, L. S., Priyutov, M. V., Slepukhin, A. Yu., and Sverdlov, L. M., Distribution of intensities of lines of fluorobenzene and chlorobenzene absorption spectra vibrational structure, *Izv. VUZ Fiz.* N 10, 123 (1982) (Russ).
136. Leugers, M. A., and Seliskar, C. J., The rotation-torsion contour of the 2668 Å origin band of toluene. High-resolution 295K absorption spectrum, *J. Mol. Spectrosc.* **91**, N 1, 150–164 (1982) (Eng) (P.A. **85**:49451).
137. Leutwyler, S., Even, U., and Jortner, J., Electronic spectroscopy of large van der Waals molecules by resonant two-photon ionization, *Chem. Phys. Lett.* **86**, N 5, 6, 439–444 (1982) (Eng). (P.A. **85**:54907).
138. Levshin, L. V., Reva, M. G., Ryzhikov, B. D., and Stal'makhovich, S. I., On the differences of absorption and excitation spectra of dye-stuff solutions, *Vestn. Mosk. Univ. Fiz., Astron.* **23**, N 4, 7–9 (1982) (Russ).
139. Li, F., Lee, J., and Bernstein, E. R., Absorption and emission spectroscopy of benzene in cryogenic solutions. An estimate of the intermolecular potential, *J. Phys. Chem.* **86**, N 18, 3606–3611 (1982) (Eng).

140. Lubart, R., and Lindner, M. B., Intensity enhancement of symmetry forbidden transitions in solid solutions of benzene and naphthalene, *Spectrochim. acta A* **38**, N 8, 953–959 (1982) (Eng).
141. Maier, G. V., and Konstantinova, E. V., Calculation of absorption spectra in electron-excited states of 1,2-benzanthracene, phenanthrene and some azaphenanthrenes, *Izv. VUZ Fiz.* N 5, 126 (1982) (Russ).
142. Marty, A., and Viallet, P., Essais d'interprétation des déplacements des spectres électroniques de diverses amino-9 acridines en solution par leurs interactions avec des solvants aprotiques, *J. Photochem.* **20**, N 3, 213–227 (1982) (Fr).
143. Medhi, K. C., The electronic absorption spectrum of 2,3-dichloropyridine, *Spectrochim. acta A* **38**, N 6, 717–718 (1982) (Eng). (P.A. 85:75308).
144. Morales, R. G. E., and Traverso, G., Indirect determination of electronic transition frequencies of coronene, triphenylene and 1,2,5,6-dibenzanthracene in the vapor phase, *Spectrosc. Lett.* **15**, N 8, 623–629 (1982) (Eng).
145. Rava, R. P., Goodman, L., and Philis, J. G., Regularities in the two-photon spectra of polysubstituted benzenes, *J. Chem. Phys.* **77**, N 10, 4912–4919 (1982) (Eng).
146. Rebane, K. K., Phononless lines in spectra of large molecules, *Zh. Prikl. Spektrosk.* **37**, N 6, 906–922 (1982) (Russ).
147. Richardson, W. B., Lin, S. H., and Evans, D. L., Analysis of the molecular electronic absorption spectra of shock-heated aromatic compounds, *J. Chem. Soc. Faraday Trans. II* **78**, N 1, 1–15 (1982) (Eng) (P.A. 85:59816).
148. Riedle, E., Moder, R., and Neusser, H. J., Pulsed doppler-free two-photon spectroscopy of polyatomic molecules, *Opt. Commun.* **43**, N 6, 388–394 (1982) (Eng).
149. Samoilenko, V. D., Razumova, N. V., and Personov, R. I., Stark effect on the narrow hole-burning absorption bands of complex molecules, *Opt. and Spektrosk.* **52**, N 4, 580–582 (1982) (Russ).
150. Sanyal, N. K., Srivastava, S. L., and Devi, A., π - π^* electronic absorption spectrum of 8-aminoquinoline vapour, *Indian J. Phys.* **54B**, N 6, 562–564 (1980) (Eng).
151. Scott, T. W., Callis, P. R., and Albrecht, A. C., Alternant hydrocarbon selection rules in the two-photon spectroscopy of perturbed benzene, *Chem. Phys. Lett.* **93**, N 2, 111–114 (1982) (Eng).
152. Senatorova, N. R., Levshin, L. V., and Ryzhikov, B. D., Relationship between the absorption and luminescence spectra of concentrated polar solutions of complex organic compounds, *Opt. and Spektrosk.* **50**, N 3, 574–577 (1981) (Russ) (P.A. 85:34483).
153. Smirnov, V. A., and Brichkin, S. B., Spectral and photochemical properties of aromatic nitrenes, *Chem. Phys. Lett.* **87**, N 6, 548–551 (1982) (Eng) (P.A. 85:70318).
154. Srivastava, S. L., and Rohitashava, Electronic and vibrational spectra of some chlorinated pyridinols, *Indian J. Phys.* **54B**, N 6, 509–519 (1980) (Eng).
155. Sur, A., Knee, J., and Johnson, P., The $^1B_{2u} \leftarrow ^1A_{1g}$ two-photon spectra of several isotopes of benzene by supersonic beam-multiphoton ionization spectroscopy, *J. Chem. Phys.* **77**, N 2, 654–668 (1982) (Eng).
156. Zelezny, V., Jastrabik, L., and Rysava, N., The influence of concentration on optical spectra of 9,10-dichloroanthracene solutions, *Czech. J. Phys.* **B32**, N 12, 1403–1406 (1982) (Eng).

3.3. Triplet absorption spectra and ESR spectra

157. Angliker, H., Rommel, E., and Wirz, J., Electronic spectra of hexacene in solution (ground state, triplet state, dication and dianion), *Chem. Phys. Lett.* **87**, N 2, 208–212 (1982) (Eng) (P.A. 85:59817).

158. Asimov, M. M., Gavrilenko, V. N., and Rubinov, A. N., Measurement of *T*-*T*-absorption characteristics of rhodamine 3B ethanol solution, *Opt. and Spektrosk.* **52**, N 2, 258–262 (1982) (Russ).
159. Bar-Joseph, I., and Silberberg, Y., Real time holography through triplet state absorption in organic dyes, *Opt. Commun.* **41**, N 6, 455–458 (1982) (Eng) (P.A. **85**:86060).
160. Bolot'ko, L. M., Gruzinskii, V. V., Danilova, V. I., and Kopylova, T. N., Triplet-triplet absorption of organic compounds efficiency generating in ultraviolet spectral region, *Opt. and Spektrosk.* **52**, N 4, 635–638 (1982) (Russ).
161. Dietz, T. G., Duncan, M. A., and Smalley, R. E., Time evolution studies of triplet toluene by two-color photoionization, *J. Chem. Phys.* **76**, N 3, 1227–1232 (1982) (Eng) (P.A. **85**:49531).
162. Graham, D. J., A study of magnetic field effects upon triplet-triplet absorptions, *Chem. Phys.* **68**, N 1, 2, 119–122 (1982) (Eng).
163. Jung, Ch., Lau, A., Weigmann, H.-J., Werncke, W., and Pfeiffer, M., Interpretation of resonance CARS and Shpolskii spectra with calculated molecular geometries, vibrational frequencies and relative intensities: chrysene in its lowest excited singlet and triplet state, *Chem. Phys.* **72**, N 3, 327–336 (1982) (Eng).
164. Kholmanskii, A. S., Kunavin, N. I., Zubkov, A. V., and Dyumaev, K. M., An orbital nature of phosphorescence states of spiropyranes with nitrogroup, *Zh. Fiz. Khim.* **56**, N 11, 2794–2798 (1982) (Russ).
165. Kirste, B., and Van Willigen, H., ENDOR on photoexcited triplets randomly oriented in solid solution, *Chem. Phys. Lett.* **92**, N 4, 339–342 (1982) (Eng).
166. Kuznetsov, V. A., Shamraev, V. N., and Nurmukhametov, R. N., Triplet-triplet transitions in rhodamine 6G molecule, *Opt. and Spektrosk.* **52**, N 5, 838–841 (1982) (Russ).
167. Murai, H., Imamura, T., and Obi, K., Time-resolved ESR detection of benzophenone $\pi\pi^*$ triplet state in glassy matrices at 77 K, *Chem. Phys. Lett.* **87**, N 3, 295–298 (1982) (Eng) (P.A. **85**:59826).
168. Teki, Y., Takui, T., Hirai, M., Itoh, K., and Iwamura, H., Optically detected electron-nuclear double resonance and electron-nuclear-nuclear triple resonance study of ^{17}O hyperfine coupling in the lowest $\pi\pi^*$ triplet state of benzil, *Chem. Phys. Lett.* **89**, N 3, 263–267 (1982) (Eng).
169. Wackerle, G., Bär, M., Zimmermann, H., Dinse, K.-P., Yamauchi, S., Kashmar, R. J., and Pratt, D. W., Optically detected magnetic resonance studies of photoexcited ^{17}O -benzophenone. Orbital rotation in the lowest triplet state, *J. Chem. Phys.* **76**, N 5, 2275–2292 (1982) (Eng) (P.A. **85**:59831).
170. Weisman, R. B., Holt, P. L., and Selco, J. I., Dynamical spectroscopy of triplet state pyridine, *J. Chem. Phys.* **77**, N 3, 1600–1601 (1982) (Eng).
171. Yagi, M., Matsunaga, M., and Higuchi, J., Electron spin resonance and phosphorescence of 4-phenylpyridine, 4,4'-bipyridine and their protonated cations in the triplet states, *Chem. Phys. Lett.* **86**, N 2, 219–222 (1982) (Eng) (P.A. **85**:49480).
172. Yamamoto, S.-a., and Grellmann, K.-H., The triplet state of anthracene photodimers and the wavelength dependence of the photodissociation process, *Chem. Phys. Lett.* **85**, N 1, 73–80 (1982) (Eng) (P.A. **85**:29534).

3.4. Electronic-vibrational interaction and vibronic spectra

173. Amirav, A., Even, U., and Jortner, J., Electronic-vibrational excitations of aromatic molecules in large argon clusters, *J. Phys. Chem.* **86**, N 17, 3345–3358 (1982) (Eng).
174. Andrews, L., Kelsall, B. J., and Blankenship, T. A., Vibronic absorption spectra of naphthalene and substituted naphthalene cations in solid argon, *J. Phys. Chem.* **86**, N 15, 2916–2926 (1982) (Eng).

175. Arabei, S. M., Egorova, G. D., Solov'ev, K. N., and Shkirman, S. F., Quasi-linear spectra and anisotropy of individual vibronic transitions in tetrahydroporphin isomers molecules, *Zh. Prikl. Spektrosk.* **36**, N 4, 616–624 (1982) (Russ).
176. Bakhshiev, N. G., and Girin, O. P., Description of vibronic-spectrum shift kinetics for the solutions in different conditions of optical excitation in the limits of intermolecular relaxation Debye model, *Opt. and Spektrosk.* **52**, N 1, 12–14 (1982) (Russ).
177. Baranov, V. I., Vibronic interactions in polyatomic molecules accounting for molecules symmetry, *Zh. Prikl. Spektrosk.* **36**, N 4, 650–653 (1982) (Russ).
178. Bernstein, M., Rothberg, L. J., and Peters, K. S., Time-resolved photoacoustic spectroscopy in the picosecond regime, *Chem. Phys. Lett.* **91**, N 4, 315–318 (1982) (Eng).
179. Boitsov, V. M., Towards homogeneous and inhomogeneous broadening in spectra of free molecules, *Zh. Prikl. Spektrosk.* **36**, N 2, 264–269 (1982) (Russ).
180. Bogdanov, V. L., and Klochkov, V. P., Effect of temperature and medium on 1,2-benzoanthracene secondary emission under the excitation of higher electronic states, *Opt. and Spektrosk.* **52**, N 1, 71–78 (1982) (Russ).
181. Bogdanov, V. L., and Klochkov, V. P., Nature of short-wavelength bands in secondary-emission spectra of organic molecules under stepwise excitation of higher electronic states, *Opt. and Spektrosk.* **53**, N 6, 1005–1010 (1982) (Russ).
182. Bogdanov, V. L., and Klochkov, V. P., Nuclear motion randomization and hot luminescence spectra of complex molecules, *Opt. and Spektrosk.* **53**, N 3, 394–396 (1982) (Russ).
183. Bräuchle, C., Symmetry distortions and pseudo-Jahn–Teller effect of peri- and cata-hexabenzocoronene in their triplet states as observed by ODMR techniques, *Chem. Phys.* **67**, N 1, 97–109 (1982) (Eng) (P.A. **85**:75196).
184. Champion, P. M., Multimode effects and vibronic borrowing, *Chem. Phys. Lett.* **86**, N 3, 231–234 (1982) (Eng) (P.A. **85**:43881).
185. Dicker, A. I. M., and Völker, S., Influence of the host on vibronic relaxation: a study of free-base porphyrin in a series of *n*-alkanes by photochemical hole-burning, *Chem. Phys. Lett.* **87**, N 5, 481–486 (1982) (Eng) (P.A. **85**:67755).
186. Fainberg, B. D., Theory of electron-vibrational spectra in case of harmonic adiabatic potentials, *Opt. and Spektrosk.* **52**, N 6, 1099–1102 (1982) (Russ).
187. Fischer, S. F., A mixed adiabatic-diabatic representation for the vibronic coupling problem of polyatomic molecules, *Chem. Phys. Lett.* **91**, N 5, 367–372 (1982) (Eng).
188. Gribov, L. A., and Baranov, V. I., On the possibility of creation of a general semi-empirical theory of vibrational and electronic-vibrational spectra of polyatomic molecules, *Zh. Prikl. Spektrosk.* **37**, N 6, 1016–1022 (1982) (Russ).
189. Hornburger, H., and Brand, J., The influence of out-of-plane modes on non-radiative transition rates in benzene, *Chem. Phys. Lett.* **88**, N 2, 153–156 (1982) (Eng) (P.A. **85**:80699).
190. Huang, T.-H., Rieckhoff, K. E., and Voigt, E. M., Shpol'skii effect and vibronic spectra of the phthalocyanines, *J. Chem. Phys.* **77**, N 7, 3424–3441 (1982) (Eng).
191. Huppert, D., Rand, S. D., Reynolds, A. H., and Rentzepis, P. M., Intersystem crossing and predissociation of haloaromatics, *J. Chem. Phys.* **77**, N 3, 1214–1224 (1982) (Eng).
192. Innes, K. K., *s*-tetrazine: coupling of the S_0 to the S_1 electronic state by two out-of-plane b_{3u} vibrations, *J. Chem. Phys.* **76**, N 4, 2100–2102 (1982) (Eng) (P.A. **85**:59777).
193. Jung, Ch., Lau, A., Weigmann, H.-J., Werncke, W., and Pfeiffer, M., Interpretation of resonance CARS and Shpol'skii spectra with calculated molecular geometries, vibrational frequencies and relative intensities: chrysene in its lowest excited singlet and triplet state, *Chem. Phys.* **72**, N 3, 327–336 (1982) (Eng).
194. Kawski, A., and Ligeza, M., Highly resolved vibronic spectra of dioxido-*p*-terphenyl and trioxido-*p*-quaterphenyl in *n*-hexane at 77K, *Z. Naturforsch. A.* **37**, N 1, 91–92 (1982) (Eng) (P.A. **85**:49514).

195. Kellman, M. E., Dynamic Jahn-Teller effect for degenerate states of coupled vibrations in van der Waals complexes, *Chem. Phys. Lett.* **87**, N 2, 171-176 (1982) (Eng) (P.A. 85:59878).
196. Klimenko, V. G., Shigorin, D. N., Andrievskii, A. M., Sakhno, G. V., and Valkova, G. A., Vibrational structure of quasilinear luminescence spectra of solid solutions of *N*-methylphenanthridone and 3,4-benzocoumarin molecules, *Zh. Fiz. Khim.* **56**, N 2, 460-462 (1982) (Russ).
197. Kobeissi, H., and Dagher, M., Contribution in the study of the vibration-rotation Franck-Condon factors: recovery of the explicit expression of the integral as a function of the potentials of the two states, *Mol. Phys.* **44**, N 6, 1419-1433 (1981) (Eng) (P.A. 85:34501).
198. Kostyuchenko, L. S., Priyutov, M. V., Slepukhin, A. Yu., and Sverdlov, L. M., Distribution of intensities of lines of fluorobenzene and chlorobenzene absorption spectra vibrational structure, *Izv. VUZ Fiz.* N 10, 123, (1982) (Russ).
199. Lawrance, W. D., and Knight, A. E. W., Selective vibrational excitation of polyatomic molecules by stimulated emission pumping: the 5_230_2 level ($\epsilon_{\text{vib}} = 2036 \text{ cm}^{-1}$) of *p*-difluorobenzene, *J. Chem. Phys.* **76**, N 11, 5637-5639 (1982) (Eng) (P.A. 85:85618).
200. Lawrance, W. D., and Knight, A. E. W., Vibrational relaxation in ground state *p*-difluorobenzene: single level preparation by stimulated emission pumping, *J. Chem. Phys.* **77**, N 1, 570-571 (1982) (Eng).
201. Leugers, M. A., and Seliskar, C. J., The rotation-torsion contour of the 2668 Å origin band of toluene. Calculation of the molecular beam fluorescence excitation spectrum, *J. Mol. Spectrosc.* **91**, N 1, 209-217 (1982) (Eng) (P.A. 85:49495).
202. Medvedev, E. S., The Franck-Condon principle for radiationless transitions in molecules and a selection rule for Morse oscillators, *Chem. Phys.* **73**, N 3, 243-251 (1982) (Eng).
203. Miyagi, Y., Koyanagi, M., and Kanda, Y., Vibronic structure of the gas phase phosphorescence spectrum of *p*-benzoquinone, *Spectrochim. acta A* **38**, N 12, 1275-1281 (1982) (Eng).
204. Nordgren, J., Petersson, L., Selander, L., and Nordling, C., Molecular vibrations in high resolution X-ray emission spectra, *Phys. scripta* **25**, N 2, 382-385 (1982) (Eng). (P.A. 85:65003).
205. Ohta, N., and Baba, H., Vibronic-level dependence of radiative and nonradiative processes in naphthalene vapor, *J. Chem. Phys.* **76**, N 4, 1654-1663 (1982) (Eng) (P.A. 85:49485).
206. Pawlikowski, M., and Zgierski, M. Z., Vibronic analysis of circular dichroism spectra of dimeric systems. Chiral molecules consisting of two polyacene chromophores, *J. Chem. Phys.* **76**, N 10, 4789-4797 (1982) (Eng).
207. Puiu, A. C., Andrews, L., Chupka, W. A., and Colson, S. D., Vibronic absorption spectra of the biphenyl and biphenyl- d_{10} cations in solid argon, *J. Chem. Phys.* **76**, N 8, 3854-3859 (1982) (Eng) (P.A. 85:70350).
208. Ramakrishna, Reddy, R., Sambasiva Rao, P., and Ramakrishna Rao, T. V., The effect of high rotational quantum numbers on Franck-Condon factors, *J. Quant. Spectrosc. and Radiat. Transfer* **27**, N 1, 103-105 (1982) (Eng) (P.A. 85:34499).
209. Rebane, K. K., and Avarmaa, R. A., Sharp line vibronic spectra of chlorophyll and its derivatives in solid solutions, *Chem. Phys.* **68**, N 1,2, 191-200 (1982) (Eng).
210. Rebane, K. K., Some problems of classification of second radiation, *Izv. Akad. Nauk SSSR. Ser. Fiz.* **46**, N 2, 217-225 (1982) (Russ).
211. Reiser, D., and Laubereau, A., Effect of electronic excitation on ultrafast rotational motion of dye molecules, *Chem. Phys. Lett.* **92**, N 3, 297-301 (1982) (Eng).
212. Rogozhin, K. L., Rodionov, A. N., and Shigorin, D. N., Electron-vibrational spectrum of luminescence of 1,4-anthraquinone in vapour phase, *Zh. Fiz. Khim.* **56**, N 11, 2867-2870 (1982) (Russ).

213. Russegger, P., and Huber, J. R., Vibronic state and vibronic energy dependence of the intersystem crossing process $T_1 \rightarrow S_0$ in a polyatomic molecule. Propynal, *Chem. Phys. Lett.* **92**, N 1, 38–42 (1982) (Eng).
214. Sakamoto, N., Effects of the quadratic Jahn–Teller coupling on the eigenstates of vibronic systems, *J. Phys. C: Solid State Phys.* **15**, N 31, 6379–6388 (1982) (Eng).
215. Scharf, B., and Band, Y. B., The importance of ground-state vibronic mixing in molecular Raman scattering, *Chem. Phys. Lett.* **91**, N 5, 383–389 (1982) (Eng).
216. Scharf, B., Vitenberg, R., Katz, B., and Band, Y. B., Variations of splittings of vibronic Jahn–Teller states in asymmetrically deuterated benzenes, *J. Chem. Phys.* **77**, N 5, 2226–2234 (1982) (Eng).
217. Scott, T. W., Callis, P. R., and Albrecht, A. C., Alternant hydrocarbon selection rules in the two-photon spectroscopy of perturbed benzene, *Chem. Phys. Lett.* **93**, N 2, 111–114 (1982) (Eng).
218. Smulevich, G., Amirav, A., Even, U., and Jortner, J., Electronic-vibrational excitations of a hydrogen-bonded molecule in supersonic expansions: 1,4-dihydroxyanthraquinone and its deuterated derivatives, *Chem. Phys.* **73**, N 1, 2, 1–18 (1982) (Eng).
219. Sokolov, M. N., Sverdlov, L. M., and Sverdlov, M. L., Calculation of intensity distribution in naphthalene fluorescence and absorption spectrum using the Osad'ko method, *Zh. Prikl. Spektrosk.* **36**, N 1, 140–143 (1982) (Russ).
220. Strokach, N. S., Serebryanskaya, A. I., Shapiro, I. O., and Shigorin, D. N., Influence of isotopic substitution on the ${}^3B_{1g}(n\pi^*) \rightarrow {}^1A_{1g}$ electronic transition of 9,10-anthraquinone. 1. Non-totally symmetrical vibrations, *Zh. Fiz. Khim.* **56**, N 11, 2807–2812 (1982) (Russ).
221. Tolkachev, V. A., Broadening of vibronic spectra of free complex molecules, *Opt. and Spektrosk.* **53**, N 4, 676–682 (1982) (Russ).
222. Umetskaya, V. N., Vibronically-interacting excited states in indole, *Zh. Fiz. Khim.* **56**, N 11, 2903–2905 (1982) (Russ).
223. Van Leeuwen, J. W., and Levine, Y. K., The influence of electrostatic interactions on Franck–Condon factors in electron transfer processes, *Chem. Phys.* **69**, N 1, 2, 89–98 (1982) (Eng).

3.5. Vibrational spectra

224. Abram, I., De Martino, A., and Frey, R., Higher excited vibrational states of polyatomic molecules, *J. Chem. Phys.* **76**, N 12, 5727–5738 (1982) (Eng).
224. Amat, G., On the use of "effective harmonic potentials" and "effective normal coordinates" in computing the vibrational energy levels of polyatomic molecules, *Chem. Phys.* **71**, N 3, 363–375 (1982) (Eng).
226. Anoshin, A. N., Kopteva, T. S., Mikhailova, K. V., Shapiro, I. O., and Shigorin, D. N., A study of fluorescence and IR spectra of naphthazarin- d_2 , *Zh. Fiz. Khim.* **56**, N 8, 1992–1995 (1982) (Russ).
227. Anoshin, A. N., Gastilovich, E. A., Gorelik, M. V., Kopteva, T. S., and Shigorin, D. N., Study of IR spectra and calculation of nonplanar vibrations of 1,4-dioxyanthraquinone and 1,4-dioxyanthraquinone- d_2 molecules, *Zh. Fiz. Khim.* **56**, N 7, 1665–1670 (1982) (Russ).
228. Borisevich, N. A., Zaleskaya, G. A., Lastochkina, V. A., and Shukurov, T., Effect of foreign gases on IR absorption bands of polyatomic molecules, *Spectrosc. Lett.* **15**, N 12, 991–1008 (1982) (Eng) (P.A. **86**:60844).
229. Borisevich, N. A., Zaleskaya, G. A., Lastochkina, V. A., and Shukurov, T., The foreign gas effects on IR absorption bands of naphthalene vapours, *Dokl. Akad. Nauk. BSSR* **26**, N 12, 1073–1076 (1982) (Russ).
230. Borisevich, N. A., Zaleskaya, G. A., and Shukurov, T., Profile of chlorobenzene IR absorption band under high pressure of foreign gases, *Opt. and Spektrosk.* **53**, N 6, 1011 – 1014 (1982) (Russ).

231. Bree, A., Zwarich, R., and Edelson, M., Out-of-plane i.r. active vibrations of trans-stilbene, *Spectrochim. acta* **A38**, N 6, 719–720 (1982) (Eng).
232. Broekmans, G., and Zeegers-Huyskens, Th., Infrared study (3700–3000 cm^{-1}) of hydrogen bonds involving triphenyl derivatives of group V elements, *Spectrosc. Lett.* **15**, N 7, 515–525 (1982) (Eng).
233. Bryukhanov, V. N., Galin, V. Ya., Zuev, V. E., Makushkin, Yu. S., and Tyuterev, Vl. G., Analytical calculations using digital computer in the theory of vibration-rotation molecular spectra, *Opt. and Spektrosk.* **52**, N 1, 58–63 (1982) (Russ).
234. Carmeli, B., Tulman, R., Nitzan, A., and Kalos, M. H., Random coupling models. 4. Numerical investigation of the dependence on the random coupling distribution and on the initial phases, *Chem. Phys.* **72**, N 3, 363–369 (1982) (Eng).
235. Cole, T. W., Jr., Perkins, J., Putnam, S., Pakes, P. W., and Strauss, H. L., Vibrational spectra of cubane, *J. Phys. Chem.* **85**, N 15, 2185–2189 (1981) (Eng) (P.A. **85**:34378).
236. Cyvin, B. N., Klaeboe, P., Whitmer, J. C., and Cyvin, S. J., Condensed aromatics. 15. Chrysene, *Z. Naturforsch. A* **37**, N 3, 251–258 (1982) (Eng) (P.A. **85**:64984).
237. Cyvin, B. N., and Cyvin, S. J., Condensed aromatics. 18. Azulene, *Spectrosc. Lett.* **15**, N 7, 549–555 (1982) (Eng).
238. Cyvin, B. N., and Cyvin, S. J., Condensed aromatics. Part 17. Mean amplitudes and perpendicular amplitude coefficients for anthracene, *Spectrosc. Lett.* **15**, N 7, 543–548 (1982) (Eng).
239. Cyvin, S. J., Molecular vibrations of condensed aromatic hydrocarbons, *J. Mol. Struct.* **79**, 423–442 (1982) (Eng) (P.A. **85**:75368).
240. Devlin, J. P., McKennis, J. S., Thornton, C., and Moore, J. C., Vibrational spectra of the benzene radical anion and the dianion of biphenyl, *J. Phys. Chem.* **86**, N 14, 2613–2616 (1982) (Eng).
241. Duignan, M. T., Garcia, D., and Grunwald, E., Infrared multiphoton absorption by medium-sized molecules in the gas phase. Hexafluorobenzene and 2,3-dihydropyran, *J. Amer. Chem. Soc.* **103**, N 24, 7281–7287 (1982) (Eng). (P.A. **85**:64970).
242. El'kin, M. D., Popov, A. F., and Sverdlov, L. M., A method for calculating the coefficients of the relationship between exact and approximate vibrational coordinates, *Opt. and Spektrosk.* **51**, N 2, 358–361 (1981) (Russ) (P.A. **85**:64955).
243. Epstein, L. M., Shubina, E. S., Ashkinadze, L. D., and Kazitsyna, L. A., Nitro group vibrations in spectra of nitroaromatic compounds with donor substituents, *Spectrochim. acta A* **38**, N 3, 317–322 (1982) (Eng).
244. Gadzhiev, A. Z., Manifestation of intermolecular vibrations in liquid media with large dipole moment in far IR region, *Zh. Fiz. Khim.* **56**, N 7, 1660–1664 (1982) (Russ).
245. Galabov, B., and Lozanova, C., Bond polar parameters from integrated infrared intensities in ethylene, allene, and benzene, *J. Chem. Phys.* **77**, N 6, 2793–2798 (1982) (Eng).
246. Gambi, A., Giorgianni, S., Passerini, A., Visinoni, R., and Ghersetti, S., Infrared spectrum and normal coordinate analysis of *p*-chloroacetophenone, *Spectrochim. acta A* **38**, N 8, 871–875 (1982) (Eng).
247. Gambi, A., Giorgianni, S., Passerini, A., and Ghersetti, S., Out-of-plane vibrations of benzene: a valence force field calculation using correct torsional coordinates, *Spectrosc. Lett.* **14**, N 10, 675–680 (1982) (Eng). (P.A. **85**:70219).
248. Gastilovich, E. A., Klimenko, V. G., and Mishenina, K. A., Calculation of out-of-plane vibrations of 9, 10-anthraquinone and xanthone molecules, *Zh. Fiz. Khim.* **56**, N 11, 2789–2793 (1982) (Russ).
249. Gierke, T. D., and Alms, G. R., Analysis of the depolarized Rayleigh light scattering spectrum of liquids composed of anisometric molecules: Nitrobenzene, *J. Chem. Phys.* **76**, N 10, 4809–4816 (1982) (Eng) (P.A. **85**:72513).

250. Gladkov, S. M., Karimov, M. G., and Koroteev, N. I., Strong nonlinearly-optical excitation of fully symmetrical vibrations of multiatomic molecules: Fermi resonance and other anharmonic interaction investigations, *Pis'ma v Zh. Eksp. and Teor. Fiz.* **35**, N 9, 381–383 (1982) (Russ) (P.A. **85**:80842).
251. Goel, R. K., and Agarwal, M. L., Electronic and vibrational spectra and thermodynamic functions of 3- and 4-methoxy benzonitriles, *Spectrochim. acta A* **38**, N 6, 583–590 (1982) (Eng). (P.A. **85**:75464).
252. Gribov, L. A., and Baranov, V. I., On the possibility of creation of a general semi-empirical theory of vibrational and electronic-vibrational spectra of polyatomic molecules, *Zh. Prikl. Spektrosk.* **37**, N 6, 1016–1022 (1982) (Russ).
253. Gribov, L. A., On the separation of motions in the theory of polyatomic molecular spectra, *THEOCHEM* **4**, N 2, 133–139 (1982) (Eng) (P.A. **85**:64947).
254. Gribov, L. A., Pavluchko, A. I., and Lozenko, G. F., Study of excited vibrational states of small polyatomic molecules, *Opt. and Spektrosk.* **53**, N 5, 812–816 (1982) (Russ).
255. Griffiths, A. M., and Freedman, P. A., Out-of-plane vibrations of isolated tetracene and pentacene molecules, *J. Chem. Soc. Faraday Trans. II* **78**, N 2, 391–398 (1982) (Eng) (P.A. **85**:75240).
256. Gunde, R., Felder, P., and Günthard, Hs. H., Consistent force field model treatment of the normal coordinate problem of matrix isolated molecules, *Chem. Phys.* **64**, N 3, 313–332 (1982) (Eng).
257. Halonen, L., Local mode vibrations in benzene. *Chem. Phys. Lett.* **87**, N 3, 221–225 (1982) (Eng) (P.A. **85**:59772).
258. Hiroike, E., Theory of indirect dephasing for a vibrating molecule in dense mediums. 1, *J. Phys. Soc. Jap.* **51**, N 3, 958–965 (1982) (Eng).
259. Hollas, J. M., Ridley, T., and Freedman, P. A., Rotational and vibrational temperatures of naphthalene in a naphthalene-argon supersonic jet, *Chem. Phys. Lett.* **92**, N 3, 317–321 (1982) (Eng).
260. Joshi, U. C., and Singh, R. N., Infrared absorption spectra of benzyl phenyl sulphide, dibenzyl disulphide and dibenzyl sulfoxide, *Indian J. Phys.* **54B**, N 6, 559–561 (1982) (Eng).
261. Kanesaka, I., Satozaki, Y., and Kawai, K., The analysis of the torsional structures of the $\text{CH}_3(\text{D}_3)$ asymmetric stretching vibrations of gaseous toluene, *J. Chem. Phys.* **76**, N 8, 3953–3955 (1982) (Eng) (P.A. **85**:70242).
262. Kartha, S. B., Vibrational spectra of 4-methyl and 5-methyl pyrimidine, *Spectrochim. acta A* **38**, N 8, 859–866 (1982) (Eng).
263. Kitai, M. S., Linear transitions to highly excited stretching vibrations of molecular groups, *Kvantovaya Elektron.* **9**, N 2, 308–315 (1982) (Russ).
264. Klessinger, M., and Zywiets, A., Methoxy group rotation in methoxyethene and methoxybenzene, *J. Mol. Struct.* **90**, N 3/4, 341–350 (1982) (Eng).
265. Kursky, A. N., Pentin, Yu. A., and Ul'yanova, O. D., Control of practical resolution of infrared spectrophotometers using solid Fabry–Perot units made of silicon and germanium, *Zh. Prikl. Spektrosk.* **37**, N 4, 676–678 (1982) (Russ).
266. Lugeza, M., and Kowski, A., Vibrational analysis of the first excited and ground states for PPO and α -NPO using Shpolskii, Raman and IR spectroscopy, *Acta phys. pol.* **A62**, N 5–6, 443–448 (1982) (Eng).
267. Makarov, A. A., and Tyakht, V. V., Spectra of infrared transitions between highly excited states of polyatomic molecules, *Zh. Eksp. and Teor. Fiz.* **83**, N 2, 502–515 (1982) (Russ) (P.A. **85**:70845).
268. Odínokov, S. E., Mashkovsky, A. A., and Tarankova, Z. A., The interrelation of infrared $\nu(\text{OH})$ bands parameters of pentachlorophenol *H*-complexes, *Zh. Prikl. Spektrosk.* **37**, N 3, 403–410 (1982) (Russ).
269. Odínokov, S. E., Mashkovsky, A. A., and Tarankova, Z. A., Study of the $\nu(\text{OH})$ band shape in IR-spectra of *H*-bonded complexes of pentachlorophenol, *Zh. Prikl. Spektrosk.* **37**, N 2, 284–290 (1982) (Russ).

270. Perry, J. W., and Zewail, A. H., Local modes: their relaxation, polarization, and stereoselective excitation by lasers, *J. Phys. Chem.* **86**, N 26, 5197–5205 (1982) (Eng) (P.A. 86:60691).
271. Rangacharyulu, M., and Premaswarup, D., Vibrational spectra of substituted toluenes, *Indian J. Phys.* **54B**, N 6, 567–570 (1980) (Eng).
272. Reddy, K. V., Heller, D. F., and Berry, M. J., Highly vibrationally excited benzene: Overtone spectroscopy and intramolecular dynamics of C_6H_6 , C_6D_6 , and partially deuterated or substituted benzenes, *J. Chem. Phys.* **76**, N 6, 2814–2837 (1982) (Eng) (P.A. 85:63769).
273. Riseman, S. M., Massoth, F. E., Dhar, G. M., and Eyring, E. M., Fourier transform infrared photoacoustic spectroscopy of pyridine adsorbed on silica-alumina and γ -alumina, *J. Phys. Chem.* **86**, N 10, 1760–1763 (1982) (Eng).
274. Rossi, M. J., and Barker, J. R., Infrared fluorescent and collisional energy transfer parameters for vibrationally excited azulene (S_0): dependence on internal energy (E_{vib}), *Chem. Phys. Lett.* **85**, N 1, 21–26 (1982) (Eng) (P.A. 85:34467).
275. Sage, M. L., and Jortner, J., Two-photon excitations of bond modes, *Chem. Phys.* **72**, N 3, 249–257 (1982) (Eng).
276. Sanyal, N. K., Srivastava, S. L., and Tripathi, S. R., Ultraviolet and infrared spectra of substituted indoles, *Spectrochim. acta* **38A**, N 8, 933–935 (1982) (Eng).
277. Sauvage, F.-X., De Backer, M. G., and Stymne, B., An infrared study of the complexing ability of manganese phthalocyanine, *Spectrochim. acta* **38A**, N 2, 281–288 (1982) (Eng).
278. Schlosser, D. W., Devlin, F., Jalkanen, K., and Stephens, P. J., Vibrational circular dichroism of matrix-isolated molecules, *Chem. Phys. Lett.* **88**, N 3, 286–291 (1982) (Eng).
279. Sharp, R. C., Yablonovitch, E., and Bloembergen, N., Picosecond infrared double resonance studies on pentafluorobenzene, *J. Chem. Phys.* **76**, N 5, 2147–2154 (1982) (Eng) (P.A. 85:59830).
280. Skalozub, A. S., and Tsaune, A. Ya., Vibrational-rotational Hamiltonian of polyatomic nonrigid molecules. General approach, *Opt. and Spektrosk.* **50**, N 3, 458–466 (1981) (Russ) (P.A. 85:34382).
281. Smalley, R. E., Vibrational randomization measurements with supersonic beams, *J. Phys. Chem.* **86**, N 18, 3504–3512 (1982) (Eng).
282. Starov, V., Selamoglu, N., and Steel, C., Infrared multiple-photon absorption in polyatomic molecules: silicon tetrafluoride, cyclobutanone, ammonia, and hexafluorobenzene, *J. Amer. Chem. Soc.* **103**, N 24, 7276–7281 (1981) (Eng) (P.A. 85:64969).
283. Sulkes, M., Jouvet, C., and Rice, S. A., Theoretical and experimental characterization of supersonic expansions from slit sources, *Chem. Phys. Lett.* **87**, N 6, 515–519 (1982) (Eng).
284. Suzuki, S., In-plane force field of pyridine: further refinement, *THEOCHEM*, **3**, N 4, 387–391 (1982) (Eng) (P.A. 85:49594).
285. Swarna Kumari, G., Ravindranath, K., Rajeswara Rao, N., First order approximation in Raman and infrared intensity analysis of molecules, *Indian J. Pure and Appl. Phys.* **20**, N 2, 167–168 (1982) (Eng).
286. Tien, H. L., Ryal, S. B., Gale, P. J., and Fenn, J. B., Clusters as a source of error in molecular beam scattering experiments, *Chem. Phys. Lett.* **93**, N 2, 213–216 (1982) (Eng).
287. Trokhimets, A. I., and Lysenko, G. N., IR spectroscopy study of pyridine forms hemisorbed on θ - Al_2O_3 , *Zh. Prikl. Spektrosk.* **36**, N 1, 49–54 (1982) (Russ).
288. Tsaune, A. Ya., Relationship between linear internal coordinates of molecular isotopic species. A new type of isotope-invariant coordinates, *Opt. and Spektrosk.* **53**, N 4, 660–665 (1982) (Russ).
289. Upadhyay, A. P., and Upadhyay, K. N., Vibrational assignments of some dihalogeno-nitrobenzenes, *Indian J. Phys.* **55A**, N 3, 213–219 (1981) (Eng).

290. Van Roosmalen, O. S., Dieperink, A. E. L., and Iachello, F., A dynamic algebra for rotation-vibration spectra of complex molecules, *Chem. Phys. Lett.* **85**, N 1, 32–36 (1982) (Eng).
291. Yadav, R. A., Shyampati, Singh, N. P., and Singh, I. S., Raman and infrared spectra of 1,3-bis(trifluoromethyl) benzene, *Indian J. Pure and Appl. Phys.* **20**, N 8, 674–676 (1982) (Eng).
292. Yadav, R. A., and Singh, I. S., Raman and infrared spectra of 3-fluoro-trifluoromethyl benzene, *Indian J. Pure and Appl. Phys.* **20**, N 8, 677–680 (1982) (Eng).
293. Zhilyakov, A. S., and Ulenikov, O. N., Transformation to intermolecular coordinates of the Hamiltonian for a high-amplitude oscillating molecule, *Izv. FIZ. N 10*, 44–48 (1982) (Russ).

3.6. Raman spectra

294. Aahse, A. J., III, Jones, G. L., and Miller, F. A., The infrared and Raman spectra of phosphabenzene and arsabenzene, *J. Mol. Struct.* **78**, N 3–4, 169–183 (1982) (Eng) (P.A. 85:51573).
295. Aroca, R., DiLella, D. P., and Loutfy, R. O., Raman spectra of solid films. 1. Metal-free phthalocyanine, *J. Phys. and Chem. Solids* **43**, N 8, 707–711 (1982) (Eng).
296. Baranov, A. V., and Bobovich, Ya. S., “Gigantic Raman scattering” of higher orders, *Pis'ma v Zh. Eksp. and Teor. Fiz.* **35**, N 4, 149–150 (1982) (Russ).
297. Baranov, A. V., and Bobovich, Ya. S., “Gigantic Raman scattering” as structural-analytical method for substance studies, *Opt. and Spektrosk.* **52**, N 3, 385–387 (1982) (Russ).
298. Baranov, A. V., and Bobovich, Ya. S., and Ermolaev, V. L., Simple technique to obtain resonance Raman spectra of molecules in triplet states and its application, *Opt. and Spektrosk.* **52**, N 3, 466–473 (1982) (Russ).
299. Beck, S. M., and Brus, L. E., The resonance Raman spectra of aqueous phenoxo and phenoxy- d_5 radicals, *J. Chem. Phys.* **76**, N 10, 4700–4704 (1982) (Eng) (P.A. 85:70254).
300. Bekkiev, A. Yu., Devyatov, A. A., and Fadeev, V. V., Resonance CARS of organic dye solutions, *Dokl. Akad. Nauk SSSR* **264**, N 1, 82–86 (1982) (Russ).
301. Bobovich, Ya. S., and Petrov, V. I., Some properties, formation and interpretation of resonance stimulated Raman scattering in dyes, *Zh. Prikl. Spektrosk.* **37**, N 6, 971–981 (1982) (Russ).
302. Bree, A., Zwarich, R., and Taliani, C., Raman excitation profiles for some A_g modes of biphenyl in the pre-resonance region, *Chem. Phys.* **70**, N 3, 257–267 (1982) (Eng).
303. Creighton, J. A., Raman spectroscopy of adsorbates at metal surfaces. In: *Vibrational spectroscopy of adsorbates*. R. F. Willis, Ed. Berlin, Germany: Springer-Verlag, 145–164 (1980) (Eng) (P.A. 85:41371).
304. Egorov, V. S., and Chekhonin, I. A., Resonance Raman-scattering effects in the intracavity spectroscopy experiments, *Opt. and Spektrosk.* **53**, N 5, 784–786 (1982) (Russ).
305. Godfried, H. P., and Silvera, I. F., Raman spectroscopy of argon dimers, *Phys. Rev. Lett.* **48**, N 19, 1337–1340 (1982) (Eng) (P.A. 85:70265).
306. Goel, R. K., and Atreya, C. P., Laser Raman spectra and thermodynamic functions of 3-amino-2-chloropyridine, *Indian J. Pure and Appl. Phys.* **20**, N 7, 598–600 (1982) (Eng).
307. Guidotti, D., Driscoll, T. A., and Gerritsen, H. J., Coherent Raman scattering in liquid benzene from symmetric ring vibrations in the ${}^1B_{2u}$ electronic state excited by two-photon absorption, *J. Chem. Phys.* **77**, N 9, 4304–4311 (1982) (Eng).

308. Hester, R. E., and Williams, K. P. J., Free radical studies by resonance Raman spectroscopy. The 5, 10-dihydrophenazine and 5-methyl-10-hydrophenazine radical cations, *J. Raman Spectrosc.* **13**, N 1, 91–95 (1982) (Eng).
309. Houben, J. L., Masetti, G., Campani, E., and Gorini, G., Raman excitation profiles of trans-azobenzene in the 361 to 494 nm wavelength range by means of a pulsed dye laser source, *J. Raman Spectrosc.* **13**, N 1, 15–20 (1982) (Eng).
310. Howard, M. W., and Cooney, R. P., Surface-enhanced Raman spectra of benzene at silver electrodes, *Chem. Phys. Lett.* **87**, N 3, 299–304 (1982) (Eng).
311. Hu, C.-K., and Huang, C.-Y., Cooperative effects in Raman scattering, *Opt. Commun.* **43**, N 6, 395–400 (1982) (Eng).
312. Huber-Wälichli, P., and Nibler, J. W., CARS spectroscopy of molecules in supersonic free jets, *J. Chem. Phys.* **76**, N 1, 273–284 (1982) (Eng).
313. Jung, Ch., Lau, A., Weigmann, H.-J., Werncke, W., and Pfeiffer, M., Interpretation of resonance CARS and Shpolskii spectra with calculated molecular geometries, vibrational frequencies and relative intensities: chrysene in its lowest excited singlet and triplet state, *Chem. Phys.* **72**, N 3, 327–336 (1982) (Eng).
314. Kataeva, L. M., Shagidullin, R. R., Olifirenko, I. V., Ashrafullina, L. Kh., Shakirov, I. Kh., and Kataev, E. G., The effect of intramolecular interactions in Raman spectra of aromatic disulfides and diselenides, *Zh. Prikl. Spektrosk.* **36**, N 6, 954–958 (1982) (Russ).
315. Krasser, W., and Renouprez, A. J., Enhanced Raman scattering of benzene chemisorbed on small platinum clusters, *Solid State Commun.* **41**, N 3, 231–235 (1982) (Eng) (P.A. **85**:41365).
316. Krasser, W., Kettler, U., and Bechthold, P. S., Luminescence and enhanced Raman spectra of pure and pyridine-bonded small silver clusters, *Chem. Phys. Lett.* **86**, N 3, 223–227 (1982) (Eng).
317. Li, F., Lee, J., and Bernstein, E. R., Absorption and emission spectroscopy of benzene in cryogenic solutions. An estimate of the intermolecular potential, *J. Phys. Chem.* **86**, N 18, 3606–3611 (1982) (Eng).
318. Likholt, N. I., Strizhevsky, V. L., Shukirov, Zh., and Yashkir, Yu. N., Active spectroscopy of four-photon Raman scattering of light, *Opt. and Spektrosk.* **52**, N 1, 84–87 (1982) (Russ).
319. Lugeza, M., and Kowski, A., Vibrational analysis of the first excited and ground states for PPO and α -NPO using Shpolskii, Raman and IR spectroscopy, *Acta Phys. pol.* **A62**, N 6, 443–448 (1982) (Eng).
320. Lukashin, A. V., Effect of a low-lying electronic state on the excitation profile of resonance Raman spectral lines, *Opt. and Spektrosk.* **53**, N 5, 817–822 (1982) (Russ) (P.A. **86**:85480).
321. Lukashin, A. V., and Frank-Kamenetskii, M. D., The effect of inhomogeneous broadening on the absorption spectra and excitation profiles of resonance Raman and coherent anti-stokes Raman scattering of polyatomic molecules, *J. Raman Spectrosc.* **12**, N 3, 234–237 (1982) (Eng) (P.A. **85**:85672).
322. Lukashin, A. V., On the effect of environment inhomogeneity on the polyatomic-molecule resonance Raman scattering spectra, *Opt. and Spektrosk.* **52**, N 6, 1004–1010 (1982) (Russ).
323. Lund, P. A., Smardzewski, R. R., and Tevault, D. E., Surface-enhanced Raman spectra of benzene and benzene- d_6 on vapor-deposited sodium, *Chem. Phys. Lett.* **89**, N 6, 508–510 (1982) (Eng).
324. Nimmo, J. A., Brown, D. H., and Smith, W. E., The effect of silver on the Raman spectrum of α -copper phthalocyanine, *Chem. Phys. Lett.* **92**, N 2, 212–214 (1982) (Eng).
325. Petrov, V. I., and Bobovich, Ya. S., On the line shape of anti-stokes stimulated Raman scattering in organic-dye solutions, *Opt. and Spektrosk.* **53**, N 3, 577–579 (1982) (Russ).

326. Pockrand, I., Raman spectroscopy of pyridine-exposed Ag, Cu and Au films in UHV. A comparative study, *Chem. Phys. Lett.* **85**, N 1, 37–42 (1982) (Eng).
327. Reimschuessel, W., Abramczyk, H., Baranska, H., and Labudzinska, A., Raman scattering study of toluene vibrational relaxation in benzene-toluene liquid system, *Chem. Phys.* **72**, N 3, 313–319 (1982) (Eng).
328. Seki, H., and Chuang, T. J., The detection by SERS of resonantly excited desorption of pyridine from silver island films by IR laser absorption, *Solid State Commun.* **44**, N 4, 473–475 (1982) (Eng).
329. Sharma, S. N., Infrared and laser Raman spectra of *m*- and *p*-methyl anisoles, *Acta Phys. Pol.* **A62**, N 5–6, 449–456 (1982) (Eng).
330. Stanton, S. G., and Pecora, R., Resonance enhanced dynamic Rayleigh scattering, *J. Chem. Phys.* **75**, N 12, 5615–5626 (1981) (Eng) (P.A. **85**:34419).
331. Swarna Kumari, G., Ravindranath, K., and Rajeswara Rao, N., First order approximation in Raman and infrared intensity analysis of molecules, *Indian J. Pure and Appl. Phys.* **20**, N 2, 167–168 (1982) (Eng).
332. Takahashi, H., Umemura, J., and Takenaka, T., Resonance Raman spectra and micellization of a surface-active azo dye in aqueous solutions, *J. Phys. Chem.* **86**, N 24, 4660–4664 (1982) (Eng).
333. Takahashi, H., Kobayashi, Y., Kaneko, N., Igarashi, T., and Yagi, I., Resonance Raman spectra of short-lived species of photochromic 2- and 4-(2', 4'-dinitrobenzyl)pyridine, *J. Raman Spectrosc.* **12**, N 2, 125–129 (1982) (Eng) (P.A. **85**:72489).
334. Takemura, T., Fujita, M., and Baba, H., Resonance Raman spectra of the excited triplet state of naphthalene, *Chem. Phys. Lett.* **91**, N 5, 390–392 (1982) (Eng).
335. Tanabe, K., Raman linewidth study of rotational motion of benzene in aqueous solution, *spectrochim. acta* **38A**, N 1, 119–121 (1982) (Eng) (P.A. **85**:41364).
336. Tsang, J. C., Kirtley, J. R., and Theis, T. N., Long and short range effects in surface enhanced Raman scattering, *J. Chem. Phys.* **77**, N 2, 641–645 (1982) (Eng).
337. Yadav, R. A., Shyampati, Singh, N. P., and Singh, I. S., Raman and infrared spectra of 1,3-bis(trifluoromethyl) benzene, *Indian J. Pure and Appl. Phys.* **20**, N 8, 674–676 (1982) (Eng).
338. Yadav, R. A., and Singh, I. S., Raman and infrared spectra of 3-fluoro-trifluoromethyl benzene, *Indian J. Pure and Appl. Phys.* **20**, N 8, 677–680 (1982) (Eng).
339. Yamada, H., Yamamoto, Y., and Tani, N., Surface-enhanced Raman scattering (SERS) of adsorbed molecules on smooth surfaces of metals and a metal oxide, *Chem. Phys. Lett.* **86**, N 4, 397–400 (1982) (Eng).
340. Yokoyama, K., and Kobayashi, T., Photochromism of 2-(2', 4'-dinitrobenzyl) pyridine in solution studied by time-resolved resonance Raman spectroscopy, *Chem. Phys. Lett.* **85**, N 2, 175–178 (1982) (Eng).
341. Zabokrycka, A., Klæboe, P., Cyvin, B. N., Cyvin, S. J., and Brunvoll, J., 1-phenylazo-2-naphthylamine complex compounds: infrared and Raman spectra of 1-phenylazo-2-naphthylamine and empirical assignment of i.r. spectra of bis (1-phenylazo-2-naphthylaminato) nickel (II) complex, *Spectrochim. Acta* **38A**, N 3, 357–361 (1982) (Eng).
342. Zgierski, M. Z., and Pawlikowski, M., Depolarization dispersion curves of resonance Raman fundamentals of metalloporphyrins and metallophthalocyanines subject to asymmetric perturbations, *Chem. Phys.* **65**, N 3, 335–367 (1982) (Eng).
343. Zgierski, M. Z., Influence of inhomogeneous broadening on resonance Raman characteristics of metalloporphyrins and metallophthalocyanines, *Chem. Phys.* **65**, N 3, 369–382 (1982) (Eng).
344. Zheng, Z., Higuchi, S., and Tanaka, S., Raman scattering intensities of the NO₂ symmetric stretching vibration band of some aromatic nitrocompounds, *Spectrosc. Lett.* **15**, N 9, 773–787 (1982) (Eng).

3.7. Fluorescence

345. Abe, H., Mikami, N., Ito, M., and Udagawa, Y., Dispersed fluorescence spectra of hydrogen-bonded phenols in a supersonic free jet, *J. Phys. Chem.* **86**, N 14, 2567–2569 (1982) (Eng).
346. Abe, H., Mikami, N., and Ito, M., Fluorescence excitation spectra of hydrogen-bonded phenols in a supersonic free jet, *J. Phys. Chem.* **86**, N 10, 1768–1771 (1982) (Eng).
347. Agresti, A., Bacci, M., Castellucci, E., and Salvi, P. R., Fluorescence spectrum of 2, 2'-bipyridine. The role of associate formation and rotational isomerism, *Chem. Phys. Lett.* **89**, N 4, 324–328 (1982) (Eng) (P.A. **85**:90604).
348. Akimov, A. N., Voropai, E. S., Gachko, G. A., Kivach, L. N., Koyava, V. T., Maskevich, S. A., Sarzhevsky, A. M., and Sharonov, G. V., High-sensitivity method of measurement of quantum yield and fluorescence spectra of solutions with phosphorescence, *Zh. Prikl. Spektrosk.* **36**, N 4, 692 (1982) (Russ).
349. Amirav, A., Even, U., and Jortner, J., Spectroscopy of the fluorene molecule in planar supersonic expansions, *Chem. Phys.* **67** N 1, 1–6 (1982) (Eng.) (P.A. **85**:70322).
350. Andre, J. C., Kawenoki, I., Kossanyi, J., and Valat, P., Problems arising during the determination of the lifetime of electronically excited molecules by fluorescence inhibition techniques under continuous excitation, *J. Photochem.* **19**, N 2, 139–150 (1982) (Eng).
351. Aniyalg, A. O., Saari, P. M., Tamm, T. B., Timpmann, K. E., and Freiberg, A. M., Spectrochronography of hot luminescence as a method for studying picosecond relaxation in molecular systems, *Kvantovaya Elektron.* **9**, N 12, 2449–2454 (1982) (Russ) (P.A. **86**:80277).
352. Anoshin, A. N., Kopteva, T. S., Mikhailova, K. V., Shapiro, I. O., and Shigorin, D. N., A study of fluorescence and IR spectra of naphthazarin- d_2 , *Zh. Fiz. Khim.* **56**, N 8, 1992–1995 (1982) (Russ).
353. Arbeloa, I. L., Fluorescence self-quenching of halofluorescein dyes, *J. Photochem.* **18**, N 2, 161–168 (1982) (Eng).
354. Artyukhov, V. Ya., Kuznetsova, R. T., and Fofonova, R. M., The effect of protonation on luminescent characteristics of xanthene dyes, *Zh. Prikl. Spektrosk.* **37**, N 4, 576–580 (1982) (Russ).
355. Benthem, L., Koehorst, R. B. M., and Schaafsma, T. J., Fluorescence response to triplet state populations in porphyrins, *J. Mol. Struct.* **79**, 455–460 (1982) (Eng) (P.A. **85**:75349).
356. Bogdanov, V. L., and Klochkov, V. P., Effect of temperature and medium on 1, 2-benzanthracene secondary emission under the excitation of higher electronic states, *Opt. and Spektrosk.* **52**, N 1, 71–78 (1982) (Russ).
357. Bogdanov, V. L., and Klochkov, V. P., Nature of short-wave-length bands in secondary-emission spectra of organic molecules under stepwise excitation of higher electronic states, *Opt. and Spektrosk.* **53**, N 6, 1005–1010 (1982) (Russ).
358. Bogdanov, V. L., and Klochkov, V. P., Nuclear motion randomization and hot luminescence spectra of complex molecules, *Opt. and Spektrosk.* **53**, N 3, 394–396 (1982) (Russ).
359. Bogdanov, V. L., and Klochkov, V. P., Study of nature of radiation from high electronic states, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 367–372 (1982) (Russ).
360. Borisevich, N. A., and Gruzinskii, V. V., Luminescence of free complex molecules under electric excitation, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 399–405 (1982) (Russ).
361. Borisevich, N. A., Bubekov, Yu. I., Pavlova, V. T., and Tolstorozhev, G. B., Peculiarities of luminescence of pyrene free molecules, *Opt. and Spektrosk.* **52**, N 6, 1011–1015 (1982) (Russ).
362. Burkhart, R. D., and Abba, A. A., Time-resolved anisotropy of delayed luminescence. 1, 2-benzanthracene in polystyrene matrices, *J. Phys. Chem.* **86**, N 4, 468–472 (1982) (Eng) (P.A. **85**:85728).

363. Capomacchia, A. C., White, F. L., and Sobol, T. L., Solvent effects on the fluorescence of benzo (a)pyrene and its 9- and 3-hydroxy derivatives, *spectrochim. acta* **38A**, N 5, 513–521 (1982) (Eng) (P.A. **85**:70330).
364. Carter, T. P., and Gillispie, G. D., Site-selected fluorescence study of anthracene and its halogenated derivatives in Shpol'skii matrices, *J. Phys. Chem.* **86**, N 14, 2691–2695 (1982) (Eng).
365. Castellucci, E., Salvi, P. R., and Foggi, P., Two-photon excitation spectra of the lowest electronic states of 2,2'-bipyridine, *Chem. Phys.* **66**, N 3, 281–291 (1982) (Eng) (P.A. **85**:70237).
366. Cherkasov, A. S., Veselova, T. V., Viktorova, E. N., Obyknovennaya, I. E., and Snegov, M. I., Peculiarities of organoluminophor luminescence in water-micellar solutions, *Izv. Akad. Nauk SSSR. Ser. Fiz.* **46**, N 2, 311–317 (1982) (Russ).
367. Czajko, J., and Kozma, L., Effect of binary solvent upon the luminescence properties of 4-methyl-7-diethylaminocoumarine, *Acta phys. et chem.* **27**, N 1–4, 9–15 (1981) (Eng).
368. Danchinov, K. M., Gastilovich, E. A., Rodionov, A. N., and Shigorin, D. N., Electron-vibrational luminescence spectra of dibenzofuran solution at 4.2 K, *Zh. Fiz. Khim.* **56**, N 12, 3041–3045 (1982) (Russ).
369. Dorokhin, A. V., and Kotov, A. A., Kinetics of sensitized annihilation delayed anthracene fluorescence in a gas phase, *Dokl. Akad. Nauk BSSR* **26**, N 6, 492–495 (1982) (Russ).
370. Dudkiewicz, J., Self-depolarization in fluorescent liquid solutions, *Acta phys. et chem.* **27**, N 1–4, 17–24 (1981) (Eng).
371. Ermolaev, V. L., Kotlyar, I. P., Lyubimtsev, V. A., and Maslov, V. G., Application of modulation-polarization method to study fluorescence from higher singlet excited electronic states, *Opt. and Spektrosk.* **52**, N 1, 3–5 (1982) (Russ).
372. Etaiw, S. H., Abou Sekkina, M. M., El-Hefnawey, G. B., and Assar, S. S., Spectral behaviour and solvent effects of some aminoanthraquinone dyes, *Can. J. Chem.* **60**, N 3, 304–316 (1982) (Eng) (P.A. **85**:75302).
373. Even, U., Magen, J., Jortner, J., Friedman, J., and Levanon, H., Isolated ultracold porphyrins in supersonic expansions. 1. Free-base tetraphenylporphyrin and Zn-tetraphenylporphyrin, *J. Chem. Phys.* **77**, N 9, 4374–4383 (1982) (Eng).
374. Even, U., Magen, J., Jortner, J., and Friedman, J., Isolated ultracold porphyrins in supersonic expansions. 2. Zn-tetrabenzoporphyrin, *J. Chem. Phys.* **77**, N 9, 4384–4390 (1982) (Eng).
375. Even, U., and Jortner, J., Isolated ultracold porphyrins in supersonic expansions. 3. Free-base porphine, *J. Chem. Phys.* **77**, N 9, 4391–4399 (1982) (Eng).
376. Felder, T. C., Choi, K.-J., and Topp, M. R., Picosecond observation of fluorescence from B_u states of diphenylpolyenes, *Chem. Phys.* **64**, N 2, 175–182 (1982) (Eng).
377. Felker, P. M., Lambert, Wm. R., and Zewail, A. H., Picosecond excitation of jet-cooled pyrazine: Magnetic field effects on the fluorescence decay and quantum beats, *Chem. Phys. Lett.* **89**, N 4, 309–314 (1982) (Eng) (P.A. **85**:90601).
378. Feltelson, J., and Mauzerall, D., Reactions of triplet states of a porphyrin measured by delayed fluorescence, *J. Phys. Chem.* **86**, N 9, 1623–1628 (1982) (Eng).
379. Friedrich, J., and Haarer, D., Transient features of optical bleaching as studied by photochemical hole burning and fluorescence line narrowing, *J. Chem. Phys.* **76**, N 1, 61–68 (1982) (Eng).
380. Galanin, M. D., and Chizhikova, Z. A., Luminescence from the second excited electron level of rhodamine 6G molecules and its applications, *Zh. Prikl. Spektrosk.* **37**, N 6, 1010–1015 (1982) (Russ).
381. Ghosh, S., and Chowdhury, M., $S_1(n, \pi^*)$, $T_1(n, \pi^*)$ and $S_2(n, \pi^*)$ emissions in 3, 6-diphenyl-s-tetrazine, *Chem. Phys. Lett.* **85**, N 2, 233–238 (1982) (Eng) (P.A. **85**:34469).

382. Gorbatshev, S. K., Gulis, I. M., Komyak, A. I., and Miksyuk, Yu. I., Peculiarities of spectral-kinetic characteristics of delayed fluorescence of complex molecules under the conditions of inhomogeneous broadening of energy levels, *Zh. Prikl. Spektrosk.* **37**, N 1, 92–97 (1982) (Russ).
383. Gorbatshev, S. K., Gulis, I. M., and Komyak, A. I., Theoretical investigation of the inhomogeneous level broadening effect on spectral-kinetic characteristics of delayed luminescence of solid polar solutions of complex molecules, *Zh. Prikl. Spektrosk.* **37**, N 2, 309–316 (1982) (Russ).
384. Gurinovich, G. P., and Salokhiddinov, K. I., Luminescence of singlet oxygen generated in fluorescence quenching of aromatic molecules in solution, *Chem. Phys. Lett.* **85**, N 1, 9–11 (1982) (Eng) (P.A. **85**:34466).
385. Gurinovich, G. P., Oxygen, its luminescence and influence on luminescence of organic molecules, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 362–366 (1982) (Russ).
386. Haken, H., Fundamental theoretical aspects of luminescence, *J. Lumin.* **24–25**, pt. 1, 21 (1981) (Eng) (P.A. **85**:46655).
387. Ibraev, N. Kh., Ketsle, G. A., Levshin, L. V., Soinikov, Yu. A., and Yuzhakov, V. I., Annihilation-induced delayed fluorescence of eosin and rhodamine 6G in polyvinyl alcohol films, *Zh. Prikl. Spektrosk.* **36**, N 5, 750–755 (1982) (Russ) (P.A. **86**:60823).
388. Iton, K., and Honda, K., Sensitized delayed fluorescence of rubrene. Large temperature dependence of triplet lifetime of rubrene, *Chem. Phys. Lett.* **87**, N 2, 213–216 (1982) (Eng).
389. Ketsle, G. A., Levshin, L. V., and Soinikov, Yu. A., Effect of a heavy atom on thermally stimulated delayed fluorescence and phosphorescence of xanthene dyes, *Opt. and Spektrosk.* **52**, N 4, 657–662 (1982) (Russ).
390. Klimenko, V. G., Shigorin, D. N., Andrievskii, A. M., Sakhno, G. V., and Valkova, G. A., Vibrational structure of quasilinear luminescence spectra of solid solutions of *N*-methyl phenanthridone and 3, 4-benzocoumarin molecules, *Zh. Fiz. Khim.* **56**, N 2, 460–462 (1982) (Russ).
391. Klots, C. E., Non-maxwellian velocity distributions and molecular beam intensities in sonic nozzle expansions, *Chem. Phys.* **67**, N 1, 75–81 (1982) (Eng).
392. Kostko, M. Ya., Relative modulation method error for fluorescence measurement, *Zh. Prikl. Spektrosk.* **36**, N 4, 680–683 (1982) (Russ).
393. Laha, S., Chakravorti, S., Ganguly, T., and Banerjee, S. B., Fluorescence spectra of some xlenols in non-polar and hydrogen-bond acceptor solvents at different temperatures, *Chem. Phys. Lett.* **85**, N 3, 350–353 (1982) (Eng).
394. Lam, K.-S., and George, T. F., Semiclassical approach to spontaneous emission of molecular collision systems: a dynamical theory of fluorescence line shapes, *J. Chem. Phys.* **76**, N 7, 3396–3413 (1982) (Eng) (P.A. **85**:70380).
395. Leugers, M. A., and Seliskar, C. J., The rotation-torsion contour of the 2668 Å origin band of toluene. Calculation of the molecular beam fluorescence excitation spectrum, *J. Mol. Spectrosc.* **91**, N 1, 209–217 (1982) (Eng) (P.A. **85**:49495).
396. Levshin, L. V., Reva, M. G., Ryzhikov, B. D., and Stal'makhovich, S. I., On the differences of absorption and excitation spectra of dye-stuff solutions, *Vestn. Mosk. Univ. Fiz., Astron.* **23**, N 4, 7–9 (1982) (Russ).
397. Lianos, P., Fluorescence probe study of the interaction between pyrene and microemulsion-polymerized styrene, *J. Phys. Chem.* **86**, N 11, 1935–1937 (1982) (Eng).
398. Löfroth, J.-E., and Almgren, M., Quenching of pyrene fluorescence by alkyl iodides in sodium dodecyl sulfate micelles, *J. Phys. Chem.* **86**, N 9, 1636–1641 (1982) (Eng).
399. Maier, G. V., and Shcherbina, V. P., Theoretical study of spectral-luminescent properties of paraterphenyl in different phases, *Opt. and Spektrosk.* **52**, N 6, 1068–1070 (1982) (Russ).

400. Mchedlov-Petrosyan, N. O., Influence of inorganic salts on spectra of rhodamine B in water solutions, *Zh. Fiz. Khim.* **56**, N 1, 94–98 (1982) (Russ).
401. Mirumyants, S. O., Quasi-linear fluorescence spectra of complex molecules in gas phase, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 330–337 (1982) (Russ).
402. Morales, R. G. E., and Traverso, G., Indirect determination of electronic transition frequencies of coronene, triphenylene and 1,2,5,6-dibenzanthracene in the vapor phase, *Spectrosc. Lett.* **15**, N 8, 623–629 (1982) (Eng).
403. Nickel, B., and Roden, G., Delayed fluorescence from the lowest $^1B_{3u}^+$ state of anthracene, due to hetero-triplet-triplet annihilation of 3 anthracene and 3 xanthone, *Chem. Phys.* **66**, N 3, 365–376 (1982) (Eng) (P.A. **85**:70321).
404. Nizamov, N., Zakhidov, U., Atakhodzhaev, A. K., Ishchenko, A. A., and Mushkalo, I. L., Spectral-luminescent properties of cyanine dyes in solutions and polymers, *Zh. Prikl. Spektrosk.* **36**, N 3, 422–430 (1982) (Russ).
405. O'Brien, J. J., Horne, M. D., Selinger, B. K., and Henry, B. R., Position dependent deuterium effects on the vapor phase fluorescence lifetimes of tetradeuterophenanthrenes, *Chem. Phys.* **68**, N 1, 2, 123–128 (1982) (Eng) (P.A. **85**:85725).
406. O'Connor, D. V., Sumitani, M., Morris, J. M., and Yoshihara, K., Non-exponential picosecond fluorescence decay in isolated pentafluorobenzene and hexafluorobenzene, *Chem. Phys. Lett.* **93**, N 4, 350–354 (1982) (Eng).
407. Okajima, S., Saigusa, H., and Lim, E. C., Quantum beats in the fluorescence of jet-cooled diazabenzenes, *J. Chem. Phys.* **76**, N 4, 2096–2098 (1982) (Eng) (P.A. **85**:59846).
408. Okamura, T., Charlton, T. R., and Thrush, B. A., Laser-induced fluorescence of benzyl radicals in the gas phase, *Chem. Phys. Lett.* **88**, N 4, 369–371 (1982) (Eng) (P.A. **85**:80702).
409. Politis, T. G., and Drickamer, H. G., High pressure luminescence of metalloporphyrins in liquid solution, *J. Chem. Phys.* **76**, N 1, 285–291 (1982) (Eng).
410. Queisser, H. J., Luminescence, review and survey, *J. Lumin.* **24–25**, pt. 1, 3–10 (1981) (Eng) (P.A. **85**:46664).
411. Rebane, K. K., Some problems of classification of second radiation, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 217–225 (1982) (Russ).
412. Rogozhin, K. L., Rodionov, A. N., and Shigorin, D. N., Electron-vibrational spectrum of luminescence of 1,4-anthraquinone in vapour phase, *Zh. Fiz. Khim.* **56**, N 11, 2867–2870 (1982) (Russ).
413. Rossi, M. J., and Barker, J. R., Infrared fluorescent and collisional energy transfer parameters for vibrationally excited azulene* (S_0): dependence on internal energy (E_{vib}), *Chem. Phys. Lett.* **85**, N 1, 21–26 (1982) (Eng) (P.A. **85**:34467).
414. Sapozhnikov, M. N., and Alekseev, V. I., Structural luminescence spectra of biogenous porphyrins under selective laser excitation and dependence of this effect on excitation wavelength, *Chem. Phys. Lett.* **87**, N 5, 487–490 (1982) (Eng).
415. Schwarz, F. P., and Mautner, M., Photoionization of liquid benzene: fluorescence and electron scavenger quenching between 1900 and 1150 Å, *Chem. Phys. Lett.* **85**, N 2, 239–244 (1982) (Eng) (P.A. **85**:34503).
416. Shimizu, Y., and Azumi, T., Mechanism of external heavy atom effect on intersystem crossing in fluid solutions. Analysis based on fluorescence decay data, *J. Phys. Chem.* **86**, N 1, 22–26 (1982) (Eng).
417. Slobodyanic, V. V., Faidysh, A. N., Yashchuk, V. N., and Fedorova, L. N., Luminescence and electronic excitation energy transfer in nitrated poly-N-vinylcarbazole, *Ukr. Fiz. Zh.* **27**, N 4, 506–513 (1982) (Russ).
418. Solov'ev, K. N., Stanishevsky, I. V., Starukhin, A. S., and Shul'ga, A. M., Dependence of the selectively excited fine structure fluorescence spectra of organic molecules upon the wavelength of the exciting radiation, *Opt. and Spektrosk.* **53**, N 3, 389–392 (1982) (Russ).
419. Studenov, V. I., Pitskaya, I. V., and Bakhshiev, N. G., Influence of temperature and solvent aggregate-state on fluorescence spectra of concentrated solutions of complex organic compounds, *Opt. and Spektrosk.* **52**, N 1, 79–83 (1982) (Russ).

420. Syage, J. A., Lambert, Wm. R., Felker, P. M., Zewail, A. H., and Hochstrasser, R. M., Picosecond excitation and trans-cis isomerization of stilbene in a supersonic jet: dynamics and spectra, *Chem. Phys. Lett.* **88**, N 3, 266–270 (1982) (Eng) (P.A. 85:83347).
421. Tsuchiya, S., Kanai, H., and Seno, M., Oscillatory behavior in fluorescence intensity from irradiated sodium dodecyl sulfate micellar solutions of zinc porphyrin, *J. Amer. Chem. Soc.* **103**, N 24, 7370–7371 (1981) (Eng) (P.A. 85:65038).
422. Tumaev, E. N., Luminescence spectrum in the model of configuration curves, *Opt. and Spektrosk.* **50**, N 3, 475–478 (1981) (Russ) (P.A. 85:36688).
423. Tway, P. C., and Love, L. J. C., Linear solvation energy relationships. Solvent effects on the fluorescence of thiabendazole homologues, *Chem. Phys. Lett.* **87**, N 2, 204–207 (1982) (Eng) (P.A. 85:59840).
424. Vasiliev, R. F., Excitation mechanisms of chemical luminescence, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 323–329 (1982) (Russ).
425. Venediktov, E. A., and Krasnovsky, A. A., Jr., Generation and quenching of singlet-molecular-oxygen luminescence by anthraquinone dyes, *Opt. and Spektrosk.* **52**, N 3, 567–569 (1982) (Russ).
426. Viktorova, E. N., Veselova, T. V., Snegov, M. I., and Cherkasov, A. S., Spectral-luminescent properties of phthalimides in sodium-dodecylsulphate aqueous-micellar solutions, *Opt. and Spektrosk.* **53**, N 2, 252–257 (1982) (Russ).
427. Villaeys, A. A., and Klein, G., Effects of the dephasing processes on fluorescence, *Chem. Phys. Lett.* **90**, N 2, 85–89 (1982) (Eng).
428. Vogt, B. S., and Schulman, S. G., Anomalous fluorescence of 9-aminofluorene, *Chem. Phys. Lett.* **89**, N 4, 320–323 (1982) (Eng).
429. Voropai, E. S., Kirsanov, A. A., Saechnikov, V. A., and Sarzhovsky, A. M., Investigation of spectral characteristics of luminescence of solutions of complex molecules by means of light quenching, *Zh. Prikl. Spektrosk.* **36**, N 2, 230–236 (1982) (Russ).
430. Wilhelmi, B., Influence of solvent viscosity on excited state lifetime and fluorescence quantum yield of dye molecules, *Chem. Phys.* **66**, N 3, 351–355 (1982) (Eng) (P.A. 85:70320).
431. Willems, P., Hulsman, H., and Aerts, F., On the use of laser-induced fluorescence to study free-jet expansions, *Chem. Phys.* **71**, N 1, 27–39 (1982) (Eng).
432. Wunsch, L., Neusser, H. J., and Schlag, E. W., Fluorescence from high vibronically excited benzene: a 'channel three' problem, *Z. Naturforsch. A* **36**, N 12, 1340–1343 (1981) (Eng) (P.A. 85:39443).
433. Yaaniso, R., and Kikas, Ya., The effect of hole burning on selectively excited spectra, *Toim. Eesti NSV Tead. Akad. Fuus. Mat.* **30**, N 3, 245–255 (1981) (Eng) (P.A. 85:36702).
434. Zemskii, V. I., Meshkovskii, I. K., and Sechkarev, A. V., The spectral luminescence study of the organic molecule behavior in a microporous glass matrix, *Dokl. Akad. Nauk SSR* **267**, N 6, 1357–1360 (1982) (Russ).

3.8. Phosphorescence

435. Akimov, A. N., Voropai, E. S., Gachko, G. A., Kivach, L. N., Koyava, V. T., Maskevich, S. A., Sarzhovsky, A. M., and Sharonov, G. V., High-sensitivity method of measurement of quantum yield and fluorescence spectra of solutions with phosphorescence, *Zh. Prikl. Spektrosk.* **36**, N 4, 692 (1982) (Russ).
436. Fang, T.-S., Lin, J., Schneider, R., Yamada, T., and Singer, L. A., Studies on triplet-singlet energy transfer with 1,3-dibromo-9,10-bis-[phenylethynyl]-anthracene, *Chem. Phys. Lett.* **92**, N 3, 283–287 (1982) (Eng).
437. Giachino, G. G., and Georger, J. H., Environmental effects on the phosphorescence of 1,4,5,8-tetrachloronaphthalene, *J. Lumin.* **27**, N 3, 293–298 (1982) (Eng).

438. Kalantar, A. H., Extracting parameters from double exponential decays. Experimental and numerical enhancement of the weaker component in naphthalene- d_8 phosphorescence, *J. Lumin.* **27**, N 1, 13–33 (1982) (Eng).
439. Ketsle, G. A., Levshin, L. V., and Soinikov, Yu. A., Effect of a heavy atom on thermally stimulated delayed fluorescence and phosphorescence of xanthene dyes, *Opt. and Spektrosk.* **52**, N 4, 657–662 (1982) (Russ).
440. Kholmanskii, A. S., Kunavin, N. I., Zubkov, A. V., and Dyumaev, K. M., An orbital nature of phosphorescence states of spiropyranes with nitrogroup, *Zh. Fiz. Khim.* **56**, N 11, 2794–2798 (1982) (Russ).
441. Klimenko, V. G., Gastilovich, E. A., and Shigorin, D. N., Experimental study of intensity distribution in $\pi\pi^*$ -type phosphorescence fine-structure spectra and mechanisms of intermolecular interactions, *Opt. and Spektrosk.* **52**, N 4, 663–668 (1982) (Russ).
442. Kokai, F., and Azumi, T., Sublevel phosphorescence spectra of pyrazine- d_4 . Vibrational assignments and the mechanisms of radiative and nonradiative transitions, *J. Chem. Phys.* **77**, N 6, 2757–2762 (1982) (Eng).
443. Miyagi, Y., Koyanagi, M., and Kanda, Y., Vibronic structure of the gas phase phosphorescence spectrum of *p*-benzoquinone, *Spectrochim. Acta* **38A**, N 12, 1275–1281 (1982) (Eng).
444. Skvortsov, V. I., and Alfimov, M. V., Quenching of aromatic molecule phosphorescence by electron acceptors via highly excited triplet states in solution at 77°K, *Dokl. Akad. Nauk SSSR* **263**, N 3, 652–655 (1982) (Russ).
445. Suter, G. W., and Wild, U. P., The dual phosphorescence of benzophenazine in ethanol, *Chem. Phys.* **73**, N 3, 421–429 (1982) (Eng).
446. Taherian, M.-R., and Maki, A. H., Optically resolved zero field splittings in the phosphorescence spectra of aromatic thioketones, *Chem. Phys.* **68**, N 1, 2, 179–189 (1982) (Eng) (P.A. **85**:87835).
447. Van Noort, H. M., Wurnitzer, B., and Schmidt, J., Determination of the individual spin-lattice relaxation rates between the spin levels of phosphorescent triplet-state molecules, *Chem. Phys. Lett.* **85**, N 3, 359–364 (1982) (Eng) (P.A. **85**:43939).
448. Yagi, M., Matsunaga, M., and Higuchi, J., Electron spin resonance and phosphorescence of 4-phenylpyridine, 4,4'-bipyridine and their protonated cations in the triplet states, *Chem. Phys. Lett.* **86**, N 2, 219–222 (1982) (Eng) (P.A. **85**:49480).
449. Zakharov, I. A., and Grishaeva, T. I., Investigation of quenching by oxygen dissolved in water of afterglow of dye adsorbed on hydrophobic silica gels, *Zh. Prikl. Spektrosk.* **36**, N 6, 980–985 (1982) (Russ).

3.9. Dissipation and migration of molecular excitation energy, time constants

450. Abe, H., Mikami, N., Ito, M., and Udagawa, Y., Vibrational energy redistribution in jet-cooled hydrogen-bonded phenols, *Chem. Phys. Lett.* **93**, N 2, 217–220 (1982) (Eng).
451. Al-Ani, K. E., Quenching of the first excited singlet state of CF_3 -substituted benzenes by dimethylamine, *J. Photochem.* **19**, N 1, 73–78 (1982) (Eng).
452. Andre, J. C., Kawenoki, I., Kossanyi, J., and Valat, P., Problems arising during the determination of the lifetime of electronically excited molecules by fluorescence inhibition techniques under continuous excitation, *J. Photochem.* **19**, N 2, 139–150 (1982) (Eng).
453. Aniyalg, A. O., Saari, P. M., Tamm, T. B., Timpmann, K. E., and Freiberg, A. M., Spectrochronography of hot luminescence as a method for studying picosecond relaxation in molecular systems, *Kvantovaya Elektron.* **9**, N 12, 2449–2454 (1982) (Russ) (P.A. **86**:80277).

454. Baer, T., and Kury, R., Random energy flow in the dissociation of energy selected bromobenzene and bromobenzene- d_5 ions, *Chem. Phys. Lett.* **92**, N 6, 659–662 (1982) (Eng).
455. Bakhshiev, N. G., and Girin, O. P., Intermolecular relaxations and emission spectra of solutions at high optic pumping, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 318–322 (1982) (Russ).
456. Barker, J. R., Rossi, M. J., and Pladziewicz, J. R., Level-to-level vibrational energy transfer studies: energy dependence and observation of product species for azulene (S_0 , E_{vib}) + CO_2 , *Chem. Phys. Lett.* **90**, N 2, 99–104 (1982) (Eng).
457. Barkley, M. D., Kowalczyk, A. A., Brand, L., Fluorescence decay studies of anisotropic rotations of small molecules, *J. Chem. Phys.* **75**, N 7, 3581–3593 (1981) (Eng) (P.A. 85:46661).
458. Bartels, D. M., and Spears, K. G., Rotational effects in the intermediate-case radiationless decay of pyrimidine, *J. Phys. Chem.* **86**, N 26, 5180–5191 (1982) (Eng) (P.A. 86:60813).
459. Basavarajappa, G., Umakantha, N., Basanagoudar, L. D., and Dambal, S. B., Energy transfer from solvent molecules to solute molecules in an organic liquid system, *Indian J. Pure and Appl. Phys.* **20**, N 1, 18–21 (1982) (Eng).
460. Bauer, R. K., and Twardowski, R., Measurements of the fluorescence decay time in mixed solutions using pulse fluorometry, *Z. Naturforsch. A* **37**, N 2, 197–198 (1982) (Eng) (P.A. 85:67120).
461. Belyaev, A. K., Devdariani, A. Z., and Zagrebina, A. L., Temperature dependence of nonadiabatic-transition rate constant. Demkov and Nikitin models, *Opt. and Spektrosk.* **53**, N 5, 807–811 (1982) (Russ).
462. Birkner, E., Paetzold, R., and Haucke, G., Quenching of the fluorescence and the formation of exciplexes of thioindigo by aromatic electron donors, *Chem. Phys. Lett.* **89**, N 1, 22–25 (1982) (Eng) (P.A. 85:85724).
463. Blatt, E., Treloar, F. E., Ghiggino, K. P., and Gilbert, R. G., Viscosity and temperature dependence of fluorescence lifetimes of anthracene and 9-methylanthracene, *J. Phys. Chem.* **85**, N 19, 2810–2816 (1981) (Eng) (P.A. 85:34481).
464. Bodunov, E. N., and Malyshev, V. A., Balance equation approximation in a theory of localized excitation energy diffusion at low temperature, *Fiz. Tverd. Tela* **24**, N 12, 3654–3662 (1982) (Russ).
465. Bojarski, C., Zurkowska, G., and Tyrzyk, J., The concentrational changes of the fluorescence decay time of rhodamine B in ethanol, *Z. Naturforsch. A* **37**, N 1, 74–77 (1982) (Eng) (P.A. 85:49512).
466. Boldridge, D. W., Scott, G. W., and Spiglanin, T. A., Intersystem crossing and internal conversion from the lowest excited singlet state of diazanaphthalenes, *J. Phys. Chem.* **86**, N 11, 1976–1979 (1982) (Eng).
467. Borisevich, N. A., Bubekov, Yu. I., Vishchakas, Yu. K., Kabelka, V. I., Milyauskas, A. A., and Tolstorozhev, G. B., Investigation of picosecond interconversion in aromatic ketone vapours, *Zh. Prikl. Spektrosk.* **36**, N 6, 931–936 (1982) (Russ).
468. Bryukhanov, V. V., Ketsle, G. A., Levshin, L. V., and Sokolova, L. K., Solvation effect on interaction of dye triplet molecules with inorganic anions, *Zh. Prikl. Spektrosk.* **36**, N 4, 607–609 (1982) (Russ).
469. Bumgarner, L. S., Schuh, M. D., and Thomas, M. P., Mechanism for quenching of triplet-state alkylbenzenes by O_2 in the vapor phase, *J. Phys. Chem.* **86**, N 20, 4029–4033 (1982) (Eng).
470. Bushchuk, B. A., and Rubinov, A. N., Quenching of complex-molecule fluorescence in solution by a powerful laser radiation, *Opt. and Spektrosk.* **53**, N 6, 1031–1034 (1982) (Russ).
471. But'ko, A. I., Voropai, E. S., Gaisnok, V. A., Saechnikov, V. A., and Sarzhevsky, A. M., Some features of intermolecular-relaxation evidence in spectral-luminescent characteristics of molecular solutions in conditions of light quenching of luminescence, *Opt. and Spektrosk.* **52**, N 2, 253–257 (1982) (Russ).

472. Chekalyuk, A., Fadeev, V., Georgiev, G., Kalkanjev, T., and Nickolov, Zh., Determination of fluorescence quantum yields using a spontaneous Raman scattering line of the solvent as internal standard, *Spectrosc. Lett.* **15**, N 5, 355–365 (1982) (Eng).
473. Darmanyan, A. P., Generation of 1O_2 and the mechanism of internal conversion in 9,10-diphenylanthracene, *Chem. Phys. Lett.* **91**, N 5, 396–400 (1982) (Eng).
474. Dietz, T. G., Duncan, M. A., Puiu, A. C., and Smalley, R. E., Pyrazine and pyrimidine triplet decay in a supersonic beam, *J. Phys. Chem.* **86**, N 20, 4026–4029 (1982) (Eng).
475. Eaton, D. F., Quenching of singlet excited states of electron-deficient anthracenes by allyl- and benzyltrialkyl-stannanes, *J. Amer. Chem. Soc.* **103**, N 24, 7235–7239 (1981) (Eng) (P.A. **85**:65037).
476. Fang, T.-S., Lin, J., Schneider, R., Yamada, T., and Singer, L. A., Studies on triplet-singlet energy transfer with 1,3-dibromo-9,10-bis [phenylethynyl]-anthracene, *Chem. Phys. Lett.* **92**, N 3, 283–287 (1982) (Eng).
477. Felder, P., and Günthard, Hs. H., Conformational interconversions in supersonic jets: matrix IR spectroscopy and model calculations, *Chem. Phys.* **71**, N 1, 9–25 (1982) (Eng).
478. Fiksel, A. I., Parmon, V. N., and Zamaraev, K. I., Observation of the inverse isotope effect in a tunnel electron transfer, *Chem. Phys.* **69**, N 1,2, 135–139 (1982) (Eng).
479. Fukumura, H., Kikuchi, K., and Kokubun, H., Temperature effect on inverse ($T_n \rightarrow S_1$) intersystem crossing, *Chem. Phys. Lett.* **92**, N 1, 29–32 (1982) (Eng).
480. Galanin, M. D., Kut'yonkov, A. A., Smorchkov, V. N., Timofeev, Yu. P., and Chizhikova, Z. A., Measurement of photoluminescence quantum yield of dye solutions by the Vavilov and integrating-sphere methods, *Opt. and Spektrosk.* **53**, N 4, 683–690 (1982) (Russ).
481. Grebneva, E. A., Okkhovskaya, Zh. P., and Tolpygo, K. B., Estimate of lifetime of perturbed hydrogen bonds, *Ukr. Fiz. Zh.* **27**, N 3, 422–428 (1982) (Russ).
482. Grzywacz, J., and Tazsner, S., Influence of pH on the absorption and fluorescence spectra of 6,7-dihydroxycoumarin in aqueous solution, *Z. Naturforsch. A* **37**, N 3, 262–265 (1982) (Eng) (P.A. **85**:65049).
483. Hayon, A., Kimel, S., and Ron, A., Energy transfer between benzophenone and biacetyl, *J. Mol. Struct.* **80**, 437–440 (1982) (Eng) (P.A. **85**:75386).
484. Heilweil, E. J., Doany, F. E., Moore, R., and Hochstrasser, R. M., Vibrational energy relaxation of the cyanide ion in aqueous solution, *J. Chem. Phys.* **76**, N 11, 5632–5634 (1982) (Eng).
485. Herbst, E., An approach to the estimation of polyatomic vibrational radiative relaxation rates, *Chem. Phys.* **65**, N 2, 185–195 (1982) (Eng) (P.A. **85**:59773).
486. Hirano, H., and Azumi, T., A new method to determine the quantum yield of intersystem crossing, *Chem. Phys. Lett.* **86**, N 1, 109–112 (1982) (Eng) (P.A. **85**:49527).
487. Hirano, H., and Azumi, T., Temperature dependence of intersystem crossing of pyrene, *Chem. Phys. Lett.* **90**, N 4, 269–271 (1982) (Eng).
488. Hornburger, H., and Brand, J., The influence of out-of-plane modes on non-radiative transition rates in benzene, *Chem. Phys. Lett.* **88**, N 2, 153–156 (1982) (Eng) (P.A. **85**:80699).
489. Huston, A. L., Scott, G. W., and Gupta, A., Mechanism and kinetics of excited-state relaxation in internally hydrogen-bonded molecules: 2-(2'-hydroxy-5'-methylphenyl)-benzotriazole in solution, *J. Chem. Phys.* **76**, N 10, 4978–4985 (1982) (Eng).
490. Iton, K., and Honda, K., Sensitized delayed fluorescence of rubrene. Large temperature dependence of triplet lifetime of rubrene, *Chem. Phys. Lett.* **87**, N 2, 213–216 (1982) (Eng).

491. Kalantar, A. H., Extracting parameters from double exponential decays. Experimental and numerical enhanced of the weaker component in naphthalene- d_8 phosphorescence, *J. Lumin.* **27**, N 1, 13–33 (1982) (Eng).
492. Kano, K., Takenoshita, I., and Ogawa, T., Fluorescence quenching of pyrene and naphthalene in aqueous cyclodextrin solutions. Evidence of three-component complex formation, *J. Phys. Chem.* **86**, N 10, 1833–1838 (1982) (Eng).
493. Karyakin, A. V., Sorokina, T. S., and Skvortsov, M. G., Effect of n -electrons of a heteroatom on optical properties of pyridine, quinoline, acridine, *Opt. and Spektrosk.* **52**, N 1, 47–50 (1982) (Russ).
494. Kasama, K., Kikuchi, K., Uji-ie, K., Yamamoto, S.-A., and Kokubun, H., Relaxation mechanism of excited acridine in methyl methacrylate and poly(methyl methacrylate), *J. Phys. Chem.* **86**, N 24, 4733–4737 (1982) (Eng).
495. Köhler, G., Kittel, G., and Getoff, N., Decay processes of singlet excited phenol in solution, *J. Photochem.* **18**, N 1, 19–27 (1982) (Eng).
496. Kokai, F., and Azumi, T., Sublevel phosphorescence spectra of pyrazine- d_4 . Vibrational assignments and the mechanisms of radiative and nonradiative transitions, *J. Chem. Phys.* **77**, N 6, 2757–2762 (1982) (Eng).
497. Kolmeder, C., Zinth, W., and Kaiser, W., Changes of vibrational lifetimes with minor structural modification of small polyatomic molecules, *Chem. Phys. Lett.* **91**, N 5, 323–328 (1982) (Eng).
498. Krashennnikov, A. A., and Shablya, A. V., Determination of luminescence quantum yield from highly excited electronic states of molecules by optical-acoustic effect, *Opt. and Spektrosk.* **52**, N 2, 263–268 (1982) (Russ).
499. Lawrance, W. D., and Knight, A. E. W., Vibrational relaxation in ground state p -difluorobenzene: Single level preparation by stimulated emission pumping, *J. Chem. Phys.* **77**, N 1, 570–571 (1982) (Eng).
500. Levshin, L. V., Saletskii, A. M., and Yuzhakov, V. I., On electronic excitation energy transfer in water-micellar solutions of rhodamine 6 G, *Dokl. Akad. Nauk SSSR* **265**, N 2, 372–374 (1982) (Russ).
501. Lin, S. H., Application of the density matrix method to vibrational relaxation in isolated molecules, *Chem. Phys. Lett.* **86**, N 5,6, 533–539 (1982) (Eng) (P.A. **85**:49555).
502. Loufy, R. O., and Aroca, R., Interaction of indium metal with phthalocyanine molecules: Luminescence enhancement, *J. Lumin.* **26**, N 4, 359–366 (1982) (Eng).
503. Medvedev, E. S., The Franck–Condon principle for radiationless transitions in molecules and a selection rule for Morse oscillators, *Chem. Phys.* **73**, N 3, 243–251 (1982) (Eng).
504. Meister, T. G., Trubina, E. L., and Klindukhov, V. P., Evidence of intermolecular and intracomplex relaxation in electronic spectra of systems with hydrogen bond, *Opt. and Spektrosk.* **52**, N 6, 961–963 (1982) (Russ).
505. Mikami, Y., Application of the numerical integration method to a study of the “proximity effect” in radiationless transitions of N -heterocyclics, *Chem. Phys. Lett.* **85**, N 3, 354–358 (1982) (Eng).
506. Najbar, J., Triplet decay functions of aromatic molecules in the presence of heavy-atom perturbers after singlet excitation, *Chem. Phys. Lett.* **90**, N 2, 154–159 (1982) (Eng).
507. Nakajima, A., Intensity enhancement induced by solute-solvent interaction between pyrene and polar solvents, *spectrochim. acta* **38A**, N 6, 693–695 (1982) (Eng) (P.A. **85**:75287).
508. Nemkovich, N. A., Gulis, I. M., and Tomin, V. I., Excitation-frequency dependence of directed nonradiative energy transfer efficiency in two-component organic solid solutions, *Opt. and Spektrosk.* **53**, N 2, 239–244 (1982) (Russ) (P.A. **85**:60825).

509. Neporent, B. S., and Fainberg, B. D., To the problem of description of polyatomic-molecule continuous spectra, *Opt. and Spektrosk.* **52**, N 5, 820-824 (1982) (Russ).
510. O'Brien, J. J., Horne, M. D., Selinger, B. K., and Henry, B. R., Position dependent deuterium effects on the vapor phase fluorescence lifetimes of tetradeuterophenanthrenes, *Chem. Phys.* **68**, N 1, 2, 123-128 (1982) (Eng) (P.A. **85**:85725).
511. O'Connor, D. V., Sumitani, M., Morris, J. M., and Yoshihara, K., Non-exponential picosecond fluorescence decay in isolated pentafluorobenzene and hexafluorobenzene, *Chem. Phys. Lett.* **93**, N 4, 350-354 (1982) (Eng).
512. Ohta, N., and Baba, H., Vibronic-level dependence of radiative and nonradiative processes in naphthalene vapor, *J. Chem. Phys.* **76**, N 4, 1654-1663 (1982) (Eng) (P.A. **85**:49485).
513. Okada, T., Karaki, I., Matsuzawa, E., Mataga, N., Sakata, Y., and Misumi, S., Ultrafast intersystem crossing in some intramolecular heteroexcimers, *J. Phys. Chem.* **85**, N 26, 3957-3960 (1981) (Eng) (P.A. **85**:65041).
514. Osborne, A. D., and Winkworth, A. C., Viscosity-dependent internal conversion in an aryl-substituted rhodamine dye, *Chem. Phys. Lett.* **85**, N 5, 6, 513-517 (1982) (Eng) (P.A. **85**:43961).
515. Prasad, D. R., and Ferraudi, G., Excited-state redox properties of ruthenium (II) phthalocyanine from electron-transfer quenching, *J. Phys. Chem.* **86**, N 20, 4037-4040 (1982) (Eng).
516. Reiser, D., and Laubereau, A., Vibrational relaxation of dye molecules investigated by ultrafast induced dichroism, *Appl. Phys. B* **27**, N 3, 115-122 (1982) (Eng) (P.A. **85**:49552).
517. Rossetti, R., and Brus, L. E., Time resolved energy transfer from electronically excited $^3B_{3u}$ pyrazine molecules to planar Ag and Au surfaces, *J. Chem. Phys.* **76**, N 2, 1146-1149 (1982) (Eng) (P.A. **85**:41398).
518. Rubinov, A. N., Tomin, V. I., and Bushuk, B. A., Kinetic spectroscopy of orientational states of solvated dye molecules in polar solutions, *J. Lumin.* **26**, N 4, 377-391 (1982) (Eng).
519. Rubinov, A. N., Bushuk, B. A., and Krasovsky, A. N., Non-resonance quenching of dye solutions fluorescence by light pulses of picosecond duration, *Zh. Prikl. Spektrosk.* **36**, N 1, 36-39 (1982) (Russ).
520. Russegger, P., and Huber, J. R., Vibronic state and vibronic energy dependence of the intersystem crossing process $T_1 \sim S_0$ in a polyatomic molecule. Propynal, *Chem. Phys. Lett.* **92**, N 1, 38-42 (1982) (Eng).
521. Sabbatini, N., Indelli, M. T., Gandolfi, M. T., and Balzani, V., Quenching of singlet and triplet excited states of aromatic molecules by europium ions, *J. Phys. Chem.* **86**, N 18, 3585-3591 (1982) (Eng).
522. Saigusa, H., and Lim, E. C., The origin of the rotational state dependence of electronic relaxation in azabenzenes, *Chem. Phys. Lett.* **88**, N 5, 455-458 (1982) (Eng) (P.A. **85**:80507).
523. Saltiel, J., Marchand, G. R., Smothers, W. K., Stout, S. A., and Charlton, J. L., Concerning the spin-statistical factor in the triplet-triplet annihilation of anthracene triplets, *J. Amer. Chem. Soc.* **103**, N 24, 7159-7164 (1981) (Eng) (P.A. **85**:64890).
524. Sarkar, H. K., Song, P.-S., Park, S. C., and Lee, E., Model for photosynthetic light harvesting system: energy transfer in anthracene- and biphenyl-chlorophyll derivatives, *J. Lumin.* **26**, N 4, 347-358 (1982) (Eng).
525. Schippers, P. H., and Dekkers, H. P. J. M., Optical activity due to deuterium substitution in adamantanone and adamantane-thione. Barrier to inversion in the $^1n\pi^*$ excited state, *Chem. Phys.* **69**, N 1, 2, 19-26 (1982) (Eng).
526. Schweizer, K. S., and Chandler, D., Vibrational dephasing and frequency shifts of polyatomic molecules in solution, *J. Chem. Phys.* **76**, N 5, 2296-2314 (1982) (Eng) (P.A. **85**:61891).

527. Selvarajan, N., Das, P. K., and Hug, G. L., Fluorescence and triplet yield quenching of β -apo-14'-carotenal (C_{22} aldehyde) by aromatic molecules, *J. Photochem.* **20**, N 4, 355–366 (1982) (Eng).
528. Shimizu, Y., and Azumi, T., Mechanism of external heavy atom effect on intersystem crossing in fluid solutions. Analysis based on fluorescence decay data, *J. Phys. Chem.* **86**, N 1, 22–26 (1982) (Eng).
529. Shizuka, H., Ueki, Y., Iizuka, T., and Kanamaru, N., Radiative and radiationless transitions in the excited state of methyl- and methylene-substituted benzenes in condensed media, *J. Phys. Chem.* **86**, N 17, 3327–3333 (1982) (Eng).
530. Sibert, E. L., III, Reinhardt, W. P., and Hynes, J. T., Intermolecular vibrational relaxation of CH overtones in benzene, *Chem. Phys. Lett.* **92**, N 5, 455–458 (1982) (Eng).
531. Slobodyanic, V. V., Faidysh, A. N., Yashchuk, V. N., and Fedorova, L. N., Luminescence and electronic excitation energy transfer in nitrated poly-*N*-vinylcarbazole, *Ukr. Fiz. Zh.* **27**, N 4, 506–513 (1982) (Russ).
532. Smirl, A. L., Clark, J. B., Van Stryland, E. W., and Russell, B. R., Population and rotational kinetics of the rhodamine *B* monomer and dimer: Picosecond transient spectrometry, *J. Chem. Phys.* **77**, N 2, 631–640 (1982) (Eng).
533. Souma, H., Heilweil, E. J., and Hochstrasser, R. M., Resonant nonlinear optical mixing using the phase conjugate configuration: Spectroscopic studies, *J. Chem. Phys.* **76**, N 12, 5693–5702 (1982) (Eng).
534. Stelmakh, G. F., and Tsvirko, M. P., Determination of formation probabilities of excited singlet states during triplet-triplet annihilation, *Zh. Prikl. Spektrosk.* **36**, N 4, 609–616 (1982) (Russ).
535. Stepanov, B. I., Rubinov, A. N., and Tomin, V. I., Study of dynamic inhomogeneous orientational broadening of dye solution electronic levels by methods of high temporal resolution spectroscopy, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 380–387 (1982) (Russ).
536. Strelakov, M. L., and Burshtein, A. I., Temperature dependence of dephasing relaxation in dense media, *Chem. Phys. Lett.* **86**, N 3, 295–298 (1982) (Eng).
537. Sundström, V., Gillbro, T., and Bergström, H., Picosecond kinetics of radiationless relaxations of triphenyl methane dyes. Evidence for a rapid excited-state equilibrium between states of differing geometry, *Chem. Phys.* **73**, N 3, 439–458 (1982) (Eng).
537. Sveshnikova, E. B., and Ermolaev, V. L., Induce-resonance electron-vibrational energy transfer as the mechanism of nonradiative transitions, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 226–231 (1982) (Russ).
539. Svischenko, V. V., Rozenblit, M. M., and Fokin, V. A., To the theory of radiationless transitions, *Izv. VUZ Fiz.*, N 3, 124 (1982) (Russ).
540. ter Horst, G., and Kommandeur, J., Lifetime lengthening through rotational coupling: decay in the $^1B_{1g}$ and 1A_u states of para-benzoquinone, *J. Chem. Phys.* **76**, N 1, 137–142 (1982) (Eng).
541. Thijssen, H. P. H., Dicker, A. I. M., and Völker, S., Optical dephasing in free-base porphyrin in organic glasses: a study by photochemical hole-burning, *Chem. Phys. Lett.* **92**, N 1, 7–12 (1982) (Eng).
542. Trevor, P. L., Rothem, T., and Barker, J. R., Time-dependent-thermal-lensing (TDTL) studies on gas-phase azulene, *Chem. Phys.* **68**, N 3, 341–349 (1982) (Eng).
543. Turro, N. J., and Lee, P. C. C., Perfluorinated “mini” micelles: energy transfer from benzophenone and determination of aggregation number, *J. Phys. Chem.* **86**, N 17, 3367–3371 (1982) (Eng).
544. Van der Meer, B. J., Jonkman, H. Th., ter Horst, G. M., and Kommandeur, J., Intermediate level structure, quantum beats, and nuclear spin effects in the electronic relaxation of the $^1B_{3u}(n\pi^*)$ state of pyrazine, *J. Chem. Phys.* **76**, N 2, 2099–2100 (1982) (Eng) (P.A. 85:59785).

545. Van Noort, H. M., Wirtzner, B., and Schmidt, J., Determination of the individual spin-lattice relaxation rates between the spin levels of phosphorescent triplet-state molecules, *Chem. Phys. Lett.* **85**, N 3, 359–364 (1982) (Eng) (P.A. **85**:43939).
546. Venkateswarlu, P., Dharmaraju, G., and Raman, G. K., Molecular interactions in binary liquid mixtures containing bromobenzene, *Proc. Indian Nat. Sci. Acad. Pr. A* **48**, N 3, 265–267 (1982) (Eng).
547. Villaeys, A. A., and Freed, K. F., Time-resolved spectroscopy: Wavepacket formalism in the coherent-state representation, *Chem. Phys.* **72**, N 1,2, 1–14 (1982) (Eng).
548. Wilhelmi, B., Influence of solvent viscosity on excited state lifetime and fluorescence quantum field of dye molecules, *Chem. Phys.* **66**, N 3, 351–355 (1982) (Eng) (P.A. **85**:70320).
549. Yamazaki, I., Murao, T., and Yoshihara, K., Subnanosecond fluorescence lifetimes of pyrazine- h_4 and - d_4 vapor for photoselected vibrational levels in the $S_1(n, \pi^*)$ state, *Chem. Phys. Lett.* **87**, N 4, 384–388 (1982) (Eng) (P.A. **85**:59842).
550. Yuzhakov, V. I., El-Karadagi, S., Martsenyuk, O. V., Levshin, L. V., and Tverdislov, V. A., Spectroscopic study of interaction of 1-anilinonaphthalene-8-sulfonate and 2-toluidinenaphthalene-6-sulfonate with lipoproteides of blood plasma of man, *Zh. Prikl. Spektrosk.* **37**, N 5, 771–775 (1982) (Russ).
551. Zhuravlev, S. V., Levshin, L. V., Saletskii, A. M., and Yuzhakov, V. I., On the role of energy migration between rhodamine-dye monomer molecules in concentration quenching of luminescence in solutions, *Opt. and Spektrosk.* **53**, N 2, 245–251 (1982) (Russ) (P.A. **85**:60826).

3.10. Laser excitation, stimulated emission and light generation

552. Afanasiev, A. A., Batyrev, V. A., and Korol'kov, M. V., The effect of thermal lattice development on the generation line width of a dye laser with distributed feed-back, *Zh. Prikl. Spektrosk.* **37**, N 2, 230–233 (1982) (Russ).
553. Akimov, A. I., Ryzhikov, B. D., Levshin, L. V., Uzhinov, B. M., Reva, M. G., Senatorova, N. R., Korol'kova, N. V., and Denisov, L. K., Dependence of lasing efficiency of rhodamine 6G water-ethanol solutions on the solvent composition, *Zh. Prikl. Spektrosk.* **36**, N 2, 225–230 (1982) (Russ).
554. Akimov, A. I., Levshin, L. V., Saletskii, A. M., and Yuzhakov, V. I., Lasing characteristics of solutions of rhodamine 6G and coumarin-47 under the conditions of inhomogeneous broadening of their spectra, *Zh. Prikl. Spektrosk.* **37**, N 2, 236–241 (1982) (Russ).
555. Altshuler, G. B., Dulneva, E. G., Meshkovskii, I. K., and Krylov, K. I., Solid active media based on dyes, *Zh. Prikl. Spektrosk.* **36**, N 4, 592–599 (1982) (Russ).
556. Apanasevich, P. A., Kvach, V. V., Kozich, V. P., and Orlovich, V. A., RSAS-spectrometer based on narrow-band pulsed dye lasers, *Zh. Prikl. Spektrosk.* **36**, N 2, 215–220 (1982) (Russ).
557. Asimov, M. M., Gavrilenko, V. N., and Rubinov, A. N., Specific features of lasing of deoxygenated solutions of laser dyes, *Zh. Prikl. Spektrosk.* **37**, N 1, 49–54 (1982) (Russ).
558. Asimov, M. M., Gavrilenko, V. N., and Rubinov, A. N., Spectroscopic parameters of triplet state of some laser dyes in various solvents, *Zh. Prikl. Spektrosk.* **36**, N 4, 583–587 (1982) (Russ).
559. Baranov, P. A., Kozintsev, V. K., Makarov, V. N., Nikiforov, V. G., and Novoselov, A. N., Dye laser for lidar ozone measurements, *Zh. Prikl. Spektrosk.* **36**, N 4, 574–577 (1982) (Russ).
560. Bareika, B. F., Danielius, R. V., Dikchius, G. A., Dyadyusha, G. G., Ishchenko, A. A., Kudina, M. A., Piskarskas, A.-P.S., Sirutkaitis, V. A., and Tolmachev, A. I., An influence of solvents on polymethine dyes relaxation times in the picosecond region, *Kvantovaya Elektron.* **9**, N 11, 2289–2295 (1982) (Russ).

561. Bar-Joseph, I., Silberberg, Y., Real time holography through triplet state absorption in organic dyes, *Opt. Commun.* **41**, N 6, 455–458 (1982) (Eng) (P.A. **85**:86060).
562. Basov, N. G., Logunov, O. A., Startsev, A. V., Stoilov, Yu. Yu., and Zuev, V. S., Vapour phase dye lasers of the visible range, *J. Mol. Struct.* **79**, 119–123 (1982) (Eng) (P.A. **85**:75565).
563. Bazyl, O. K., Maier, G. V., Kopylova, T. N., and Danilova, V. I., Theoretical and experimental investigation of the nature of electron-excited states, spectral-luminescent properties and lasing ability of pyrene and its phenylethynyl substituents, *Zh. Prikl. Spektrosk.* **37**, N 1, 80–86 (1982) (Russ).
564. Bezrodnyi, V. I., Przhonskaya, O. V., Tikhonov, E. A., Bondar, M. V., and Shpak, M. T., Active and passive polymeric laser elements utilizing organic dyes, *Kvantovaya Elektron.* **9**, N 12, 2455–2464 (1982) (Russ).
565. Bezrodnyi, V. I., and Tikhonov, E. A., Efficiency of the laser generation on dyes during linear and circular polarized pumping, *Ukr. Fiz. Zh.* **27**, N 8, 1143–1146 (1982) (Russ).
566. Borisevich, N. A., Tolkachev, V. A., Tulach, V. Ya., and Khitrin, M. K., A laser based on complex molecule vapours with the active medium self-pumping, *Zh. Prikl. Spektrosk.* **37**, N 2, 209–214 (1982) (Russ).
567. Brink, G. O., Dye laser intracavity absorption for molecular spectroscopy, *J. Mol. Spectrosc.* **90**, N 2, 353–358 (1981) (Eng) (P.A. **85**:39379).
568. Burakov, V. S., Vasiliev, N. N., Gorelenko, A. Ya., and Shkadarevich, A. P., A rearrangeable distributed-feedback dye-doped polymer laser, *Dokl. Akad. Nauk BSSR* **26**, N 12, 1085–1087 (1982) (Russ).
569. Calkins, J., Colley, E., and Hazle, J., The use of caffeine as a liquid filter in coaxial flashlamp pumped dye lasers, *Opt. Commun.* **42**, N 4, 275–277 (1982) (Eng).
570. Denchev, O. E., Zhiglinsky, A. G., Ryazanov, N. S., and Samokhin, A. N., On the possibility of two-beam intracavity spectointerferometry of phase objects using a dye laser, *Zh. Prikl. Spektrosk.* **36**, N 3, 377–383 (1982) (Russ).
571. Dietel, W., Transient absorber gratings shorten the pulses of a passively mode-locked cw dye laser, *Opt. Commun.* **43**, N 1, 69–71 (1982) (Eng).
572. Dorko, E. A., Briding, A. J., and Johnson, S., Jr., Analysis of Kiton Red S dye degradation effects on the output energy of the pulsed organic dye laser, *J. Photochem.* **18**, N 3, 251–267 (1982) (Eng).
573. Fadeev, V. V., Chekalyuk, A. M., and Chubarov, V. V., Nonlinear laser fluorimetry of complex organic compounds, *Dokl. Akad. Nauk SSSR* **262**, N 2, 338–341 (1982) (Russ).
574. Faubert, D., and Chin, S. L., Experimental study of passive laser pulse compression in a fluorescent dye medium, *Can. J. Phys.* **60**, N 2, 261–267 (1982) (Eng).
575. Ferguson, A. I., and Taylor, R. A., Active mode stabilization of a synchronously pumped mode locked dye laser, *Opt. Commun.* **41**, N 4, 271–276 (1982) (Eng).
576. Gauglitz, G., Lorch, A., and Oelkrug, D., Fluorescence quantum yields of laser dyes determined by on-line computer evaluation, *Z. Naturforsch. A* **37**, N 3, 219–223 (1982) (Eng) (P.A. **85**:65048).
577. Georgiev, G., Kalkanjev, T., and Nikolov, Zh., Influence of the space distribution of the laser radiation on fluorescence saturation in organic molecules, *Bulg. J. Phys.* **9**, N 5, 558–565 (1982) (Eng).
578. Gevorkyan, L. P., Lyakhov, G. A., and Makarov, V. A., Conditions for excitation of a laser with distributed feedback in a smectic matrix, *Kvantovaya Elektron.* **9**, N 2, 374–376 (1982) (Russ).
579. Gondra, A. D., and Mnuskin, V. E., Towards calculation of generation of a pulsed dye laser with laser pumping, *Zh. Prikl. Spektrosk.* **36**, N 4, 577–582 (1982) (Russ).
580. Graham, R., Höhnnerbach, M., and Schenzle, A., Statistical properties of light from a dye laser, *Phys. Rev. Lett.* **48**, 1396 (1982). Erratum: *Phys. Rev. Lett.* **49**, N 6, 422 (1982) (Eng).

581. Gromov, D. A., Dyumaev, K. M., Manenkov, A. A., Maslyukov, A. P., Matyushin, G. A., Nechitailo, V. S., and Prokhorov, A. M., Active polymer elements for dye-lasers, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 10, 1956–1958 (1982) (Russ).
582. Harde, H., and Burggraf, H., Ultrahigh-resolution coherence spectroscopy by means of periodic excitation with picosecond pulses, *Opt. Commun.* **40**, N 6, 441–445 (1982) (Eng).
583. Heaven, M., Miller, T. A., and Bondybey, V. E., Laser spectra of jet-cooled ions and ion clusters, *J. Chem. Phys.* **76**, N 7, 3831–3832 (1982) (Eng).
584. Herrmann, J., Motschmann, U., Formation of synchronously mode-locked dye laser pulses, *Opt. Commun.* **40**, N 5, 379–384 (1982) (Eng).
585. Hills, G. W., Color center laser pumped with a DCM dye laser, *Opt. Commun.* **42**, N 5, 360–362 (1982) (Eng).
586. Hoffnagle, J., Roesch, L. Ph., Schlumpf, N., and Weis, A., CW operation of laser dyes styryl-9 and styryl-11, *Opt. Commun.* **42**, N 4, 267–268 (1982) (Eng).
587. Jain, R. K., Near-infrared picosecond pulse generation in a cw mode-locked dye laser pumped directly by an argon ion laser, *Appl. Phys. Lett.* **40**, N 4, 295–297 (1982) (Eng).
588. Johnson, C. K., and Small, G. J., Variable wave vector second harmonic generation in phenanthrene, *J. Chem. Phys.* **76**, N 7, 3837–3838 (1982) (Eng).
589. Kabanov, V. V., and Rubanov, A. S., A reversal of wave front at degenerated four-wave interaction in amplified dye solutions, *Pis'ma v. Zh. Tech. Fiz.* **8**, N 2, 90–94 (1982) (Russ).
590. Khalimanovich, D. M., Two-quantum effect of picosecond laser pulses on organic molecules vapours, *Zh. Prikl. Spektrosk.* **36**, N 4, 587–591 (1982) (Russ).
591. Koch, T. L., Chiu, L. C., and Yariv, A., Analysis and performance of a picosecond dye laser amplifier chain, *J. Appl. Phys.* **53**, N 9, 6047–6059 (1982) (Eng).
592. Koch, T. L., Chiu, L. C., and Yariv, A., Gain saturation of a picosecond dye laser amplifier chain, *Opt. Commun.* **40**, N 5, 364–368 (1982) (Eng).
593. Koprinkov, I. G., Stamenov, K. V., and Stankov, K. A., High-efficiency single-mode dye laser, *Opt. Commun.* **42**, N 4, 264–266 (1982) (Eng).
594. Krashakov, S. A., and Uzhinov, B. M., On feasibility of the laser emission of excimers and exciplexes of aromatic compounds, *Kvantovaya Elektron.* **9**, N 11, 2336–2338 (1982) (Russ).
595. Kravchenko, V. I., Kirilenko, E. K., Opanasyuk, Yu. D., and Terenetskaya, I. P., New possibilities of control by spectral-energetical characteristics of impulse tunable lasers on organic dyes solutions, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 10, 1964–1969 (1982) (Russ).
596. Kuznetsov, V. V., Nikolaev, G. E., Vinogradov, V. V., Shilov, V. B., and Usharov, A. I., Formation of enhanced spectrum and tuning of ion pair in a dissociated rhodamine 6G molecule, *Zh. Prikl. Spektrosk.* **36**, N 3, 497–499 (1982) (Russ).
597. Levshin, L. V., Naumov, A. V., Saletskii, A. M., and Yuzhakov, V. I., Effect of inhomogeneous broadening of levels on the triplet-triplet absorption of rhodamine 6G solutions in the generation regime, *Dokl. Akad. Nauk SSSR* **263**, N 5, 1161–1164 (1982) (Russ).
598. Li, S., and She, C. Y., Two-photon absorption cross-section measurements in common laser dyes at 1.06 μm , *Opt. Acta* **29**, N 3, 281–287 (1982) (Eng) (P.A. 85:54908).
599. Li, Yu., and Shen, Yu., Studies with crossing laser and molecular beams, In: Physics abroad. Collection of popular science articles. Laser chemistry. Superconductivity. Solid state physics. Moscow, 118–147 (1982) (Russ).
600. Logunov, O. A., Startsev, A. V., and Stoilov, Yu. Yu., Coumarins in vapour phase. 3. The laser utilizing coumarin 6 vapours with the efficiency of 12%, *Kvantovaya Elektron.* **9**, N 6, 1198–1203 (1982) (Russ).

601. Lukomsky, N. G., and Polishchuk, V. A., Extension of dye-laser tuning range by internal interferometers, *Opt. and Spektrosk.* **52**, N 6, 1088–1090 (1982) (Russ).
602. Marason, E. G., Energy transfer dye mixture for argon-pumped dye laser operation in the 700 to 800 nm region, *Opt. Commun* **40**, N 3, 212–214 (1982) (Eng).
603. Masilamani, V., and Sivaram, B. M., The laser gain characteristics of some substituted coumarins, *J. Lumin.* **27**, N 2, 137–145 (1982) (Eng).
604. Masilamani, V., and Sivaram, B. M., Solvent effects on the spectral and gain characteristics of a DAMC dye laser, *J. Lumin.* **27**, N 2, 147–154 (1982) (Eng).
605. May, P. G., Sibbett, W., Smith, K., Taylor, J. R., and Willson, J. P., Simultaneous autocorrelation and synchroscan streak camera measurement of cavity length detuning effects in a synchronously pumped CW dye laser, *Opt. Commun* **42**, N 4, 285–290 (1982) (Eng).
606. Meyer, Y. H., and Nenchev, M. N., On intracavity absorption and self frequency-locking in pulsed dye lasers, *Opt. Commun* **41**, N 4, 292–294 (1982) (Eng).
607. Millar, D. P., and Zewail, A. H., Pulse substructure in passively and synchronously mode-locked cw dye lasers, *Chem. Phys.* **72**, N 3, 381–389 (1982) (Eng).
608. Mkhitarian, V. M., and Partamyan, Kh. V., An excitation of rhodamine 6G in ethanol under an electric breakdown in the solution, *Kvantovaya Elektron.* **9**, N 8, 1713–1715 (1982) (Russ).
609. Moog, R. S., Ediger, M. D., Boxer, S. G., and Fayer, M. D., Viscosity dependence of the rotational reorientation of rhodamine B in mono- and polyalcohols. Picosecond transient grating experiments, *J. Phys. Chem.* **86**, N 24, 4694–4700 (1982) (Eng).
610. Morsink, J. B. W., Hesselink, W. H., and Wiersma, D. A., Photon echoes stimulated from long-lived ordered populations in multi-level systems. The effect of intersystem crossing and optical branching, *Chem. Phys.* **71**, N 2, 289–294 (1982) (Eng).
611. Neporent, B. S., Spiro, A. G., and Shilov, V. B., Secondary luminescence spectra of rhodamine 6G solutions with different levels of inverse population, *Zh. Prikl. Spektrosk.* **37**, N 6, 1045–1053 (1982) (Russ).
612. Nickles, P. V., Lungershausen, T., and Korn, G., A simple powerful dye-laser, *Exp. Techn. Phys.* **30**, N 2, 175–178 (1982) (Ger).
613. Padhye, M. R., Varadarajan, T. S., and Deshpande, A. V., Some new laser dyes—solvent effect on QE and lasing action, *Spectrosc. Lett.* **15**, N 8, 597–608 (1982) (Eng).
614. Pascu, M. L., Constantinescu, A., Zugrav, M., Nasase, L., Dumbraveanu, G., and Musa, G., SHG ultraviolet tunable laser driven by a dye laser, *Rev. Roum. Phys.* **27**, N 6–7, 621–624 (1982) (Eng).
615. Pilipovich, V. A., Kovalev, A. A., Sadovskii, V. N., and Usova, N. A., On the anomalous temperature dependence of the generating properties of liquid-crystal dye lasers, *Dokl. Akad. Nauk BSSR* **26**, N 5, 408–410 (1982) (Russ).
616. Popescu, D., Manolescu, N., Surmeian, A., Bobulescu, R. C., and Stanculescu, C., The cw dye laser design for intracavity spectroscopy, *Rev. Roum. Phys.* **27**, N 6–7, 617–619 (1982) (Eng).
617. Povedailo, V. A., Generation efficiency optimization of a laser based on POPOP vapours, *Zh. Prikl. Spektrosk.* **37**, N 2, 217–223 (1982) (Russ).
618. Prakash, M., A semi-classical treatment of laser-induced multiphoton excitation of polyatomic molecules, *Indian J. Phys.* **54B**, N 1–2, 106–111 (1980) (Eng) (P.A. **85**:34514).
619. Reiser, D., and Laubereau, A., Ultrafast polarization spectroscopy of dye molecules, *Opt. Commun* **42**, N 5, 329–334 (1982) (Eng).
620. Roncin, J.-Y., and Damany, H., Improved cell design for pulsed dye lasers, *Rev. Sci. Instrum.* **52**, N 12, 1922–1923 (1981) (Eng) (P.A. **85**:39671).
621. Rubinov, A. N., and Efendiev, T. Sh., Dye lasers with light-induced distributed feedback, *Kvantovaya Elektron.* **9**, N 12, 2359–2366 (1982) (Russ).

622. Rubinov, A. N., Chesnulyavichus, Y., and Efendiev, T. Sh., Stimulated emission of tunable picosecond pulses in the UV and blue-green spectral regions by a distributed-feedback dye laser, *Kvantovaya Elektron.* **9**, N 11, 2351–2352 (1982) (Russ).
623. Seki, H., Shishido, C., Yasui, S., and Uchida, T., Dichroic azo dyes for guest-host liquid-crystal cell, *Jap. J. Appl. Phys.* pt. 1, **21**, N 1, 191–192 (1982) (Eng).
624. Semenets, T. I., High self-diffraction due to vibronic transitions in molecules, *Ukr. Fiz. Zh.* **27**, N 2, 184–188 (1982) (Russ) (P.A. **85**:60186).
625. Sibbett, W., and Taylor, J. R., Picosecond pulse generation in a passively mode-locked green dye laser, *Opt. Commun.* **43**, N 1, 50–52 (1982) (Eng).
626. Singh, A., Misra, C. K., Shukla, J. P., and Saxena, M. C., Permittivity and polarisability dispersion studies in some dyes, *J. Phys. D: Appl. Phys.* **15**, N 7, 1285–1287 (1982) (Eng).
627. Tolstorozhev, G. B., Khalimanovich, D. M., and Borisevich, A. N., Bleaching of organic compound vapours under intense picosecond excitation, *Dokl. Akad. Nauk BSSR* **26**, N 9, 790–793 (1982) (Russ).
628. Trusov, K. K., Coumarin-6 as an active medium of the dye vapour laser with broadband optical pumping and some features of such lasers, *Kvantovaya Elektron.* **9**, N 11, 2192–2197 (1982) (Russ).
629. Vabishchevich, I. A., Dasko, A. D., Rubinov, A. N., Ryzhechkin, S. A., Efendiev, T. Sh., and Yakovenko, V. A., Generation of narrow radiation in distributed feedback dye laser by wide spectrum excitation, *Pis'ma v Zh. Tech. Fiz.* **8**, N 21, 1316–1319 (1982) (Russ).
630. Venediktov, E. A., and Krasnovsky, A. A., Jr., Efficiency of luminescence generation of singlet molecular oxygen by porphyrins, *Zh. Prikl. Spektrosk.* **36**, N 1, 152–154 (1982) (Russ).
631. Vizgert, R. V., Davydov, B. L., Kotovshchikov, S. G., and Starodubtseva, M. P., Neodymium-laser second harmonic generation in powders of noncentrosymmetric organic compounds, *Kvantovaya Elektron.* **9**, N 2, 380–383 (1982) (Russ).
632. Von Trebra, R., and Koch, T. H., DABCO stabilization of coumarin dye lasers, *Chem. Phys. Lett.* **93**, N 4, 315–317 (1982) (Eng).
633. Wokaun, A., Liao, P. F., Freeman, R. R., and Storz, R. H., High-energy picosecond pulses: design of a dye-laser-amplifier system, *Opt. Lett.* **7**, N 1, 13–15 (1982) (Eng) (P.A. **85**:39670).
634. Zinoviev, P. V., Naboikin, Yu. V., Lopina, S. V., Samartsev, V. V., and Silaeva, N. B., A self-induced transparency excited by self-stimulated emission of pyrene, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 8, 1486–1490 (1982) (Russ) (P.A. **86**:80718).

3.11. Spectroscopy of photochemical reactions

635. Abakumov, G. A., Polyakov, B. I., Simonov, A. P., Tchuiko, L. S., and Yaroslavtzev, V. T., Stepwise photoionization of complex organic molecules in the gas phase induced by UV laser radiation, *Appl. Phys. B* **27**, N 1, 57–61 (1982) (Eng) (P.A. **85**:44009).
636. Aristov, A. V., and Shevandin, V. S., Spectroscopic study of the reversible photoproduct in solutions of rhodamines during two-stage excitation, *Opt. and Spektrosk.* **50**, N 3, 587–589 (1981) (Russ) (P.A. **85**:34484).
637. Barker, J. R., Rossi, M. J., and Pladziewicz, J. R., Level-to-level vibrational energy transfer studies: energy dependence and observation of product species for azulene (S_0 , E_{vib}) + CO₂, *Chem. Phys. Lett.* **90**, N 2, 99–104 (1982) (Eng).
638. Bartocci, G., Masetti, F., Mazzucato, U., Dellonte, S., and Orlandi, G., Photophysical study of rotational isomers of mono-aza- and di-aza-stilbenes, *Spectrochim. acta* **38A**, N 7, 729–735 (1982) (Eng).
639. Beecroft, R. A., Davidson, R. S., Goodwin, D., Pratt, J. E., Chewter, L. A., and Phillips, D. A., A solvent isotope effect upon exciplex photochemistry, *Chem. Phys. Lett.* **93**, N 5, 468–474 (1982) (Eng).

640. Bonch-Bruevich, A. M., Razumova, T. K., and Starobogatov, I. O., Investigation of elementary photophysical and photochemical processes in organic molecules using the optoacoustic effect, *Zh. Prikl. Spektrosk.* **37**, N 6, 981–996 (1982) (Russ).
641. Byteva, I. M., Golomb, O. L., Gurinovich, G. P., and Karpov, V. V., Participation of singlet molecular oxygen in the process of accelerated bleaching of dye mixtures, *Zh. Prikl. Spektrosk.* **36**, N 5, 770–776 (1982) (Russ).
642. Carney, T. E., and Baer, T., Translational energies of fragment ions in the multiphoton ionization of benzene, *J. Chem. Phys.* **76**, N 12, 5968–5973 (1982) (Eng).
643. Chuang, T. J., Infrared laser stimulated desorption of pyridine from KCl surfaces, *J. Chem. Phys.* **76**, N 7, 3828–3829 (1982) (Eng).
644. Colpa, J. P., and Stehlik, D., The kinetics of the photo-chemical hydrogen abstraction in crystals of fluorene doped with acridine, *Chem. Phys.* **65**, N 1, 97–105 (1982) (Eng) (P.A. **85**:57627).
645. Coulter, D. R., Liang, R. H., Di Stefano, S., Moacanin, J., and Gupta, A., Time-resolved spectroscopy of solid poly(1-vinyl naphthalene) following electron beam pulse radiolysis: pulse radiolytic studies on polymers, *Chem. Phys. Lett.* **87**, N 6, 594–598 (1982) (Eng) (P.A. **85**:72995).
646. Derkacheva, L. D., Krymova, A. I., Petukhov, V. A., and Platonov, N. S., Kinetics of photoprotolytic reaction in coumarin-dye solution, *Opt. and Spektrosk.* **53**, N 1, 73–78 (1982) (Russ).
647. Encinas, M. V., Rubio, M. A., and Lissi, E. A., Quenching and photobleaching of excited polycyclic aromatic hydrocarbons by carbon tetrachloride, *J. Photochem.* **18**, N 2, 137–150 (1982) (Eng).
648. Galagan, B. I., Dakhnov, P. D., Dyumaev, K. M., Komlev, I. V., Matyushin, G. A., and Tribel'skii, M. I., On the mechanism of formation of free carbon in organic liquids on exposure to the optical radiation of moderate intensity, *Kvantovaya Elektron.* **9**, N 2, 291–298 (1982) (Russ).
649. Horie, K., and Mita, I., Photochemistry in polymer solids. Decay of benzophenone phosphorescence in poly(methyl methacrylate), *Chem. Phys. Lett.* **93**, N 1, 61–65 (1982) (Eng).
650. Inbar, S., Linschitz, H., and Cohen, S. G., Quenching, radical formation and disproportionation in the photoreduction of 4-carboxybenzophenone by 4-carboxybenzhydrol, hydrazine and hydrazinium ion, *J. Amer. Chem. Soc.* **103**, N 24, 7323–7328 (1981) (Eng) (P.A. **85**:67756).
651. Irion, M. P., Fuss, W., and Kompa, K.-L., UV-laser induced photo-oxidation of aqueous benzene solutions: formation of phenol, *Appl. Phys. B* **27**, N 4, 191–194 (1982) (Eng) (P.A. **85**:75358).
652. Jacques, P., Investigation of tautomerism and photochromism exhibited by a series of hydroxy azoic cationic dyes. Part 2. Kinetic behaviour, *J. chim. phys. et phys.-chim. biol.* **79**, N 4, 351–354 (1982) (Eng).
653. Knee, J. L., Otis, C. E., and Johnson, P. M., Photochemistry of benzene and oxygen in supersonic cluster beams, *J. Phys. Chem.* **86**, N 23, 4467–4469 (1982) (Eng).
654. Kramer, J., Infrared laser induced decomposition of tetrahydrofuran, *J. Phys. Chem.* **86**, N 1, 26–35 (1982) (Eng).
655. Laplante, J. P., and Pottier, R. H., Study of the oscillatory behavior in irradiated 9, 10-dimethylanthracene/chloroform solutions, *J. Phys. Chem.* **86**, N 24, 4759–4766 (1982) (Eng).
656. Lebedeva, N. S., Kuznetsova, N. A., Kaliya, O. L., and Lukyanets, E. A., Towards simulation of photochemical processes during flash photolysis of rhodamine 6 G ethanolic solutions, *Zh. Prikl. Spektrosk.* **36**, N 1, 150–152 (1982) (Russ).
657. Levshin, L. V., Ryzhikov, B. D., and Senatorova, N. R., Optical effects of nonhomogeneous broadening of electronic spectra of liquid solutions of dyes, *Vestn. Mosk. Univ. Fiz., Astron.* **23**, N 3, 16–19 (1982) (Russ).

658. Lougnot, D.-J., Jacques, P., Fouassier, J.-P., The behaviour of triplet benzophenone in micellar solutions: evidence for an exciplex mechanism? *J. Photochem.* **19**, N 1, 59–71 (1982) (Eng).
659. Lougnot, D.-J., Brunero, P., Fouassier, J.-P., and Faure, J., Photophysical studies of cyanine dyes. Part 4. Rigidity, photoisomerisation and laser effect, *J. chim. phys. et phys.-chim. biol.* **79**, N 4, 343–349 (1982) (Fr).
660. Martin, M. M., and Breheret, E., Hydrogen bonding interaction effect on carbazole triplet state photophysics, *J. Phys. Chem.* **86**, N 1, 107–111 (1982) (Eng).
661. Mazzucato, U., Aloisi, G. G., and Masetti, F., Role of charge transfer interactions in photoreactions. 3. Inorganic anion-induced intersystem crossing of stilbene-like molecules, *J. Photochem.* **18**, N 3, 211–222 (1982) (Eng).
662. Meltzer-Shafran, L. V., and Rapoport, V. L., Manifestation of acridine dye aggregation in Stark-effect spectra, *Vestn. Leningr. Univ. Fiz., Khim.* N 2, 82–87 (1982) (Russ).
663. Mikhailov, Yu. T., and Rylkov, V. V., Cooperative and step-wise photoprocesses in rhodamine solutions, *Zh. Prikl. Spektrosk.* **36**, N 3, 445–451 (1982) (Russ).
664. Mirek, J., and Sygula, A., MNDO study on relative stabilities of monosubstituted pyridine tautomers, *THEOCHEM* **3**, N 1–2, 85–90 (1981) (Eng) (P.A. **85**:34302).
665. Misra, T. N., and Prasad, P. N., Phonon spectroscopy of photochemical reactions in organic solids: photodimerization of 2,6-dimethyl-*p*-benzoquinone, *Chem. Phys. Lett.* **85**, N 4, 381–386 (1982) (Eng).
666. Monti, S., Orlandi, G., and Palmieri, P., Features of the photochemically active state surfaces of azobenzene, *Chem. Phys.* **71**, N 1, 87–99 (1982) (Eng).
667. Nakashima, N., and Yoshihara, K., Laser photolysis of benzene. 5. Formation of hot benzene, *J. Chem. Phys.* **77**, N 12, 6040–6050 (1982) (Eng).
668. Okada, T., Kida, K., and Mataga, N., Picosecond laser spectroscopy of photocycloaddition reaction of 9-cyanoanthracene-1,3-diene systems and photodecomposition reaction of the cycloadducts, *Chem. Phys. Lett.* **88**, N 2, 157–160 (1982) (Eng).
669. Orahovats, A. S., Christova, N. J., and Spassov, A. W., Photochemical isomerization of benzil bis-phenylhydrazone, *Mol. Photochem.* **9**, N 6, 501–504 (1979) (Eng).
670. Patel, J. S., and Hanson, D. M., Photochemical control of energy transfer in molecular crystals, *Chem. Phys.* **72**, N 1, 2, 35–40 (1982) (Eng).
671. Przhonskaya, O. V., Tikhonov, E. A., Mikhailenko, F. A., and Shevchuk, L. I., Photoinduced proton transfer in polymethine dye solutions, *Zh. Prikl. Spektrosk.* **37**, N 1, 54–60 (1982) (Russ).
672. Pyatosin, V. E., Tsvirko, M. P., Solov'ev, K. N., and Kachura, T. F., Nanosecond-absorption-spectroscopy study of photophysics of porphyrin complexes with rare-earth elements, *Opt. and Spektrosk.* **52**, N 2, 269–275 (1982) (Russ).
673. Rentsch, S. K., Modeling of the fast photoisomerisation process in polymethine dyes, *Chem. Phys.* **69**, N 1, 2, 81–87 (1982) (Eng).
674. Rumyantseva, Yu. I., and Zhbakov, R. G., Specific features of photooxidation of anthracene in a cross-linked polymer composition, *Zh. Prikl. Spektrosk.* **37**, N 1, 108–112 (1982) (Russ).
675. Sarkar, H. K., Song, P.-S., Park, S. C., and Lee, E., Model for photosynthetic light harvesting system: energy transfer in anthracene- and biphenyl-chlorophyll derivatives, *J. Lumin.* **26**, N 4, 347–358 (1982) (Eng).
676. Scaiano, J. C., Lee, C. W. B., Chow, Y. L., and Buono-Core, G. E., Laser flash studies of the photochemistry of anthrone, *J. Photochem.* **20**, N 4, 327–334 (1982) (Eng).
677. Scaiano, J. C., Solution photochemistry of *p*-hydroxybenzophenone at low temperatures, *Chem. Phys. Lett.* **92**, N 1, 97–99 (1982) (Eng).

678. Smirnov, V. A., and Brichkin, S. B., Spectral and photochemical properties of aromatic nitrenes, *Chem. Phys. Lett.* **87**, N 6, 548–551 (1982) (Eng) (P.A. 85:70318).
679. Snare, M. J., Treloar, F. E., Ghiggino, K. P., and Thistlethwaite, P. J., The photophysics of rhodamine B, *J. Photochem.* **18**, N 4, 335–346 (1982) (Eng).
680. Sumitani, M., and Yoshihara, K., Photochemistry of the lowest excited singlet state: acceleration of trans-cis isomerization by two consecutive picosecond pulses, *J. Chem. Phys.* **76**, N 1, 738–740 (1982) (Eng) (P.A. 85:41908).
681. Sundström, V., and Gillbro, T., Viscosity-dependent isomerization yields of some cyanine dyes. A picosecond laser spectroscopy study, *J. Phys. Chem.*, 1982, **86**, N 10, 1788–1794 (1982) (Eng).
682. Swiatkiewicz, J., Eisenhardt, G., Prasad, P. N., Thomas, J. M., Jones, W., Theocharis, C. R., Phonon spectroscopy of photochemical reactions in organic solids: Photodimerization of 2-benzyl-5-benzylidenecyclopentanone and photopolymerization of 2,5-distyrylpyrazine, *J. Phys. Chem.* **86**, N 10, 1764–1767 (1982) (Eng).
683. Syage, J. A., Lambert, Wm. R., Felker, P. M., Zewail, A. H., and Hochstrasser, R. M., Picosecond excitation and trans-cis isomerization of stilbene in a supersonic jet: dynamics and spectra, *Chem. Phys. Lett.* **88**, N 3, 266–270 (1982) (Eng) (P.A. 85:83347).
684. Takagi, Y., Sumitani, M., Nakashima, N., O'Connor, D. V., and Yoshihara, K., Laser flash photolysis of benzene. 7. Fluorescence decay in the channel 3 region, *J. Chem. Phys.* **77**, N 12, 6337–6338 (1982) (Eng).
685. Thistlethwaite, P. J., and Corkill, P. J., Direct observation of photoautomerism kinetics in 7-quinolinol by picosecond spectroscopy, *Chem. Phys. Lett.* **85**, N 3, 317–321 (1982) (Eng).
686. Tway, P. C., and Cline Love, L. J., Effects of excited-state prototropic equilibria on the fluorescence energies of benzimidazole and thiabendazole homologues, *J. Phys. Chem.* **86**, N 26, 5227–5230 (1982) (Eng).
687. Tway, P. C., and Cline Love, L. J., Photophysical properties of benzimidazole and thiabendazole and their homologues. Effect of substituents and solvent on the nature of the transition, *J. Phys. Chem.* **86**, N 26, 5223–5226 (1982) (Eng).
688. Warman, J. M., Concerning the mechanism of laser photo-ionization of solutions of aromatic hydrocarbons in alkane solvents, *Chem. Phys. Lett.* **92**, N 2, 181–183 (1982) (Eng).
689. Yamamoto, S.-a., and Grellmann, K.-H., The adiabatic photodissociation of the anthracene-tetracene photodimer, *Chem. Phys. Lett.* **92**, N 5, 533–540 (1982) (Eng).
690. Yamin, P., Piechowski, A. P., Bird, G. R., and Morel, D., Comparison of the action of some merocyanine dyes as solar photovoltaic elements and as photographic sensitizers, *J. Phys. Chem.* **86**, N 19, 3796–3802 (1982) (Eng).
691. Yorozu, T., Hoshino, M., Imamura, M., and Shizuka, H., Photoexcited inclusion complexes of β -naphthol with α -, β -, and γ -cyclodextrins in aqueous solutions, *J. Phys. Chem.* **86**, N 22, 4422–4426 (1982) (Eng).
692. Zare, P., and Bernstein, P., Dynamics of reactions with exactly known initial and final states. In: Physics abroad. Collection of popular science articles. Laser chemistry. Super-conductivity. Solid State Physics. Moscow, 90–117 (1982) (Russ).
693. Zewail, A., Selective laser chemistry—is it possible? In: Physics abroad. Collection of popular science articles. Laser chemistry. Superconductivity. *Solid State Physics*. Moscow, 63–89 (1982) (Russ).
694. Zinkovskaya, O. V., and Galashin, E. A., The influence of oxygen on the photochemical processes in thin layers of acridine solutions, *Dokl. Akad. Nauk SSSR* **264**, N 6, 1417–1421 (1982) (Russ).

4. ABSORPTION AND LUMINESCENCE SPECTRA OF INTERMOLECULAR COMPLEXES

4.1. Charge-transfer complexes

695. Allgeier, J., Macho, V., Stehlik, D., Vieth, H. M., Auch, W., and Von Schütz, J. U., Optical nuclear polarization via hyperfine relaxation. Polarization mechanism in anthracene/tetracyanobenzene charge-transfer crystals, *Chem. Phys. Lett.* **86**, N 5, 6, 522–527 (1982) (Eng) (P.A. **85**:51500).
696. Avdeenko, A. A., Karachevtsev, V. A., and Nabokin, Yu. V., Phosphorescence of crystals of naphthalene-tetrachlorophthalic anhydride charge-transfer complex at low temperatures, *Zh. Prikl. Spektrosk.* **37**, N 4, 666–668 (1982) (Russ).
697. Bandrauk, A. D., Truong, K. D., and Carlone, C., Temperature dependence of single crystal Raman spectra of the complex (perylene)₃ TCNQ, *Chem. Phys.* **66**, N 3, 293–301 (1982) (Eng) (P.A. **85**:72470).
698. Bhowmik, B. B., and Paul, T. K., Charge-transfer interaction of carbontetrachloride with tetracene, *Spectrochim. acta* **38A**, N 6, 713–715 (1982) (Eng).
699. Birckner, E., Paetzold, R., and Haucke, G., Quenching of the fluorescence and the formation of exciplexes of thioindigo by aromatic electron donors, *Chem. Phys. Lett.* **89**, N 1, 22–25 (1982) (Eng) (P.A. **85**:85724).
700. Blackadar, R. L., and Ponte Goncalves, A. M., Magnetic resonance investigations of photoexcited triplet states in naphthalene-tetracyanobenzene single crystals, *Chem. Phys. Lett.* **85**, N 4, 483–488 (1982) (Eng).
701. Corvaja, C., and Pasimeni, L., Electron spin polarisation effects of ISC into a superposition of spin states: triplet excitons in biphenyl-tetracyanobenzene 1 : 1 complex, *Chem. Phys. Lett.* **88**, N 3, 347–352 (1982) (Eng) (P.A. **85**:80701).
702. Darwent, J. R., McCubbin, I., and Phillips, D., Excited singlet and triplet state electron-transfer reactions of aluminium (III) sulphonated phthalocyanine, *J. Chem. Soc. Faraday Trans. II* **78**, N 2, 347–357 (1982) (Eng) (P.A. **85**:78089).
703. Eaton, D. F., and Pensak, D. A., The naphthalene-butadiene exciplex. An extended Hückel treatment, *J. Phys. Chem.* **85**, N 19, 2760–2765 (1981) (Eng) (P.A. **85**:34311).
704. Fuke, K., and Kaya, K., Electronic absorption spectra of phenol dimer and toluene-cyanobenzene complex as studied by mass-selected MPI-nozzle beam method, *Chem. Phys. Lett.* **91**, N 4, 311–314 (1982) (Eng).
705. Fung, K. H., Selzle, H. L., and Schlag, E. W., Structure of the benzene-argon complex in the gas phase at 3 kelvin, *Z. Naturforsch. A* **36**, N 12, 1338–1339 (1981) (Eng) (P.A. **85**:39442).
706. Grupp, A., Wolf, H. C., and Schmid, D., ESR and ENDOR of triplet states in the charge-transfer crystal naphthalene-tetracyanobenzene, *Chem. Phys. Lett.* **85**, N 3, 330–334 (1982) (Eng) (P.A. **85**:46357).
707. Kobayashi, T., Picosecond time-resolved $S_n \leftarrow S_1$ absorption spectrum of the tetracyanobenzene-toluene complex, *Chem. Phys. Lett.* **85**, N 2, 170–174 (1982) (Eng) (P.A. **85**:29647).
708. Krasser, W., Kettler, U., and Bechthold, P. S., Luminescence and enhanced Raman spectra of pure and pyridine-bonded small silver clusters, *Chem. Phys. Lett.* **86**, N 3, 223–227 (1982) (Eng).
709. Law, K. S., and Prasad, P. N., External heavy atom effect, exciton-phonon coupling, and triplet energy transfer in a novel crystalline complex between naphthalene and 1,4-diiodotetrafluorobenzene, *J. Chem. Phys.* **77**, N 3, 1107–1113 (1982) (Eng).
710. Lesin, V. I., and Frankevich, E. L., An anomalous magnetic field dependence of the annihilation rate of triplet excitons in 1 : 1 PDMDI-anthracene crystals, *Mater. Sci.* **7**, N 2–3, 229 (1981) (Eng) (P.A. **85**:71880).

711. Lim, B. T., Okajima, S., Chandra, A. K., and Lim, E. C., Radiationless transitions in electron donor-acceptor complexes: Position-dependent deuterium isotope effects on $S_1 \rightarrow S_0$ internal conversion of 1:1 and 2:1 complexes of methyl-substituted benzenes with tetracyanobenzene, *J. Chem. Phys.* **77**, N 8, 3902–3909 (1982) (Eng).
712. Mrozek, J., Petelenz, P., and Smith, V. H., Jr., Vibronic coupling in excited charge-transfer states of solid-state charge-transfer complexes, *Chem. Phys. Lett.* **85**, N 2, 245–248 (1982) (Eng).
713. Nagamura, T., Kurihara, T., and Matsuo, T., Studies on formation and ionic photodissociation of charge-transfer complexes in micelles with electron donor groups. 1. Cationic surfactants with para-substituted benzene rings, *J. Phys. Chem.* **86**, N 10, 1886–1890 (1982) (Eng).
714. Shizuka, H., Nihira, H., and Shinozaki, T., Proton transfer reactions in the excited state of the protonated naphthylamine-18-crown-6-complexes, *Chem. Phys. Lett.* **93**, N 2, 208–212 (1982) (Eng).
715. Thurnauer, M. C., and Meisel, D., Time-resolved EPR studies of the benzophenone-diphenyl ketyl radical system. Possible evidence for quartet-doublet intersystem crossing, *Chem. Phys. Lett.* **92**, N 4, 343–348 (1982) (Eng).

4.2. Excimers, dimers and other homomolecular complexes

716. Al-Chalabi, A. O., Assignment of new transitions from the S_1^* state and from the excimer state in pyrene, *Chem. Phys. Lett.* **90**, N 3, 218–220 (1982) (Eng).
717. Auweter, H., Ramer, D., Kunze, B., and Wolf, H. C., The dynamics of excimer formation in perylene crystals, *Chem. Phys. Lett.* **85**, N 3, 325–329 (1982) (Eng) (P.A. **85**:46656).
718. Berkovic, G. E., and Ludmer, Z., Crystal excimer fluorescence from substituted naphthalenes, *J. Lumin.* **26**, N 4, 463–467 (1982) (Eng).
719. Crisp, G. M., and Walmsley, S. H., Slip planes crystal growth and the photodimerisation of anthracene, *Chem. Phys.* **68**, N 1, 2, 213–222 (1982) (Eng).
720. Dissado, L. A., and Walmsley, S. H., Excimer formation and trapping processes in molecular crystals, *Chem. Phys. Lett.* **87**, N 1, 74–78 (1982) (Eng) (P.A. **85**:50778).
721. Fuke, K., and Kaya, K., Electronic absorption spectra of phenol dimer and toluene-cyanobenzene complex as studied by mass-selected MPI-nozzle beam method, *Chem. Phys. Lett.* **91**, N 4, 311–314 (1982) (Eng).
722. Godfried, H. P., and Silvera, I. F., Raman spectroscopy of argon dimers, *Phys. Rev. Lett.* **48**, N 19, 1337–1340 (1982) (Eng) (P.A. **85**:70265).
723. Konishi, S., Hoshino, M., and Imamura, M., Luminescence of dimeric copper(II) porphyrin, *Chem. Phys. Lett.* **86**, N 3, 228–230 (1982) (Eng).
724. Lee, H. W. H., Patterson, F. G., Olson, R. W., Wiersma, D. A., and Fayer, M. D., Temperature-dependent dephasing of delocalized dimer states of pentacene in *p*-terphenyl: picosecond photon echo experiments, *Chem. Phys. Lett.* **90**, N 3, 172–177 (1982) (Eng).
725. Lemaistre, J.-P., and Kottis, P., Calculations of ESR line shapes of triplet molecular aggregates in solid matrices. 2. Dimers and trimers in disordered matrices, *J. Chem. Phys.* **76**, N 2, 872–885 (1982) (Eng) (P.A. **85**:39522).
726. Levinsky, H., and Wiersma, D. A., Four-wave mixing spectroscopy of molecular dimers. Application to dimers of pentacene in *p*-terphenyl, *Chem. Phys. Lett.* **92**, N 1, 24–28 (1982) (Eng).
727. Lopez Arbeloa, I., and Ruiz Ojeda, P., Dimeric states of rhodamine B, *Chem. Phys. Lett.* **87**, N 6, 556–560 (1982) (Eng) (P.A. **85**:72954).
728. Ludmer, Z., Berkovic, G. E., Zeiri, L., Mühle, W., and Wolf, H. C., Excimer formation and low-temperature fluorescence in 9, 10-dichloroanthracene crystals, *Chem. Phys. Lett.* **90**, N 3, 245–246 (1982) (Eng).

729. Ludmer, Z., Zeiri, L., and Starobinets, S., Nonlinear fluorescence reabsorption in excimer-forming crystals by electronically excited molecules, *Phys. Rev. Lett.* **48**, N 5, 341–344 (1982) (Eng) (P.A. 85:51699).
730. Okada, T., Karaki, I., Matsuzawa, E., Mataga, N., Sakata, Y., and Misumi, S., Ultrafast intersystem crossing in some intramolecular heteroexcimers, *J. Phys. Chem.* **85**, N 26, 3957–3960 (1981) (Eng) (P.A. 85:65041).
731. Pawlikowski, M., and Zgierski, M. Z., Vibronic analysis of circular dichroism spectra of dimeric systems. Chiral molecules consisting of two polyacene chromophores, *J. Chem. Phys.* **76**, N 10, 4789–4797 (1982) (Eng).
732. Roberts, A. J., Phillips, D., Abdul-Rasoul, F. A. M., and Ledwith, A., Temperature dependence of excimer formation and dissociation in poly(*N*-vinylcarbazole), *J. Chem. Soc. Faraday Trans. 1* **77**, N 11, 2725–2734 (1981) (Eng) (P.A. 85:39441).
733. Smirl, A. L., Clark, J. B., Van Stryland, E. W., and Russell, B. R., Population and rotational kinetics of the rhodamine B monomer and dimer: Picosecond transient spectrometry, *J. Chem. Phys.* **77**, N 2, 631–640 (1982) (Eng).
734. Yamamoto, S.-a., and Grellmann, K.-H., The adiabatic photodissociation of the anthracene-tetracene photodimer, *Chem. Phys. Lett.* **92**, N 5, 533–540 (1982) (Eng).
735. Yamamoto, S.-a., and Grellmann, K.-H., The triplet state of anthracene photodimers and the wavelength dependence of the photodissociation process, *Chem. Phys. Lett.* **85**, N 1, 73–80 (1982) (Eng) (P.A. 85:29534).
736. Yorozu, T., Hoshino, M., and Imamura, M., Fluorescence studies of pyrene inclusion complexes with α -, β -, and γ -cyclodextrins in aqueous solutions. Evidence for formation of pyrene dimer in γ -cyclodextrin cavity, *J. Phys. Chem.* **86**, N 22, 4426–4429 (1982) (Eng).

5. SPECTRA OF PURE MOLECULAR CRYSTALS

5.1. Phonon spectra

737. Andrews, S. R., Harley, R. T., and Jenkins, T. E., Light scattering study of the 35 K phase transition in diamantane, *J. Phys. C: Solid State Phys.* **12**, N 4, L243–L248 (1982) (Eng) (P.A. 85:61918).
738. Antsygina, T. N., Slyusarev, V. A., Freiman, Yu. A., and Erenburg, A. I., Libration motion dynamics in N_2 -type crystals. 3. Comparison with the experiment, *Fiz. Nizk. Temp.* **8**, N 10, 1095–1110 (1982) (Russ).
739. Aroca, R., DiLella, D. P., and Loutfy, R. O., Raman spectra of solid films. 1. Metal-free phthalocyanine, *J. Phys. and Chem. Solids* **43**, N 8, 707–711 (1982) (Eng).
740. Asenbaum, A., Thermodynamics and vibrational dynamics of tetrachloromethane, benzene, and cyclohexane, *Adv. Mol. Relaxation and Interaction Processes* **22**, N 3, 187–198 (1982) (Eng) (P.A. 85:72511).
741. Bree, A., and Zwarich, R., Torsionally induced bands in the Raman spectrum of a biphenyl crystal, *J. Raman Spectrosc.* **12**, N 3, 247–250 (1982) (Eng) (P.A. 85:87777).
742. Brock, C. P., and Dunitz, J. D., Temperature dependence of thermal motion in crystalline naphthalene, *Acta crystallogr.* **B38**, N 8, 2218–2228 (1982) (Eng).
743. Bugueno-Hoffmann, R., Infrared polarized spectra of single crystal of chloropentamethylbenzene above and below the temperature of transition, *Spectrochim. acta* **38A**, N 2, 223–237 (1982) (Eng).
744. Carlone, C., Cyr, C., Jandl, S., Hota, N. K., and Zauhar, J., Temperature dependence of the Raman active phonons in TCNQ crystals, *J. Chem. Phys.* **77**, N 10, 4920–4925 (1982) (Eng).

745. Dlott, D. D., Schosser, C. L., and Chronister, E. L., Temperature-dependent vibrational dephasing in molecular crystals: a picosecond CARS study of naphthalene, *Chem. Phys. Lett.* **90**, N 5, 386–390 (1982) (Eng).
746. Dorner, B., Bokhenkov, E. L., Chaplot, S. L., Kalus, J., Natkaniec, I., Pawley, G. S., Schmelzer, U., and Sheka, E. F., The 12 external and the 4 lowest internal phonon dispersion branches in d_{10} -anthracene at 12 K, *J. Phys. C: Solid State Phys.* **15**, N 11, 2353–2365 (1982) (Eng) (P.A. 85:66149).
747. Goel, R. K., and Agarwal, M. L., Vibrational spectra of 2, 6-dichloropyridine, *Indian J. Pure and Appl. Phys.* **20**, N 2, 164–166 (1982) (Eng) (P.A. 85:61888).
748. Golovko, V. A., and Levanyuk, A. P., Light scattering and dispersion of susceptibilities in an incommensurate phase, *Zh. Eksp. and Teor. Fiz.* **81**, N 6, 2296–2313 (1981) (Russ) (P.A. 85:46630).
749. Gorelik, V. S., Study of bound and continuum vibrational states of dielectric crystals by Raman scattering. In: Raman scattering of light and dynamics of crystal lattice. Moscow, Nauka, 15–140 (1982) (Russ).
750. Jindal, V. K., Kalus, J., Bokhenkov, E. L., Chaplot, S. L., Dorner, B., Natkaniec, I., Pawley, G. S., and Sheka, E. F., Temperature dependence of the phonon frequencies in deuterated anthracene, *J. Phys. C: Solid State Phys.* **15**, N 36, 7283–7294 (1982) (Eng).
751. Jobic, H., Neutron inelastic scattering from oriented and polycrystalline polyethylene: Observation and polarization properties of the optical phonons, *J. Chem. Phys.* **76**, N 5, 2693–2696 (1982) (Eng).
752. Kiefte, H., Clouter, M. J., Rich, N. H., and Ahmad, S. F., Pure vibrational Raman spectra of simple molecular crystals: Ar-N₂, Ar-O₂, Ar-CO, β -CO, *Can. J. Phys.* **60**, N 9, 1204–1208 (1982) (Eng).
753. Kirin, D., and Pawley, G. S., Low-frequency Raman spectrum and pressure-induced phase transition of crystalline 4, 4'-dichlorobenzophenone, *Chem. Phys. Lett.* **85**, N 3, 298–301 (1982) (Eng) (P.A. 85:46557).
754. Laposa, J. D., and Montgomery, C., Infrared spectrum of hexafluorobenzene crystal at 77 K, *Spectrochim. acta* **38A**, N 11, 1109–1113 (1982) (Eng).
755. Majoube, M., and Vergoten, G., Lattice vibrations of crystalline imidazole and ¹⁵N and D substituted analogs, *J. Chem. Phys.* **76**, N 6, 2838–2847 (1982) (Eng) (P.A. 85:67032).
756. Medina, F. D., Far infrared spectrum of α -N₂ under pressure, *J. Chem. Phys.* **77**, N 9, 4785–4786 (1982) (Eng).
757. Miller, R. J. D., Casalegno, R., Nelson, K. A., and Fayer, M. D., Laser-induced ultrasonics: a dynamic holographic approach to the measurement of weak absorptions, optoelastic constants and acoustic attenuation, *Chem. Phys.* **72**, N 3, 371–379 (1982) (Eng).
758. Northrop, G. A., Phonon focusing of dispersive phonons in Ge, *Phys. Rev. B* **26**, N 2, 903–911 (1982) (Eng).
759. Piaggio, P., Rui, M., Tubino, R., and Dellepiane, G., Vibrational spectrum and hydrogen bonding in solid α -naphthol, *Spectrochim. acta* **38A**, N 8, 913–920 (1982) (Eng).
760. Schlotter, N. E., and Hudson, B., Tetraphenyl-group IV B compounds: Flexible molecules with high symmetry crystals. 1. Assignment of low frequency infrared and Raman bands, *J. Chem. Phys.* **76**, N 10, 4844–4856 (1982) (Eng) (P.A. 85:72480).
761. Sekkina, M. M. A., and Assar, S. S., Infrared absorption spectra and hydrogen bonding of some solid aminoanthraquinones, *Proc. Indian Nat. Sci. Acad. Pt. A*, **48**, N 1, 112–118 (1982) (Eng).
762. Sharma, S. N., Infrared and laser Raman spectra of 2, 6-dichlorobenzylchloride, *Indian J. Pure and Appl. Phys.* **20**, N 7, 562–564 (1982) (Eng).
763. Sidorov, N. V., and Mukhtarov, E. I., Installation for investigation of phase transitions using temperature variations in Raman spectra, *Zh. Prikl. Spektrosk.* **36**, N 3, 517–519 (1982) (Russ).

764. Sidorov, N. V., and Mukhtarov, E. I., Investigation of the pre-melting region of a diphenyl crystal using temperature changes in Raman scattering spectra, *Zh. Prikl. Spektrosk.* **36**, N 1, 154–157 (1982) (Russ).
765. Smulevich, G., Angeloni, L., Giovannardi, S., and Marzhocchi, M. P., Resonance Raman and polarized light infrared spectra of 1,4-dihydroxyanthraquinone. Vibrational studies of the ground and excited electronic states, *Chem. Phys.* **65**, N 3, 313–322 (1982) (Eng) (P.A. **85**:57070).
766. Steinhäuser, O., On the structure and dynamics of liquid benzene, *Chem. Phys.* **73**, N 1, 2, 155–167 (1982) (Eng).
767. Sushchinskii, M. M., Raman scattering of light at phase transitions in crystals. In: Raman scattering of light and dynamics of crystal lattice. Moscow, Nauka, 3–14 (1982) (Russ).
768. Yakovenko, S. E., Naumenko, V. I., Min'ko, A. A., and Ksenofontova, N. M., Raman scattering spectra and dynamic properties of molecules of nematic liquid crystals, *Zh. Prikl. Spektrosk.* **37**, N 3, 420–426 (1982) (Russ) (P.A. **86**:80217).

5.2. Electronic and vibronic states and absorption spectra

769. Achlama, A. M., Harke, U., Zimmermann, H., and Dinse, K. P., Optical-nuclear double resonance (ONDOR) using narrow-band laser excitation of a singlet-triplet transition in a molecular crystal, *Chem. Phys. Lett.* **85**, N 3, 339–344 (1982) (Eng).
770. Bellows, J. C., and Prasad, P. N., Dynamics of singlet-triplet transitions in 1,4-dihalonaphthalene neat crystals and solid solutions, *J. Phys. Chem.* **86**, N 3, 328–331 (1982) (Eng) (P.A. **85**:81904).
771. Benadda, M. D., Carru, J. C., Amoureux, J. P., Castelain, M., and Chapoton, A., Experimental and theoretical study of the dielectric properties of 1-cyanoadamantane; spectrum of the compact crystal from measurements on powder, *J. Phys. D: Appl. Phys.* **15**, N 8, 1477–1489 (1982) (Eng).
772. Doberer, U., Port, H., and Benk, H., High-resolution measurements of the triplet T_1 Davydov components in naphthalene $N - h_8$ and $N - d_8$, *Chem. Phys. Lett.* **85**, N 3, 253–258 (1982) (Eng).
773. Fugol, I. Ya., Grigorashchenko, O. N., and Savchenko, E. V., Polariton and spatial dispersion effects in exciton spectra of xenon cryocrystals, *Phys. status solidi* (b), **111**, N 1, 397–406 (1982) (Eng) (P.A. **85**:82904).
774. Gavrilko, T. A., Lisitsa, M. P., Puchkovskaya, G. A., and Yaremko, A. M., Mixing of states and two-particle excitations in a phthalic anhydride crystal, *Ukr. Fiz. Zh.* **27**, N 7, 996–1001 (1982) (Russ).
775. Gliniski, J., Kalinowski, J., Stizza, S., Bernardini, R., and Bianconi, A., Thermoreflectance spectrum of tetracene single crystal, *Solid State Commun.* **38**, N 2, 155–157 (1981) (Eng).
776. Klimusheva, G. V., Kravets, M. A., Struchkov, Yu. T., and Yatsenko, L. P., Effect of crystal structure on electronic spectra of *n*-alkyl-benzenes, *Opt. and Spektrosk.* **52**, N 4, 676–681 (1982) (Russ).
777. Krauss, R., Schrof, W., Wolf, H. C., and Schmid, D., The motion of triplet excitons in β -phase crystals of 9,10-dichloroanthracene, *Chem. Phys.* **73**, N 1, 2, 55–69 (1982) (Eng).
778. Matsui, A., and Mizuno, K., Lineshape analysis of the O-O exciton absorption band in pyrene crystals, *J. Phys. Soc. Jap.* **51**, N 10, 3206–3214 (1982) (Eng).
779. Matsui, A., Mizuno, K., and Iemura, M., Optical absorption and exciton lattice interaction in α - and β -perylene, *J. Phys. Soc. Jap.* **51**, N 6, 1871–1877 (1982) (Eng) (P.A. **85**:87809).
780. Merski, J., and Eckhardt, C. J., Piezomodulation spectroscopy of molecular crystals. I. Methods and principles, *J. Chem. Phys.* **75**, N 8, 3691–3704 (1981) (Eng).

781. Merski, J., and Eckhardt, C. J., Piezomodulation spectroscopy of molecular crystals. 2. The pyromellitic dianhydride-anthracene electron donor-acceptor complex, *J. Chem. Phys.* **75**, N 8, 3705–3719 (1981) (Eng).
782. Merski, J., and Eckhardt, C. J., Piezomodulation spectroscopy of molecular crystals. 3. The first singlet system of anthracene, *J. Chem. Phys.* **75**, N 8, 3719–3730 (1981) (Eng).
783. Merski, J., and Eckhardt, C. J., Piezomodulation spectroscopy of molecular crystals. 4. The first singlet systems of TCNQ and BDP, *J. Chem. Phys.* **75**, N 8, 3731–3742 (1981) (Eng).
784. Mulazzi, E., Tubino, R., and Dellepiane, G., On the origin of the red shift of the Raman excitation profile from the absorption spectrum, *J. Phys. Colloq.* **42**, N C-6, 493–495 (1981) (Eng) (P.A. 85:46584).
785. Nikumb, S. K., Hari, V., Inamdar, A. S., and Mehendale, N., Two photon absorption in anthracene crystal with a nitrogen laser pumped dye laser, *Indian J. Phys.* **54B**, N 1–2, 100–105 (1980) (Eng).
786. Panosyan, Zh. R., Kazaryan, S. A., and Avakyan, P. B., Determination of errors in measurement of optical absorption coefficient of solids, *Zh. Prikl. Spektrosk.* **36**, N 2, 333 (1982) (Russ).
787. Patel, J. S., and Hanson, D. M., Investigation of the Stark effect on the lowest triplet states of 1-indanone single crystals, *Chem. Phys.* **69**, N 3, 249–258 (1982) (Eng).
788. Riley, M. J., Lacey, A. R., Sceats, M. G., and Gilbert, R. G., Low-temperature vibronic spectra of 1,1'-binaphthyl, *Chem. Phys.* **72**, N 1, 2, 83–91 (1982) (Eng).
789. Sebastian, L., Weiser, G., and Bassler, H., Electric field modulated spectra of tetracene and pentacene films, *Mater. Sci.* **7**, N 2–3, 351 (1981) (Eng) (P.A. 85:67078).
790. Singham, S. B., and Pratt, D. W., Triplet excitons in 4,4'-dichlorobenzophenone, *J. Phys. Chem.* **86**, N 4, 507–514 (1982) (Eng) (P.A. 85:87630).
791. Sonnenschein, R., Syassen, K., and Otto, A., Effect of pressure on the first singlet exciton in crystalline anthracene, *J. Chem. Phys.* **74**, N 8, 4315–4319 (1981) (Eng) (P.A. 84:65214).
792. Stevenson, S. H., Johnson, C. K., and Small, G. J., Temperature-dependent polariton behavior of two-photon absorption and second harmonic generation in naphthalene. The perfect crystal regime, *J. Phys. Chem.* **85**, N 19, 2709–2710 (1981) (Eng) (P.A. 85:34834).
793. Syassen, K., Optical absorption of solid xenon at high pressure, *Phys. Rev. B* **25**, N 10, 6548–6550 (1982) (Eng).
794. Tokura, Y., Mitani, T., and Koda, T., Vibronic excitons in anthracene as investigated by thermorefectance spectra, *J. Phys. Soc. Jap.* **51**, N 5, 1551–1557 (1982) (Eng) (P.A. 85:82832).
795. Vankan, J. M. J., and Veeman, W. S., Crystal perfection and triplet excitons in 1,4-dibromonaphthalene, *Chem. Phys. Lett.* **92**, N 5, 519–522 (1982) (Eng).
796. Vankan, J. M. J., and Veeman, W. S., Inhomogeneous triplet absorption in 1,4-dibromonaphthalene, *Chem. Phys. Lett.* **91**, N 5, 358–361 (1982) (Eng).
797. Van Kooten, J. F. C., Van Strien, A. J., and Schmidt, J., Triplet excitons in molecular crystals: a study of the width of the exciton wave packets in tetrachlorobenzene by electron spin echo spectroscopy, *Chem. Phys. Lett.* **90**, N 5, 337–341 (1982) (Eng).
798. Weytens, Ch. H. L., Vankan, J. M. J., and Veeman, W. S., Magnetic resonance on localized excited triplet states in 1,4-dibromonaphthalene, *Spectrosc. Lett.* **15**, N 12, 953–962 (1982) (Eng) (P.A. 86:62838).
799. Wilson, S. R., and Bramley, R., The electronic spectra of 10,10-dimethylantracen-9-one crystals: spin-orbit/vibronic coupling in $^3n\pi^*$ states, *Chem. Phys.* **67**, N 1, 119–132 (1982) (Eng) (P.A. 85:72519).

5.3. Fluorescence and phosphorescence

800. Aaviksoo, J., Liidja, G., and Saari, P., Luminescence spectra of anthracene crystals at 0.4 K, *Phys. status solidi (b)* **110**, N 1, 69–73 (1982) (Eng) (P.A. **85**:61966).
801. Auweter, H., Ramer, D., Kunze, B., and Wolf, H. C., The dynamics of excimer formation in perylene crystals, *Chem. Phys. Lett.* **85**, N 3, 325–329 (1982) (Eng) (P.A. **85**:46656).
802. Avdeenko, A. A., and Pakulov, S. N., Spin-lattice relaxation in excited triplet states of 4,4'-dichlorobenzophenone crystals in high magnetic fields at 2 K, *Opt. and Spektrosk.* **53**, N 2, 367–369 (1982) (Russ).
803. Berkovic, G. E., and Ludmer, Z., Crystal excimer fluorescence from substituted naphthalenes, *J. Lumin.* **26**, N 4, 463–467 (1982) (Eng).
804. Bondar, V. V., and Kurik, M. V., Excitation spectra of anthracene monocrystals with different substrates, *Zh. Prikl. Spektrosk.* **36**, N 1, 43–49 (1982) (Russ).
805. Braun, C. L., Scott, T. W., and Albrecht, A. C., Electric field quenching of recombination fluorescence: A probe of two-photon ionization in the condensed phase, *Chem. Phys. Lett.* **90**, N 2, 81–84 (1982) (Eng).
806. Englman, R., Ranfagni, A., and Mugnai, D., Structured emission of relaxing systems: molecular excitons in rare-gas crystals, *Solid State Commun.* **41**, N 12, 955–958 (1982) (Eng) (P.A. **85**:76935).
807. Fugol', I. Ya., Polariton luminescence in xenon cryocrystals, *Izv. Akad. Nauk SSSR. Ser. Fiz.* **46**, N 2, 349–354 (1982) (Russ).
808. Galanin, M. D., Kirsanov, B. P., and Khan-Magometova, Sh. D., Kinetics of metal quenching of anthracene-crystal luminescence, *Opt. and Spektrosk.* **52**, N 6, 1096–1098 (1982) (Russ).
809. Godlewski, J., and Kalinowski, J., Excitonic effects on Schottky emission in organic crystals, *Mater. Sci.* **7**, N 2–3, 163–168 (1981) (Eng) (P.A. **85**:72048).
810. Grigorashchenko, O. N., Rybalko, Yu. I., Savchenko, E. V., and Fugol', I. Ya., Fine structure of self-localized neon luminescence spectrum, *Fiz. Nizk. Temp.* **8**, N 8, 886–890 (1982) (Russ).
811. Jones, A. C., Janecka-Styrcz, K., and Williams, J. O., Fluorescence lifetimes and time-resolved spectroscopy of 9-cyanoanthracene crystals in the temperature range 77–300 K, *J. Photochem.* **19**, N 2, 163–172 (1982) (Eng).
812. Kalinowski, J., Jankowiak, R., and Bässler, H., Pressure and temperature induced modification of luminescence from tetracene single crystals, *J. Lumin.* **22**, N 4, 397–418 (1981) (Eng).
813. Ludmer, Z., Berkovic, G. E., Zeiri, L., Mühle, W., and Wolf, H. C., Excimer formation and low-temperature fluorescence in 9,10-dichloroanthracene crystals, *Chem. Phys. Lett.* **90**, N 3, 245–246 (1982) (Eng).
814. Ludmer, Z., Zeiri, L., and Starobinets, S., Nonlinear fluorescence reabsorption in excimer-forming crystals by electronically excited molecules, *Phys. Rev. Lett.* **48**, N 5, 341–344 (1982) (Eng) (P.A. **85**:51699).
815. Makhotenko, A. N., and Litvinenko, V. Yu., Specific features of anthracene crystals electroluminescence with switching, *Zh. Prikl. Spektrosk.* **37**, N 1, 68–71 (1982) (Russ).
816. Patel, J. S., and Hanson, D. M., Photochemical control of energy transfer in molecular crystals, *Chem. Phys.* **72**, N 1, 2, 35–40 (1982) (Eng).
817. Popovic, Z., Carrier generation and electric field induced fluorescence quenching in organic photoconductors, *Mater. Sci.* **7**, N 2–3, 303 (1981) (Eng) (P.A. **85**:67108).
818. Popovic, Z. D., Electric field induced fluorescence quenching and photocarrier generation in x-metal-free phthalocyanine, *J. Chem. Phys.* **76**, N 5, 2714–2719 (1982) (Eng).
819. Ranson, P., Peretti, P., and Rousset, Y., Crystal heating and non-radiative relaxation processes of triplet excitons in 4-4' dichlorobenzophenone, *Phys. status solidi (a)* **71**, N 1, K69–K71 (1982) (Eng) (P.A. **85**:87852).

820. Saari, P., and Rebane, K., Phonon relaxation in crystals studied by hot luminescence, *J. Phys. Colloq.* **42**, N C-6, 502–504 (1981) (Eng) (P.A. **85**:46740).
821. Sarkar, S. K., Ghoshal, S. K., and Kastha, G. S., On the origin of some anomalous luminescence behavior of isomeric cyanopyridines, *J. Chem. Phys.* **76**, N 2, 825–833 (1982) (Eng) (P.A. **85**:41396).
822. Shimura, H., and Ohba, Y., Fluorescence simulation in anthracene crystal and its relation to exciton distribution, *Jap. J. Appl. Phys.*, Pt. 1, **21**, N 5, 738–743 (1982) (Eng) (P.A. **85**:87838).
823. Travnikov, V. V., and Krivolapchuk, V. V., Exciton diffusion and resonance radiation self-absorption, *Fiz. Tverd. Tela* **24**, N 4, 961–970 (1982) (Russ).
824. Vankan, J. M. J., and Veeman, W. S., On triplet exciton trapping in 1, 4-dibromonaphthalene, *Chem. Phys. Lett.* **89**, N 3, 258–262 (1982) (Eng).
825. Vial, M., and Martin-bouyer, M., Investigation of the temperature dependence of the long-lived emission from pure single crystals. I. Investigation in the range 50–293 K of three anthracene analogs: thioxanthene, thianthrene and phenoxathine, *Mol. Cryst. and Liquid Cryst.* **76**, N 1–2, 145–158 (1981) (Fr) (P.A. **85**:46743).
826. Vidmont, N. A., Maksimov, A. A., and Tartakovskii, I. I., Polariton propagation and scattering in anthracene single crystals, *Fiz. Tverd. Tela* **24**, N 5, 1384–1389 (1982) (Russ).
827. Von Schütz, J. U., Burger, D., Krauss, R., Mühle, W., and Wolf, H. C., Optical detection of magnetic resonance on triplet states in organic crystals, *J. Lumin.* **24–25**, pt. 1, 467–474 (1981) (Eng) (P.A. **85**:46431).
828. Wakayama, N. I., Fluorescence and phase transition of *p*-terphenyl crystal, *J. Lumin.* **27**, N 3, 299–306 (1982) (Eng).
829. Zhevandrov, N. D., Application of Vavilov polarized luminescence methods to investigation of molecular crystals, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 266–272 (1982) (Russ).
830. Zink, J. I., and Chandra, B. P., Light emission during growth and destruction of crystals. Crystalloluminescence and triboluminescence, *J. Phys. Chem.* **86**, N 1, 5–7 (1982) (Eng).

6. SPECTRA OF IMPURITY AND DISORDERED MOLECULAR CRYSTALS

831. Abdel-Malik, T. G., Abdeen, A. M., El-Labany, H. M., and Aly, A. A., Bulk trapping states in β -zinc phthalocyanine single crystals, *Phys. status solidi (a)*, **72**, N 1, 99–104 (1982) (Eng).
832. Anderson, V. C., Craig, B. B., and Weiss, R. G., Liquid crystalline solvents as mechanistic probes. 6. Dynamic quenching of pyrene fluorescence by 5α -cholestan-3 β -ylidimethylamine in the liquid crystalline and isotropic phases of a cholesteric solvent, *J. Amer. Chem. Soc.* **103**, N 24, 7169–7176 (1981) (Eng) (P.A. **85**:65036).
833. Andrews, L., Kelsall, B. J., and Blankenship, T. A., Vibronic absorption spectra of naphthalene and substituted naphthalene cations in solid argon, *J. Phys. Chem.* **86**, N 15, 2916–2916 (1982) (Eng).
834. Argyrakis, P., Kopelman, R., and Newhouse, J. S., Exciton fusion simulations on binary and ternary lattices: cluster effects, *J. Photochem.* **17**, N 1/2, 114 (1981) (Eng).
835. Averyushkin, A. S., Vitukhnovskii, A. G., and Zhevandrov, N. D., Study of excitation energy transfer relative efficiency in impure molecular crystals from matrix to excited and inexcited impure molecules, *Kratkie soobshch. po fizike* N 11, 26–31 (1982) (Russ).

836. Bellows, J. C., and Prasad, P. N., Dynamics of singlet-triplet transitions in 1, 4-dihalonaphthalene neat crystals and solid solutions, *J. Phys. Chem.* **86**, N 3, 328–331 (1982) (Eng) (P.A. **85**:81904).
837. Belousov, M. V., and Pogarev, D. E., The experimental study of the density of states of quasi-one-dimensional vibrational exciton in KNO_3 isotope-mixed crystals, *Pis'ma v Zh. Eksp. and Teor. Fiz.* **36**, N 5, 152–155 (1982) (Russ).
838. Belousov, M. V., Volf, B. E., Ivanova, E. A., and Pogarev, D. E., Local biphonon in NH_4Br crystal, *Pis'ma v Zh. Eksp. and Teor. Fiz.* **35**, N 11, 457–459 (1982) (Russ).
839. Bendersky, V. A., Brikenshtein, V. Kh., and Filippov, P. G., Resonance hot energy transfer in impurity molecular crystals, *Opt. and Spektrosk.* **52**, N 2, 276–281 (1982) (Russ).
840. Bolotnikova, T. N., Zhukov, V. A., Utkina, L. F., and Shaposhnikov, V. I., Peculiarities of quasi-line spectra of anthracene, *Opt. and Spektrosk.* **53**, N 5, 823–830 (1982) (Russ) (P.A. **86**:87320).
841. Bolotnikova, T. N., Zhukov, V. A., and Utkina, L. F., Photoelectric recording of absorption spectra under the conditions of Shpol'sky effect, *Zh. Prikl. Spektrosk.* **37**, N 5, 800–804 (1982) (Russ).
842. Brown, R., Lemaistre, J.-P., Megel, J., Pee, Ph., Dupuy, F., and Kottis, Ph., Triplet exciton transfer and fusion in isotopically mixed molecular crystals, *J. Chem. Phys.* **76**, N 12, 5719–5726 (1982) (Eng) (P.A. **85**:92474).
843. Carter, T. P., and Gillispie, G. D., Site-selected fluorescence study of anthracene and its halogenated derivatives in Shpol'skii matrices, *J. Phys. Chem.* **86**, N 14, 2691–2695 (1982) (Eng).
844. Cofino, W. P., Hofstraat, J. W., Hoornweg, G. Ph., Gooijer, C., Maclean, C., and Velthorst, N. H., Site-selection polarization measurements on tetracene in stretched polyethylene films, *Chem. Phys. Lett.* **89**, N 1, 17–21 (1982) (Eng) (P.A. **85**:85723).
845. Cooper, R., Denison, L., and Sauer, M. C., Jr., A pulse radiolysis study of the excitation of nitrogen and aromatic hydrocarbons in rare gas-additive mixtures: evidence for subexcitation electron interactions, *J. Phys. Chem.* **86**, N 26, 5093–5097 (1982) (Eng).
846. Danchinov, K. M., Gastilovich, E. A., Rodionov, A. N., and Shigorin, D. N., Electron-vibrational luminescence spectra of dibenzofuran solution at 4.2 K, *Zh. Fiz. Khim.* **56**, N 12, 3041–3045 (1982) (Russ).
847. De Bree, P., and Wiersma, D. A., A resonance Raman scattering study of vibrational dephasing in the mixed crystal of pentacene in naphthalene, *Chem. Phys. Lett.* **88**, N 1, 17–21 (1982) (Eng) (P.A. **85**:77500).
848. Delyukov, A. A., Klimusheva, G. V., Tripachko, N. A., and Turchin, A. V., Non-equilibrium phosphorescence of crystalline benzophenone defects in pulsed magnetic field, *Fiz. Tverd. Tela* **24**, N 2, 568–573 (1982) (Russ).
849. Despres, A., Lejeune, V., and Migirdicyan, E., Temperature and deuterium effects on the phosphorescence lifetimes of dimethylbenzaldehydes in durene single crystals, *Chem. Phys.* **66**, N 1/2, 57–65 (1982) (Eng) (P.A. **85**:67094).
850. Ermalitsky, F. A., Zalessky, I. E., Nizhnikov, V. V., and Orsa, V. N., On the kinetics of phosphorescence quenching of individual coronene radiative centers in *n*-heptane single crystals at 4.2 K, *Opt. and Spektrosk.* **52**, N 3, 490–493 (1982) (Russ).
851. Gentry, S. T., and Kopelman, R., Exciton transport in naphthalene alloys: a transition from percolation to diffusion, *Chem. Phys. Lett.* **93**, N 3, 264–266 (1982) (Eng).
852. Girardet, C., and Maillard, D., Interaction between molecular impurities trapped in rare gas crystals. 2. Interpretation of the *Q* branch in the near infrared spectrum of hydracids, *J. Chem. Phys.* **77**, N 12, 5941–5954 (1982) (Eng).
853. Gorobchenko, V. S., Ogurtsova, L. A., and Pokrovskaya, F. S., Spectra and kinetics of impurity molecular crystal light generation at 4.2 K, *Ukr. Fiz. Zh.* **27**, N 12, 1859–1861 (1982) (Russ).

854. Hess, L. A., and Prasad, P. N., Dephasing of optical phonons in a substitutionally disordered organic solid. The lowest-frequency Raman-active phonon of a binary solid solution between *p*-bromochlorobenzene and *p*-dichlorobenzene, *J. Phys. Chem.* **86**, N 13, 2336–2339 (1982) (Eng).
855. Huang, T.-H., Rieckhoff, K. E., and Voigt, E. M., Shpol'skii effect and vibronic spectra of the phthalocyanines, *J. Chem. Phys.* **77**, N 7, 3424–3441 (1982) (Eng).
856. Jodl, H. J., and Bolduan, F., Raman spectroscopy at high pressures applied to the fundamental vibration of N_2 in solid argon and nitrogen, *J. Chem. Phys.* **76**, N 7, 3352–3361 (1982) (Eng) (P.A. **85**:70250).
857. Kalnitskii, A. Ya., Mavrenik, O. V., Faidish, A. M., Fedorova, L. N., and Yashchuk, V. N., Migration of excitons and their localization on defect and impurity levels in micromolecules of nitrated polyvinylcarbazole, *Dopov. Akad. Nauk UkrSR. Ser. A*, N 2, 51–54 (1982) (Ukr) (P.A. **85**:82896).
858. Karl, N., Binder, W., Heym, H., Ketterer, W., Warth, M., and Stezowski, J. J., Crystals with dipolar disorder and highly doped mixed crystals for future exciton and charge transport investigations, *Mater. Sci.* **7**, N 1, 51–57 (1981) (Eng) (P.A. **85**:35944).
859. Kawski, A., and Ligeza, M., Highly resolved vibronic spectra of dioxido-*p*-terphenyl and trioxido-*p*-quaterphenyl in *n*-hexane at 77 K, *Z. Naturforsch.* A **37**, N 1, 91–92 (1982) (Eng) (P.A. **85**:49514).
860. Kieffe, H., Clouter, M. J., Rich, N. H., and Ahmad, S. F., Pure vibrational Raman spectra of simple molecular crystals: Ar- N_2 , Ar- O_2 , Ar-CO, β -CO, *Can. J. Phys.* **60**, N 9, 1204–1208 (1982) (Eng).
861. Klimenko, V. G., Shigorin, D. N., Andrievskii, A. M., Sakhno, G. V., and Valkova, G. A., Vibrational structure of quasi-linear luminescence spectra of solid solutions of *N*-methyl phenanthridone and 3,4-benzocoumarin molecules, *Zh. Fiz. Khim.* **56**, N 2, 460–462 ((1982) (Russ).
862. Klymko, P. W., and Kopelman, R., Heterogeneous exciton kinetics: Triplet naphthalene homofusion in an isotopic mixed crystal, *J. Phys. Chem.* **86**, N 19, 3686–3688 (1982) (Eng).
863. Lee, H. W. H., Patterson, F. G., Olson, R. W., Wiersma, D. A., and Fayer, M. D., Temperature-dependent dephasing of delocalized dimer states of pentacene in *p*-terphenyl: picosecond photon echo experiments, *Chem. Phys. Lett.* **90**, N 3, 172–177 (1982) (Eng).
864. Lemaistre, J.-P., and Kottis, P., Calculations of ESR line shapes of triplet molecular aggregates in solid matrices. 2. Dimers and trimers in disordered matrices, *J. Chem. Phys.* **76**, N 2, 872–885 (1982) (Eng) (P.A. **85**:39522).
865. Lemaistre, J. P., Pee, Ph., Beguery, M., Dupuy, F., Megel, J., Brown, R., and Kottis, Ph., Spin-spin and spin-orbit interactions in the triplet states of naphthalene clusters, *Chem. Phys. Lett.* **89**, N 3, 207–212 (1982) (Eng).
866. Lubart, R., and Lindner, M. B., Intensity enhancement of symmetry forbidden transitions in solid solutions of benzene and naphthalene, *Spectrochim. acta* **38A**, N 8, 953–959 (1982) (Eng).
867. Malykhina, N. N., and Lisovenko, V. A., Spectral investigation of the system anthracene-carbazole, *Zh. Prikl. Spektrosk.* **37**, N 5, 766–771 (1982) (Russ).
868. Melnik, V. I., Nelipovich, K. I., Faidysh, A. N., Shpak, M. T., and Yankovskaya, L. B., Influence of secondary excitons in intensity and decay of phosphorescence in doped benzophenone single crystals, *Phys. status solidi (b)* **112**, N 2, 435–443 (1982) (Eng).
869. Melnik, V. I., Nelipovich, K. I., Faidysh, A. N., and Yankovskaya, L. B., Temperature dependence of phosphorescence intensity and damping in naphthalene-doped benzophenone crystals, *Opt. and Spektrosk.* **53**, N 4, 706–712 (1982) (Russ) (P.A. **86**:87318).
870. Murai, H., Imamura, T., and Obi, K., Time-resolved ESR detection of benzophenone $\pi\pi^*$ triplet state in glassy matrices at 77 K, *Chem. Phys. Lett.* **87**, N 3, 295–298 (1982) (Eng) (P.A. **85**:59826).

871. Naboikin, Yu. V., and Samartsev, V. V., Effects of nonlinear coherent interaction in impure molecular crystals, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 8, 1491–1495 (1982) (Russ).
872. Najbar, J., Turek, A. M., and Hamilton, T. D. S., Site induced structures in the lowest electronic transitions of naphthalene- H_8 and - D_8 in rare-gas matrices, *J. Lumin.* **26**, N 3, 281–295 (1982) (Eng) (P.A. 85:61957).
873. Nonhof, C. J., and Van der Waals, J. H., The lowest triplet state of pyrimidine in a crystalline host at 1.2 K. The spin-sublevel emission spectra and their vibrational assignment, *Chem. Phys. Lett.* **92**, N 6, 581–587 (1982) (Eng).
874. Nonhof, C. J., and Van der Waals, J. H., The lowest triplet state of pyrimidine in a crystalline host at 1.2 K. Total phosphorescence and T_x sublevel excitation spectra, *Chem. Phys. Lett.* **92**, N 6, 588–594 (1982) (Eng).
875. Olson, R. W., Lee, H. W. H., Patterson, F. G., Fayer, M. D., Shelby, R. M., Burum, D. P., and Macfarlane, R. M., Nonphotochemical hole burning and antihole production in the mixed molecular crystal pentacene in benzoic acid, *J. Chem. Phys.* **77**, N 5, 2283–2289 (1982) (Eng).
876. Park, J. M., and Reddoch, A. H., Temperature dependence of triplet-exciton transport between sites of differing orientation in crystalline anthracene-tetracyanobenzene below 30 K, *Chem. Phys. Lett.* **91**, N 2, 117–121 (1982) (Eng).
877. Patel, J. S., and Hanson, D. M., Stark effect as a probe of the lowest triplet-state orbital configuration in benzophenone and three derivatives, *Chem. Phys. Lett.* **89**, N 6, 468–472 (1982) (Eng).
878. Pee, Ph., Lemaistre, J. P., Dupuy, F., Brown, R., Megel, J., and Kottis, Ph., Spectra of direct excitation of phosphorescence in an isotopic mixed naphthalene crystal. High resolution excitation of the two Davydov components of the N - d_8 host crystal, *Chem. Phys.* **64**, N 3, 389–398 (1982) (Eng) (P.A. 85:46660).
879. Pereyaslova, D. G., Chirva, L. A., Shakhnovich, A. L., Yushko, E. G., and Tatsii, G. V., Luminescence of liquid and solid solutions of arylethylene derivatives of N -phenyl-naphthalimide, *Zh. Prikl. Spektrosk.* **37**, N 3, 493–495 (1982) (Russ).
880. Pugovkin, M. M., Ol'khovik, G. A., and Vylegzhanin, O. N., A system for identification of individual mixture components using the Shpol'sky spectra, *Zh. Prikl. Spektrosk.* **36**, N 5, 766–770 (1982) (Russ) (P.A. 86:63623).
881. Puii, A. C., Andrews, L., Chupka, W. A., and Colson, S. D., Vibronic absorption spectra of the biphenyl and biphenyl- d_{10} cations in solid argon, *J. Chem. Phys.* **76**, N 8, 3854–3859 (1982) (Eng) (P.A. 85:70350).
882. Rava, R. P., and Goodman, L., Hot band analysis of two-photon spectra of isotopically labeled benzenes. Isotopic probing of the Duschinsky effect, *J. Phys. Chem.* **86**, N 4, 480–485 (1982) (Eng) (P.A. 85:85680).
883. Rich, N. H., Clouter, M. J., Kieffe, H., and Ahmad, S. F., Low frequency Raman spectra of the liquid and plastic crystal phases of O_2 , N_2 , CO , and Ar crystals with these molecules as guests, *Can. J. Phys.* **60**, N 9, 1358–1364 (1982) (Eng).
884. Schauer, M. W., Lee, J., and Bernstein, E. R., Molecular aggregates in cryogenic solutions, *J. Chem. Phys.* **76**, N 6, 2773–2778 (1982) (Eng) (P.A. 85:67031).
885. Shpak, M. T., Luminescence of molecular crystals with defects, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 306–310 (1982) (Russ).
886. Takemura, T., Yamada, Y., and Baba, H., Dual phosphorescence of halogenated benzenes in rigid-glass solution, *Chem. Phys.* **68**, N 1, 2, 171–177 (1982) (Eng) (P.A. 85:87834).
887. Talapatra, G. B., and Misra, T. N., Delayed luminescence of organic mixed crystal. Delayed excimer fluorescence of pyrene in p -terphenyl, *Phys. status solidi (b)* **114**, N 1, 73–83 (1982) (Eng).
888. Talapatra, G. B., and Misra, T. N., Homofusion and heterofusion of triplet excitons in a "real" organic mixed crystal: Biphenyl host-naphthalene and pyrene guests system, *J. Chem. Phys.* **77**, N 5, 2290–2301 (1982) (Eng).
76, N 7, 3362–3370

889. Van Kesteren, H. W., Wenckebach, W. Th., Schmidt, J., and Poulis, N. J., Dynamic nuclear polarization of proton spins via photoexcited triplet states: the system phenanthrene in fluorene, *Chem. Phys. Lett.* **89**, N 1, 67–70 (1982) (Eng).
890. Von Borczyskowski, C., Distortion of the lowest excited triplet state of chlorine-substituted benzenes diluted in molecular crystals, *Chem. Phys. Lett.* **85**, N 3, 293–297 (1982) (Eng) (P.A. 85:45834).
891. Yamauchi, S., Komada, Y., and Hirota, N., External heavy-atom effect on the lowest excited triplet states of naphthalene λ -traps, *Chem. Phys. Lett.* **93**, N 2, 133–137 (1982) (Eng).
892. Yoshikuni, Y., Nakamura, A., Shionoya, S., and Aihara, M., Optical dephasing due to virtual transfer of excitation energy as observed in photon echo experiments of pentacene molecules in crystals, *J. Phys. Soc. Jap.* **51**, N 8, 2604–2609 (1982) (Eng).
893. Yu, H.-L., Sloop, D. J., Weissman, S. I., Lin, T.-S., Norris, J. R., and Bowman, M. K., Electron spin echo modulation of the photoexcited triplets of anthracene in p-terphenyl crystals, *J. Phys. Chem.* **86**, N 22, 4287–4290 (1982) (Eng).

7. EXCITON PROBLEM OF MOLECULAR CRYSTALS

7.1. Lattice dynamics and phonon spectra

894. Abdullaev, F. Kh., Abdumalikov, A. A., and Rakhmatov, A. S., The dynamics of solitons in one-dimensional molecular crystals, *Phys. status solidi (b)* **112**, N 1, K5-K10 (1982) (Eng).
895. Anikiev, A. A., Gorelik, V. S., and Umarov, B. S., Connection acoustic phonons from the boundary of Brillouin zone in crystals, *Kratkie soobshch. po fizike*, N 11, 16–22 (1982) (Russ).
896. Antsygina, T. N., Slyusarev, V. A., Freiman, Yu. A., and Erenburg, A. I., Libration motion dynamics in N_2 -type crystals. 2. Joint account of anharmonic and correlation effects, *Fiz. Nizk. Temp.* **8**, N 3, 296–302 (1982) (Russ) (P.A. 85:61082).
897. Baharie, E., and Pawley, G. S., The temperature dependence of the anharmonic properties of crystalline naphthalene- d_8 , *Acta crystallogr.* **A38**, N 6, 803–810 (1982) (Eng).
898. Basilevsky, M. V., and Petrochenko, S. I., Motion of polymer chain in a molecular crystal, *Chem. Phys.* **67**, N 3, 319–335 (1982) (Eng) (P.A. 85:81903).
899. Batheja, P., Garg, S., and Kothari, L. S., Frequency distribution function for benzene, *J. Chem. Phys.* **77**, N 4, 2213–2214 (1982) (Eng).
900. Behera, S. N., and Samsur, Sk., Hybridization of the two-phonon bound state with the local mode in imperfect crystals, *J. phys. Colloq.* **42**, N C-6, 528–530 (1981) (Eng) (P.A. 85:45488).
901. Belousov, M. V., and Pogarev, D. E., The experimental study of the density of states of quasi-one-dimensional vibrational exciton in KNO_3 isotope-mixed crystals, *Pis'ma v Zh. Eksp. and Teor. Fiz.* **36**, N 5, 152–155 (1982) (Russ).
902. Belousov, M. V., Volf, B. E., Ivanova, E. A., and Pogarev, D. E., Local biphonon in NH_4Br crystal, *Pis'ma v Zh. Eksp. and Teor. Fiz.* **35**, N 11, 457–459 (1982) (Russ).
903. Benadda, M. D., Carru, J. C., Amoureux, J. P., Castelain, M., and Chapoton, A., Experimental and theoretical study of the dielectric properties of 1-cyanoadamantane; spectrum of the compact crystal from measurements on powder, *J. Phys. D: Appl. Phys.* **15**, N 8, 1477–1489 (1982) (Eng).
904. Berry, D. E., Tompkins, R. C., and Williams, F., Analysis of the effects of high pressure on the spectra of molecular crystals, *J. Chem. Phys.* **76**, N 7, 3362–3370 (1982) (Eng) (P.A. 85:72451).

905. Bokhenkov, E. L., Kolesnikov, A. I., Krivenko, T. A., Sheka, E. F., and Dementjev, V. A., Harmonic dynamics of anthracene and naphthalene crystals, *J. phys. Colloq.* **42**, N C-6, 566–568 (1981) (Eng) (P.A. 85:45454).
906. Bonadeo, H., and Burgos, E., Lattice dynamical calculations of the mean square amplitudes of crystalline biphenyl, *Acta crystallogr.* **A38**, N 1, 29–33 (1982) (Eng) (P.A. 85:45501).
907. Bron, W. E., Levinson, Y. B., and O'Connor, J. M., Phonon propagation by quasidiffusion, *Phys. Rev. Lett.* **49**, N 3, 209–211 (1982) (Eng).
908. Cailleau, H., Moussa, F., Zeyen, C. M. E., and Bouillot, J., Dynamics of incommensurate phases in biphenyl, *J. phys. Colloq.* **42**, N C-6, 704–706 (1981) (Eng) (P.A. 85:45510).
909. Calvarin, F., Berar, J. F., and Clec'h, G., Study of static disorder in a ferrocene crystal: Molecular configuration and packing, by X-ray diffraction and lattice-energy calculations, *J. Phys. and Chem. Solids* **43**, N 9, 791–796 (1982) (Eng).
910. Chaplot, S. L., Pawley, G. S., Dorner, B., Jindal, V. K., Kalus, J., and Natkaniec, I., Calculated low frequency phonon dispersion in anthracene- d_{10} , *Phys. status solidi (b)* **110**, N 2, 445–454 (1982) (Eng) (P.A. 85:76613).
911. Churcher, C. D., and Stedman, G. E., Irreducible analysis of Raman spectra for all crystal point groups, *J. Phys. C: Solid State Phys.* **14**, N 36, 5707–5723 (1981) (Eng) (P.A. 85:41346).
912. Colson, S. D., and Wong, K. N., Overtone spectra of crystalline CaWO_4 : vibrational exciton density-of-states functions, *Chem. Phys.* **69**, N 1, 2, 223–228 (1982) (Eng).
913. Craig, D. P., and Mallett, C. P., Dynamic instabilities in excited molecular crystals. Packing calculations in anthracene systems, *Chem. Phys.* **65**, N 2, 129–142 (1982) (Eng).
914. Currat, R., The role of phonons in incommensurate phase transitions, *J. phys. Colloq.* **42**, N C-6, 693–700 (1981) (Eng) (P.A. 85:45563).
915. Davydov, S. Yu., and Margolin, V. I., A deformed quasi-harmonic crystal, *Izv. VUZ Fiz.* N 10, 36–39 (1982) (Russ).
916. Diaz Peña, M., Pando, C., and Renuncio, J. A. R., Combination rules for intermolecular potential parameters. 1. Rules based on approximations for the long-range dispersion energy, *J. Chem. Phys.* **76**, N 1, 325–332 (1982) (Eng).
917. Diaz Peña, M., Pando, C., and Renuncio, J. A. R., Combination rules for intermolecular potential parameters. 2. Rules based on approximations for the long-range dispersion energy and an atomic distortion model for the repulsive interactions, *J. Chem. Phys.* **76**, N 1, 333–339 (1982) (Eng).
918. Dil, J. G., Brillouin scattering in condensed matter, *Repts Progr. Phys.* **45**, N 3, 285–334 (1982) (Eng).
919. Dissado, L. A., and Walmsley, S. H., Excimer formation and trapping processes in molecular crystals, *Chem. Phys. Lett.* **87**, N 1, 74–78 (1982) (Eng) (P.A. 85:50778).
920. Dorner, B., Bokhenkov, E. L., Chaplot, S. L., Kalus, J., Natkaniec, I., Pawley, G. S., Schmelzer, U., and Sheka, E. F., The 12 external and the 4 lowest internal phonon dispersion branches in d_{10} -anthracene at 12 K, *J. Phys. C: Solid State Phys.* **15**, N 11, 2353–2365 (1982) (Eng) (P.A. 85:66149).
921. Ecolivet, C., Linear chain models and sound velocities in molecular organic crystals, *J. phys. Colloq.* **42**, N C-6, 578–580 (1981) (Eng) (P.A. 85:45401).
922. Eremko, A. A., and Sergienko, A. I., On a theory of solitons in molecular chains, *Fiz. Tverd. Tela* **24**, N 12, 3720–3722 (1982) (Russ).
923. Fujiyama, T., The effects of intermolecular potentials on the vibrational spectra of condensed systems, *J. Raman Spectrosc.* **12**, N 2, 199–205 (1982) (Eng) (P.A. 85:72493).
924. Goda, M., Phonons in disordered systems with strong short-range order. 3. ODR in honeycomb lattices, *J. Phys. C: Solid State Phys.* **15**, N 3, 435–444 (1982) (Eng).
925. Gorelik, V. S., Makhviladze, T. M., and Sarychev, M. E., Soliton excitations of crystal lattice vibrations, *Kratkie soobshch. po fizike* N 5, 26–32 (1982) (Russ).

926. Gorelik, V. S., and Plotnichenko, V. G., Theoretic-group properties of crystal vibrations with spacial symmetry. In: *Raman scattering of light and dynamics of crystal lattice*. Moscow, Nauka, 141–187 (1982) (Russ).
927. Gramaccioli, C. M., Filippini, G., and Simonetta, M., Lattice-dynamical evaluation of temperature factors for aromatic hydrocarbons, including internal molecular motion: a straightforward systematic procedure, *Acta crystallogr.* **A38**, N 3, 350–356 (1982) (Eng) (P.A. **85**:81908).
928. Guseinov, N. M., and Levinson, I. B., Longitudinal long-wave phonons in nonlocal heat conductivity, *Zh. Eksp. and Teor. Fiz.* **82**, N 6, 1936–1944 (1982) (Russ).
929. Henkel, J. H., Lattice phonon lifetime calculations, *J. phys. Colloq.* **42**, N C-6, 146–148 (1981) (Eng) (P.A. **85**:45439).
930. Hess, L. A., and Prasad, P. N., Dephasing of optical phonons in a substitutionally disordered organic solid. The lowest-frequency Raman-active phonon of a binary solid solution between *p*-bromochlorobenzene and *p*-dichlorobenzene, *J. Phys. Chem.* **86**, N 13, 2336–2339 (1982) (Eng).
931. Hirschfelder, J. O., Yang, K.-H., and Johnson, B. R., Intermolecular force and energy operators. 3, *J. Chem. Phys.* **76**, N 4, 1961–1971 (1982) (Eng).
932. Hunklinger, S., Phonons in amorphous materials, *J. phys. Colloq.* **43**, N C-9, 461–474 (1982) (Eng) (P.A. **86**:72070).
933. Jindal, V. K., Kalus, J., Bokhenkov, E. L., Chaplot, S. L., Dorner, B., Natkaniec, I., Pawley, G. S., and Sheka, E. F., Temperature dependence of the phonon frequencies in deuterated anthracene, *J. Phys. C: Solid State Phys.* **15**, N 36, 7283–7294 (1982) (Eng).
934. Jodl, H. J., and Bolduan, F., Raman spectroscopy at high pressures applied to the fundamental vibration of N_2 in solid argon and nitrogen, *J. Chem. Phys.* **76**, N 7, 3352–3361 (1982) (Eng) (P.A. **85**:70250).
935. Jortner, J., and Rice, S. A., Cooperative vibrational excitations in molecular solids, *Phys. Rev. B* **26**, N 8, 4727–4729 (1982) (Eng).
936. Kaplan, I. G., and Rodimova, O. B., On the approximation of intermolecular interactions by the atom-atom potentials, *Dokl. Akad. Nauk SSSR* **265**, N 5, 1174–1177 (1982) (Russ).
937. Kieft, H., Clouter, M. J., Rich, N. H., and Ahmad, S. F., Pure vibrational Raman spectra of simple molecular crystals: Ar- N_2 , Ar- O_2 , Ar-CO, β -CO, *Can. J. Phys.* **60**, N 9, 1204–1208 (1982) (Eng).
938. Kirin, D., and Pawley, G. S., Low-frequency Raman spectrum and pressure-induced phase transition of crystalline 4,4'-dichlorobenzophenone, *Chem. Phys. Lett.* **85**, N 3, 298–301 (1982) (Eng) (P.A. **85**:46557).
939. Kiselev, A. A., Circularly polarized phonons and vibrational magnetism in crystals, *Opt. and Spektrosk.* **53**, N 5, 787–788 (1982) (Russ).
940. Kislukha, N. I., and Karbovsky, A. V., The Davydov soliton with allowance for acoustic wave dispersion, *Ukr. Fiz. Zh.* **27**, N 3, 328–333 (1982) (Russ).
941. Kislukha, N. I., Soliton consisting of intramolecular excitations interacting with each other and with vibrations of a molecular chain, *Ukr. Fiz. Zh.* **27**, N 10, 1499–1506 (1982) (Russ).
942. Klafter, J., and Jortner, J., Two-particle vibrational excitations in molecular crystals, *J. Chem. Phys.* **77**, N 6, 2816–2824 (1982) (Eng).
943. Kuchta, B., and Luty, T., Lattice dynamics of solid N_2 with an ab initio intermolecular potential. Hindered rotator model, *Chem. Phys. Lett.* **92**, N 5, 462–465 (1982) (Eng).
944. Luty, T., Translational-rotational coupling in *s*-triazine crystal, *J. phys. Colloq.* **42**, N C-6, 590–592 (1981) (Eng) (P.A. **85**:45456).
945. Markey, B. R., and Walmsley, S. H., Quaternion formulation of lattice dynamics of molecular crystals, *Chem. Phys. Lett.* **92**, N 3, 257–261 (1982) (Eng).
946. Melker, A. I., Dilatons are some kind of solitons, *Fiz. Tverd. Tela* **24**, N 10, 3186–3188 (1982) (Russ).
947. Northrop, G. A., Phonon focusing of dispersive phonons in Ge, *Phys. Rev. B* **26**, N 2, 903–911 (1982) (Eng).

948. Ostlund, S., Toner, J., and Zippelius, A., Dynamics of 2D anisotropic solids, smectics and nematics, *Ann. Phys.* **144**, N 2, 345–395 (1982) (Eng).
949. Ovchinnikov, A. A., and Erikhman, N. S., On vibrational energy localization under high levels of excitation. Vibrational excitons, *Usp. Fiz. Nauk* **138**, N 2, 289–320 (1982) (Russ).
950. Pawley, G. S., and Thomas, G. W., The implementation of lattice calculations on the DAP, *J. Comput. Phys.* **47**, N 2, 165–178 (1982) (Eng).
951. Perrin, B., and Michard, F., Phonon-phonon interactions in molecular crystals studied by ultrasonic methods, *J. Phys. Colloq.* **42**, N C-6, 131–133 (1981) (Eng) (P.A. 85:45469).
952. Pershin, V. K., and Pershin, V. K., Asymptotic of the translational correlation functions in a two-dimensional molecular crystal, *Kristallografiya* **27**, N 3, 597 (1982) (Russ).
953. Pershin, V. K., and Pershin, V. K., Dynamical criterions of molecular crystal structure instability in self-consistent field theory, *Fiz. Tverd. Tela* **24**, N 8, 2225–2231 (1982) (Russ).
954. Pershin, V. K., and Pershin, V. K., Dynamic theory of molecular crystal in the pseudoharmonic approximation, *Teor. and Mat. Fiz.* **52**, N 2, 311–321 (1982) (Russ).
955. Pershin, V. K., and Pershin, V. K., Molecule vibration anisotropy effect on partially-ordered structure formation, *Fiz. Tverd. Tela* **24**, N 10, 3074–3078 (1982) (Russ).
956. Petzelt, J., Dielectric and light scattering spectroscopy of incommensurate phases in crystals, *Phase Transitions* **2**, N 3, 155–230 (1981) (Eng) (P.A. 85:46627).
957. Piel, L., and Stolarczyk, L. Z., On the relativity of short- and long-range effects in calculations for periodic systems, *Chem. Phys. Lett.* **86**, N 2, 195–198 (1982) (Eng).
958. Poulet, H., and Pick, R. M., Are phasons in biphenyl detectable by light scattering? *J. Phys. Colloq.* **42**, N C-6, 701–703 (1981) (Eng) (P.A. 85:46591).
959. Prasad, P. N., Dynamics of phonon interactions in organic solids, *J. Phys. Colloq.* **42**, N C-6, 563–565 (1981) (Eng) (P.A. 85:45471).
960. Rebane, L. A., and Rebane, K. K., Phonons in resonant secondary emission of impurity molecules in crystals, *J. Phys. Colloq.* **42**, N C-6, 505–507 (1981) (Eng) (P.A. 85:46585).
961. Righini, R., and Klein, M. L., Lattice dynamics of the high-pressure monoclinic phase of solid carbon tetrachloride, *Chem. Phys. Lett.* **87**, N 6, 604–606 (1982) (Eng).
962. Sauvajol, J. L., Foulon, M., Amoureux, J. P., Lefebvre, J., and Descamps, M., First investigations of the vitreous crystal phase of 1-cyanoadamantane obtained by quenching of the plastic phase, *J. Phys. Colloq.* **43**, N C-9, 521–524 (1982) (Eng) (P.A. 86:71882).
963. Scott, A. C., Dynamics of Davydov solitons, *Phys. Rev. A* **26**, N 1, 578–595 (1982) (Eng).
964. Shanker, J., and Rajauria, A. K., Analysis of van der Waals potentials in ionic and rare gas solids, *Indian J. Pure and Appl. Phys.* **20**, N 3, 169–173 (1982) (Eng).
965. Shanker, J., and Rajauria, A. K., Theory of interatomic forces in rare gas crystals, *Phys. Status Solidi (B)* **109**, N 2, 711–716 (1982) (Eng).
966. Sharin, Yu. A., and Men', A. N., Calculation of short order parameter of binary solutions from phonon spectra data, *Zh. Fiz. Khim.* **56**, N 3, 742–743 (1982) (Russ).
967. Sherman, W. F., Pressure-induced changes in mode Grüneisen parameters and general equations of state for solids, *J. Phys. C: Solid State Phys.* **15**, N 1, 9–23 (1982) (Eng) (P.A. 85:50817).
968. Siklos, T., Thermodynamic Green's function method in the self-consistent phonon theory of anharmonic crystals, Report KFKI-1981-43, *Hungarian Acad. Sci.*, Budapest, 47 p. (1981) (Eng) (P.A. 85:35612).

969. Singh, D., and Rathore, R. P. S., Unpaired forces phonon dispersion in rare-gas solids, *Phil. Mag. B* **45**, N 2, 147–153 (1982) (Eng) (P.A. **85**:61091).
970. Singh, R. K., and Neb, D. K., Role of zero-point motion and three-body effects in the study of crystal properties of rare gas solids, *Phys. status solidi (b)* **112**, N 2, 735–746 (1982) (Eng).
971. Srivastava, G. P., Role of thermal expansion in the phonon conductivity of solids, *J. phys. Colloq.* **42**, N C-6, 149–151 (1981) (Eng) (P.A. **85**:45642).
972. Tamura, S., Focusing of high-frequency dispersive phonons, *Phys. Rev. B* **25**, N 2, 1415–1418 (1982) (Eng).
973. Tang, K. T., and Toennies, J. P., A simple theoretical model for the van der Waals potential at intermediate distances. 4. The bond distance dependence of the potential hypersurfaces for He-H₂ and Ne-H₂ also for the repulsive region, *J. Chem. Phys.* **76**, N 5, 2524–2536 (1982) (Eng).
974. Umapathy, S., Contribution of noncentral forces to elastic constants in molecular crystals, *Indian J. Pure and Appl. Phys.* **20**, N 2, 133–134 (1982) (Eng) (P.A. **85**:61084).
975. Vacher, R., and Pelous, J., Phonon damping in crystalline and amorphous solids at hypersonic frequencies, *J. phys. Colloq.* **42**, N C-6, 125–127 (1981) (Eng) (P.A. **85**:45398).
976. Venkataraman, G., Phonons in molecular crystals, *J. Phys. Colloq.* **42**, N C-6, 549–556 (1981) (Eng) (P.A. **85**:45453).
977. Wasiutynski, T., Natkaniec, I., and Belushkin, A. I., Lattice dynamics calculations for solid biphenyl in the high temperature phase, *J. phys. Colloq.* **42**, N C-6, 599–601 (1981) (Eng). (P.A. **85**:45457).
978. Wasiutynski, T., Self-consistent phonon calculations in solid nitrogen, *J. phys. Colloq.* **42**, N C-6, 575–577 (1981) (Eng) (P.A. **85**:45455).
979. Weiss, K., Attenuation of second sound in solids, *J. phys. Colloq.* **42**, N C-6, 531–533 (1981) (Eng) (P.A. **85**:45400).

7.2. Singlet exciton and cooperative effects

980. Agranovich, V. M., Antonyuk, B. P., and Zakhidov, A. A., Optical spectra of charge transfer excitons, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 355–361 (1982) (Russ).
981. Agranovich, V. M., Rupasov, V. I., and Chernyak, V. Ya., Theory of self-induced transparency of surface and waveguide solutions, *Fiz. Tverd. Tela* **24**, N 10, 2992–2999 (1982) (Russ).
982. Baroni, S., Grosso, G., and Pastori Parravicini, G., Energy bands of krypton and xenon with the GOPW method, *Phys. status solidi (b)* **110**, N 1, 227–232 (1982) (Eng).
983. Brodin, M. S., Marisova, S. V., and Myasnikov, E. N., Polariton effects in secondary radiation of crystals in exciton frequency band (review), *Ukr. Fiz. Zh.* **27**, N 6, 801–821 (1982) (Russ) (P.A. **85**:93272).
984. Dy, K. S., and Brasher, J. D., Surface states and the analytic properties of Bloch waves in the tight-binding approximation, *J. Phys. C: Solid State Phys.* **15**, N 3, 633–640 (1982) (Eng).
985. Englman, R., Ranfagni, A., and Mugnai, D., Structured emission of relaxing systems: molecular excitons in rare-gas crystals, *Solid State Commun.* **41**, N 12, 955–958 (1982) (Eng) (P.A. **85**:76935).
986. Fugol, I. Ya., Grigorashchenko, O. N., and Savchenko, E. V., Polariton and spatial dispersion effects in exciton spectra of xenon cryocrystals, *Phys. status solidi (b)* **111**, N 1, 397–406 (1982) (Eng) (P.A. **85**:82904).
987. Fugol, I. Ya., Polariton luminescence in xenon cryocrystals, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 349–354 (1982) (Russ).
988. Gaevskii, A. Yu., and Kaplan, I. G., Density-density correlation function of a system of molecular excitons, *Teor. and Mat. Fiz.* **48**, N 1, 129–136 (1981) (Russ) (P.A. **85**:92482).

989. Glushko, E. Ya., Nonuniform kinetics of quasi-particles in steady-state packet representation, *Ukr. Fiz. Zh.* **26**, N 12, 2037–2043 (1981) (Russ) (P.A. 85:40803).
990. Godlewski, J., and Kalinowski, J., Excitonic effects on Schottky emission in organic crystals, *Mater. Sci.* **7**, N 2–3, 163–168 (1981) (Eng) (P.A. 85:72048).
991. Hizhnyakov, V. V., and Sherman, A. V., Adiabatic surface of self-trapping excitons, *Czech. J. Phys.* **B32**, N 1, 58–68 (1982) (Eng) (P.A. 85:40797).
992. Johnson, C. K., and Small, G. J., Nonlinear polariton effects in the phenanthrene crystal, *Chem. Phys.* **64**, N 1, 83–93 (1982) (Eng) (P.A. 85:41389).
993. Kusmartsev, F. V., and Rashba, E. I., Self-trapping of excitons and lattice defect production in solid rare gases, *Czech. J. Phys.* **B32**, N 1, 54–57 (1982) (Eng) (P.A. 85:41388).
994. Lalov, I. J., Nonanalytic critical points for Coulomb excitons in uniaxial crystals. 1. Nondegenerate excitations, *Bulg. J. Phys.* **9**, N 6, 587–595 (1982) (Eng).
995. Luzanov, A. V., and Mestechkin, M. M., On the population numbers of pair states in a system of excitons, *Teor. and Mat. Fiz.* **48**, N 2, 266–271 (1981) (Russ) (P.A. 85:92483).
996. Maier, G. V., and Shcherbina, V. P., Theoretical study of spectral-luminescent properties of paraterphenyl in different phases, *Opt. and Spektrosk.* **52**, N 6, 1068–1070 (1982) (Russ).
997. Nedbal, L., Higher-order test of the Kenkre–Knox relation for excitonic optical and transport properties of molecular crystals, *Phys. status solidi (b)* **109**, N 1, 109–118 (1982) (Eng) (P.A. 85:45844).
998. Orrit, M., Aslangul, C., and Kottis, P., Quantum-mechanical-model calculations of radiative properties of a molecular crystal. 1. Polaritons and abnormal decays of excitons in one- and two-dimensional systems, *Phys. Rev. B* **25**, N 12, 7263–7280 (1982) (Eng).
999. Pekar, S. I., and Pipa, V. I., Exciton reflection from crystal surface and extra boundary conditions in a theory of additive light waves, *Fiz. Tverd. Tela* **24**, N 6, 1708–1717 (1982) (Russ).
1000. Pevtsov, A. B., and Selkin, A. V., Brewster effect in exciton reflection spectra, *Zh. Eksp. and Teor. Fiz.* **83**, N 2, 516–531 (1982) (Russ).
1001. Rashba, E. I., Luminescence of autolocalized excitons, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 2, 338–342 (1982) (Russ).
1002. Reininger, R., Asaf, U., Steinberger, I. T., Laporte, P., and Saile, V., “Free” electrons and excitons in fluid krypton, *Phys. Rev. B* **26**, N 11, 6294–6296 (1982) (Eng).
1003. Sataric, M. V., and Zakula, R. B., On the possibility of the transformation of a soliton into the bound state of two excitons due to the exciton-photon interaction, *Physica A* **110**, N 3, 580–592 (1982) (Eng) (P.A. 85:61364).
1004. Shimura, H., and Ohba, Y., Fluorescence simulation in anthracene crystal and its relation to exciton distribution, *Jap. J. Appl. Phys. pt. 1* **21**, N 5, 738–743 (1982) (Eng) (P.A. 85:87838).
1005. Skaistis, E. G., and Khotyaintsev, V. N., Polaritons in crystals with exponential potential, *Fiz. Tverd. Tela* **24**, N 12, 3648–3653 (1982) (Russ).
1006. Stevenson, S. H., Johnson, C. K., and Small, G. J., Temperature-dependent polariton behavior of two-photon absorption and second harmonic generation in naphthalene. The perfect crystal regime, *J. Phys. Chem.* **85**, N 19, 2709–2710 (1981) (Eng) (P.A. 85:34834).
1007. Toyozawa, Y., Dynamics of excitons in deformable lattice, *J. Lumin.* **24–25**, N 1, 23–30 (1981) (Eng) (P.A. 85:45836).
1008. Vidmont, N. A., Maksimov, A. A., and Tartakovskii, I. I., Polariton propagation and scattering in anthracene single crystals, *Fiz. Tverd. Tela* **24**, N 5, 1384–1389 (1982) (Russ).
1009. Zak, J., Band representations of space groups, *Phys. Rev. B* **26**, N 6, 3010–3023 (1982) (Eng).
1010. Zyss, J., and Oudar, J. L., Relations between microscopic and macroscopic lowest-order optical nonlinearities of molecular crystals with one- or two-dimensional units, *Phys. Rev. A* **26**, N 4, 2028–2048 (1982) (Eng).

7.3. Triplet excitons

1011. Bellows, J. C., and Prasad, P. N., Dynamics of singlet-triplet transitions in 1, 4-dihalonaphthalene neat crystals and solid solutions, *J. Phys. Chem.* **86**, N 3, 328–331 (1982) (Eng) (P.A. **85**:81904).
1012. Bonno, B., Laporte, J. L., and Rousset, Y., Effets des pieges sur la fusion triplet-triplet dans les cristaux de naphthalene, *Phys. status solidi (b)* **110**, N 2, 581–589 (1982) (Fr) (P.A. **85**:77576).
1013. Doberer, U., Port, H., and Benk, H., High-resolution measurements of the triplet T_1 Davydov components in naphthalene $N-h_8$ and $N-d_8$, *Chem. Phys. Lett.* **85**, N 3, 253–258 (1982) (Eng) (P.A. **85**:46655).
1014. Jackson, B., and Silbey, R., Triplet exciton dynamics: Exciton phonon scattering at low temperature, *J. Chem. Phys.* **77**, N 6, 2763–2767 (1982) (Eng).
1015. Klymko, P. W., and Kopelman, R., Heterogeneous exciton kinetics: Triplet naphthalene homofusion in an isotopic mixed crystal, *J. Phys. Chem.* **86**, N 19, 3686–3688 (1982) (Eng).
1016. Krauss, R., Schrof, W., Wolf, H. C., and Schmid, D., The motion of triplet excitons in β -phase crystals of 9, 10-dichloroanthracene, *Chem. Phys.* **73**, N 1, 2, 55–69 (1982) (Eng).
1017. Patel, J. S., and Hanson, D. M., Investigation of the Stark effect on the lowest triplet states of 1-indanone single crystals, *Chem. Phys.* **69**, N 3, 249–258 (1982) (Eng).
1018. Reineker, P., Richardt, D., and Schmid, U., Nonresonant coherent motion of triplet excitons in molecular pairs, *J. Chem. Phys.* **76**, N 11, 5245–5255 (1982) (Eng).
1019. Schmid, U., and Reineker, P., Coherent motion of triplet excitons in molecular crystals with two differently oriented molecules per unit cell. Application to the charge transfer crystal anthracene/tetracyanobenzene, *Phys. status solidi (b)* **109**, N 1, 265–273 (1982) (Eng) (P.A. **85**:56445).
1020. Sibani, P., and Pedersen, J. B., Magnetic field dependence of triplet exciton-exciton annihilation in molecular crystals, *Phys. Rev. B* **26**, N 5, 2584–2595 (1982) (Eng).
1021. Singham, S. B., and Pratt, D. W., Triplet excitons in 4, 4'-dichlorobenzophenone, *J. Phys. Chem.* **86**, N 4, 507–514 (1982) (Eng) (P.A. **85**:87630).
1022. Talapatra, G. B., and Misra, T. N., Homofusion and heterofusion of triplet excitons in a "real" organic mixed crystal: Biphenyl host-naphthalene and pyrene guests system, *J. Chem. Phys.* **77**, N 5, 2290–2301 (1982) (Eng).
1023. Travers, J. P., Guglielmi, M., and Nechtschein, M., Nuclear relaxation in one-dimensional triplet-exciton systems, *J. Phys.* **43**, N 4, 663–673 (1982) (Eng) (P.A. **85**:66940).
1024. Vankan, J. M. J., and Veeman, W. S., Crystal perfection and triplet excitons in 1, 4-dibromonaphthalene, *Chem. Phys. Lett.* **92**, N 5, 519–522 (1982) (Eng).
1025. Van Kooten, J. F. C., Van Strien, A. J., and Schmidt, J., Triplet excitons in molecular crystals: a study of the width of the exciton wave packets in tetrachlorobenzene by electron spin echo spectroscopy, *Chem. Phys. Lett.* **90**, N 5, 337–341 (1982) (Eng).
1026. Van Strien, A. J., and Schmidt, J., Exciton dynamics: spin-lattice relaxation and interchain hopping in a linear chain triplet exciton system, *Chem. Phys. Lett.* **86**, N 2, 203–208 (1982) (Eng) (P.A. **85**:51089).

7.4. Exciton-phonon Interaction (shape of bands, energy dissipation, vibronic spectra)

1027. Capek, V., and Munn, R. W., From band to hopping diffusion of excitons and charge carriers in molecular crystals. 2. Results for local and weak nonlocal electron-phonon coupling, *Phys. status solidi (b)* **109**, N 1, 245–253 (1982) (Eng).

1028. Craig, D. P., Dispersive and other second-order terms in exciton-phonon coupling, *Chem. Phys. Lett.* **88**, N 4, 362–368 (1982) (Eng) (P.A. 85:82237).
1029. Dlott, D. D., Schosser, C. L., and Chronister, E. L., Temperature-dependent vibrational dephasing in molecular crystals: a picosecond CARS study of naphthalene, *Chem. Phys. Lett.* **90**, N 5, 386–390 (1982) (Eng).
1030. Gutsche, E., Non-Condon approximations and the static approach in the theory of non-radiative multiphonon transitions, *Phys. status solidi (b)* **109**, N 2, 583–583–597 (1982) (Eng) (P.A. 85:57169).
1031. Hizhnyakov, V. V., and Sherman, A. V., Adiabatic surface of self-trapping excitons, *Czech. J. Phys.* **B32**, N 1, 58–68 (1982) (Eng) (P.A. 85:40797).
1032. Hizhnyakov, V. V., Quantum dynamics of the vibrational relaxation following the electronic transition in centers with quadratic vibronic interaction, *Solid State Commun.* **44**, N 2, 113–117 (1982) (Eng).
1033. Hizhnyakov, V. V., Vibrational relaxation in the excited electronic state, *Phys. status solidi (b)* **114**, N 2, 721–730 (1982) (Eng).
1034. Ioselevich, A. S., Multiphonon processes in optical absorption in homeopolar crystals. Self trapping and classical solutions, *Zh. Eksp. and Teor. Fiz.* **83**, N 2, 743–755 (1982) (Russ).
1035. Ioselevich, A. S., The Urbach rule and exciton effects, *Zh. Eksp. and Teor. Fiz.* **82**, N 2, 601–612 (1982) (Russ) (P.A. 85:57049).
1036. Karel'skikh, I. L., and Nitsovich, B. M., Influence of phonon anharmonicity on exciton spectra, *Fiz. Tverd. Tela* **23**, N 1, 308–311 (1981) (Russ) (P.A. 85:36585).
1037. Kellman, M. E., Dynamic Jahn–Teller effect for degenerate states of coupled vibrations in van der Waals complexes, *Chem. Phys. Lett.* **87**, N 2, 171–176 (1982) (Eng) (P.A. 85:59878).
1038. Klafter, J., and Jortner, J., Effects of structural disorder on two-particle exciton-phonon excitations in organic materials, *J. Chem. Phys.* **77**, N 6, 2812–2815 (1982) (Eng).
1039. Kulagin, S. A., and Osad'ko, I. S., Optical spectra of impurity centers with two-well adiabatic potentials, *Opt. and Spektrosk.* **53**, N 1, 169–171 (1982) (Russ) (P.A. 86:63044).
1040. Kulagin, S. A., and Osadko, I. S., Relaxation and optical processes in impurity centres with two-well adiabatic potential, *Phys. status solidi (b)* **110**, N 1, 57–68 (1982) (Eng) (P.A. 85:61931).
1041. Kusmartsev, F. V., and Rashba, E. I., Self-trapping of excitons and lattice defect production in solid rare gases, *Czech. J. Phys.* **B32**, N 1, 54–57 (1982) (Eng) (P.A. 85:41388).
1042. Lax, M., Carmichael, H. J., and Shugard, W. J., Nonadiabatic formulation for radiationless transitions induced by classical lattice vibrations, *Phys. Rev. B* **26**, N 7, 3547–3558 (1982) (Eng).
1043. Matsui, A., Mizuno, K., and Iemura, M., Optical absorption and exciton lattice interaction in α - and β -perylene, *J. Phys. Soc. Jap.* **51**, N 6, 1871–1877 (1982) (Eng) (P.A. 85:87809).
1044. Matsui, A., and Nishimura, H., Self trapping of excitons in monomeric perylene crystals, *J. Phys. Soc. Jap.* **51**, N 6, 1711–1712 (1982) (Eng).
1045. Mirjanic, D., Luburic-Kozmidis, U., Marinkovic, M. M., and Tosic, B. S., Combined effect of exciton-exciton and exciton-phonon interaction on crystals dielectric properties, *Can. J. Phys.* **60**, N 12, 1838–1845 (1982) (Eng).
1046. Miyazaki, H., and Hanamura, E., Optical response of exciton-phonon system. 2. Formulation of emission spectrum, *J. Phys. Soc. Jap.* **51**, N 3, 818–827 (1982) (Eng) (P.A. 85:67098).
1047. Miyazaki, H., and Hanamura, E., Optical response of exciton-phonon system. 3. Resonant Raman scattering and luminescence, *J. Phys. Soc. Jap.* **51**, N 3, 828–838 (1982) (Eng) (P.A. 85:67099).
1048. Morsink, J. B. W., and Wiersma, D. A., Optical dephasing in a naphthalene AA-type “mini-exciton”, *Chem. Phys. Lett.* **89**, N 4, 291–293 (1982) (Eng) (P.A. 85:90998).

1049. Osad'ko, I. S., and Zhdanov, S. A., Effect of low-frequency modes on temperature broadening of optical lines of impurity centres in glasses, *Opt. Commun.* **42**, N 3, 185–188 (1982) (Eng).
1050. Ranson, P., Peretti, P., and Rousset, Y., Crystal heating and non-radiative relaxation processes of triplet excitons in 4-4'-dichlorobenzophenone, *Phys. status solidi (a)* **71**, N 1, K69–K71 (1982) (Eng) (P.A. 85:87852).
1051. Rebane, L. A., and Rebane, K. K., Phonons in resonant secondary emission of impurity molecules in crystals, *J. Phys. Colloq.* **42**, N C-6, 505–507 (1981) (Eng) (P.A. 85:46585).
1052. Saari, P., and Rebane, K., Phonon relaxation in crystals studied by hot luminescence, *J. Phys. Colloq.* **42**, N C-6, 502–504 (1981) (Eng) (P.A. 85:46740).
1053. Schmitt-Rink, S., Haug, H., and Mohler, E., Derivation of Urbach's rule in terms of exciton interband scattering by optical phonons, *Phys. Rev. B* **24**, N 10, 6043–6049 (1981) (Eng) (P.A. 85:40801).
1054. Schreiber, M., and Toyozawa, Y., Numerical experiments on the absorption lineshape of the exciton under lattice vibrations. 1. The overall lineshape, *J. Phys. Soc. Jap.* **51**, N 5, 1528–1536 (1982) (Eng) (P.A. 85:82806).
1055. Schreiber, M., and Toyozawa, Y., Numerical experiments on the absorption lineshape of the exciton under lattice vibrations. 2. The average oscillator strength per state, *J. Phys. Soc. Jap.* **51**, N 5, 1537–1543 (1982) (Eng) (P.A. 85:82807).
1056. Schreiber, M., and Toyozawa, Y., Numerical experiments on the absorption lineshape of the exciton under lattice vibrations. 3. The Urbach rule, *J. Phys. Soc. Jap.* **51**, N 5, 1544–1550 (1982) (Eng) (P.A. 85:82808).
1057. Stevenson, S. H., Johnson, C. K., and Small, G. J., Temperature-dependent polariton behavior of two-photon absorption and second harmonic generation in naphthalene. The perfect crystal regime, *J. Phys. Chem.* **85**, N 19, 2709–2710 (1981) (Eng) (P.A. 85:34834).
1058. Tokura, Y., Mitani, T., and Koda, T., Vibronic excitons in anthracene as investigated by thermoreflectance spectra, *J. Phys. Soc. Jap.* **51**, N 5, 1551–1557 (1982) (Eng) (P.A. 85:82832).

7.5. Excitons in mixed crystals

1059. Abdullaev, F. Kh., and Abdumalikov, A. A., Dynamics of solitons in the disordered anharmonic chain, *Phys. status solidi (b)* **113**, N 2, 685–689 (1982) (Eng).
1060. Andreev, V. A., Sugakov, V. I., and Shtepa, Yu. D., Spin-lattice relaxation of molecular crystal local triplet excited states on acoustic phonons, *Fiz. Tverd. Tela* **24**, N 5, 1482–1483 (1982) (Russ).
1061. Argyrakis, P., Kopelman, R., and Newhouse, J. S., Exciton fusion simulations on binary and ternary lattices: cluster effects, *J. Photochem.* **17**, N 1/2, 114 (1981) (Eng).
1062. Averyushkin, A. S., Vitukhnovskii, A. G., and Zhevandrov, N. D., Study of excitation energy transfer relative efficiency in impure molecular crystals from matrix to excited and unexcited impure molecules, *Kratkie soobshch. po fizike* **N 11**, 26–31 (1982) (Russ).
1063. Behera, S. N., and Samsur, Sk., Hybridization of the two-phonon bound state with the local mode in imperfect crystals, *J. Phys. Colloq.* **42**, N C-6, 528–530 (1981) (Eng) (P.A. 85:45488).
1064. Bendersky, V. A., Brikenshtein, V. Kh., and Filippov, P. G., Resonance hot energy transfer in impurity molecular crystals, *Opt. and Spektrosk.* **52**, N 2, 276–281 (1982) (Russ).
1065. Benk, H., Haken, H., and Sixl, H., Theory of the interaction of Frenkel excitons with local and extended perturbations in one-dimensional molecular crystals. Application of the Green's function formalism to the energy funnel and cluster problem, *J. Chem. Phys.* **77**, N 11, 5730–5747 (1982) (Eng).

1066. Brown, R., Lemaistre, J.-P., Megel, J., Pee, Ph., Dupuy, F., and Kottis, Ph., Triplet exciton transfer and fusion in isotopically mixed molecular crystals, *J. Chem. Phys.* **76**, N 12, 5719–5726 (1982) (Eng) (P.A. 85:92474).
1067. Dana, I., and Zak, J., Perturbation approach to the impurity problem in lattice dynamics, *J. Phys. C: Solid State Phys.* **15**, N 10, 2115–2125 (1982) (Eng) (P.A. 85:66153).
1068. Dissado, L. A., and Walmsley, S. H., Excimer formation and trapping processes in molecular crystals, *Chem. phys. Lett.* **87**, N 1, 74–78 (1982) (Eng) (P.A. 85:50778).
1069. Duran, J., and Lemaistre, J. P., Non-random distributions in binary crystals: from order to total disorder, *J. phys. Lett.* **43**, N 24, L845–L851 (1982) (Eng).
1070. Ermakov, V. N., Mikityuk, O. Yu., and Nitsovich, V. V., Low-energy surface exciton impurity states, *Ukr. Fiz. Zh.* **28**, N 4, 534–537 (1983) (Russ) (P.A. 86:72328).
1071. Friesner, R., and Silbey, R., Calculation of the exciton Green's function of a molecular crystal from a two-site dynamical coherent potential approximation, *Chem. Phys. Lett.* **93**, N 2, 107–110 (1982) (Eng).
1072. Gentry, S. T., and Kopelman, R., Exciton transport in naphthalene alloys: a transition from percolation to diffusion, *Chem. Phys. Lett.* **93**, N 3, 264–266 (1982) (Eng).
1073. Girardet, C., and Maillard, D., Interaction between molecular impurities trapped in rare gas crystals. I. Effective potential calculations, *J. Chem. Phys.* **77**, N 12, 5923–5940 (1982) (Eng).
1074. Goda, M., Phonons in disordered systems with strong short-range order. 3. ODR in honeycomb lattices, *J. Phys. C: Solid State Phys.* **15**, N 3, 435–444 (1982) (Eng).
1075. Gorban, K. N., and Sugakov, V. I., Peculiarities of impurity levels in orientation-deformed molecular crystals, *Ukr. Fiz. Zh.* **27**, N 3, 456–457 (1982) (Russ) (P.A. 85:71917).
1076. Hess, L. A., and Prasad, P. N., Dephasing of optical phonons in a substitutionally disordered organic solid. The lowest-frequency Raman-active phonon of a binary solid solution between *p*-bromochlorobenzene and *p*-dichlorobenzene, *J. Phys. Chem.* **86**, N 13, 2336–2339 (1982) (Eng).
1077. Kenkre, V. M., and Wong, Y. M., Spatial profile of the steady-state exciton distribution in doped molecular crystals, *Chem. Phys. Lett.* **87**, N 3, 263–265 (1982) (Eng) (P.A. 85:61362).
1078. Kivelson, S., and Gelatt, C. D., Jr., Photoluminescence in a disordered insulator: The trapped-exciton model, *Phys. Rev. B* **26**, N 8, 4646–4673 (1982) (Eng).
1079. Klymko, P. W., and Kopelman, R., Critical exciton annihilation: diffusion percolation or Anderson transition? *J. Lumin.* **24/25**, pt. 1, 457–460 (1981) (Eng).
1080. Kulagin, S. A., and Osadko, I. S., Relaxation and optical processes in impurity centres with two-well adiabatic potential, *Phys. status solidi (b)* **110**, N 1, 57–68 (1982) (Eng) (P.A. 85:61931).
1081. Patel, J. S., and Hanson, D. M., Photochemical control of energy transfer in molecular crystals, *Chem. Phys.* **72**, N 1, 2, 35–40 (1982) (Eng).
1082. Pee, Ph., Lemaistre, J. P., Dupuy, F., Brown, R., Megel, J., and Kottis, Ph., Spectra of direct excitation of phosphorescence in an isotopic mixed naphthalene crystal. High resolution excitation of the two Davydov components of the N-d₈ host crystals, *Chem. Phys.* **64**, N 3, 389–398 (1982) (Eng) (P.A. 85:46660).
1083. Pinto, M. J., and Koiller, B., Optical properties of crystals with impurities, *J. Phys. C: Solid State Phys.* **15**, N 35, 7229–7244 (1982) (Eng).
1084. Rockwitz, K. D., and Bassler, H., Mobility threshold for singlet exciton transport in an organic solid with diagonal disorder, *Chem. Phys. Lett.* **86**, N 2, 199–202 (1982) (Eng) (P.A. 85:51646).
1085. Soukoulis, C. M., Klafter, J., and Economou, E. N., Role of the incipient Anderson transition in electronic energy transfer in mixed organic crystals, *Solid State Commun.* **44**, N 6, 833–836 (1982) (Eng).

1086. Valkunas, L., and Vektaris, G., Influence of resonance interaction between crystal molecules and impurities on Rashba effect for some impurity centres in molecular crystals, *Opt. and Spektrosk.* **53**, N 1, 86–88 (1982) (Russ) (P.A. **86**:63025).
1087. Vankan, J. M. J., and Veeman, W. S., On triplet exciton trapping in 1, 4-dibromonaphthalene, *Chem. Phys. Lett.* **89**, N 3, 258–262 (1982) (Eng).

7.6. Excitonic mechanism of energy migration

1088. Averyushkin, A. S., Vitukhnovskii, A. G., and Zhevandrov, N. D., Study of excitation energy transfer relative efficiency in impure molecular crystals from matrix to excited and unexcited impure molecules, *Kratkie soobshch. po fizike N* **11**, 26–31 (1982) (Russ).
1089. Bendersky, V. A., Brikenshtein, V. Kh., and Filippov, P. G., Resonance hot energy transfer in impurity molecular crystals, *Opt. and Spektrosk.* **52**, N 2, 276–281 (1982) (Russ).
1090. Capek, V., and Munn, R. W., Exciton transport in the band limit, *J. Chem. Phys.* **76**, N 9, 4674–4675 (1982) (Eng) (P.A. **85**:82238).
1091. Capek, V., and Munn, R. W., From band to hopping diffusion of excitons and charge carriers in molecular crystals. 2. Results for local and weak nonlocal electron-phonon coupling, *Phys. status solidi (b)* **109**, N 1, 245–253 (1982) (Eng).
1092. Davidovic-Ristovski, G. S., Ristovski, Lj. M., and Tosic, B. S., The diffusion in the exciton system and the nonconservation of excitons, *Phys. Status Solidi (B)* **113**, N 1, 285–290 (1982) (Eng).
1093. Heber, J., Dornauf, H., and Siebold, H., New aspects in energy transfer in inhomogeneous systems, *J. Lumin.* **24–25** pt. 2, 735–738 (1981) (Eng) (P.A. **85**:46719).
1094. Huber, D. L., Trapping of Frenkel excitons, *J. Lumin.* **27**, N 3, 333–338 (1982) (Eng).
1095. Kalnitskii, A. Ya., Mavrenik, O. V., Faishish, A. M., Fedorova, L. N., and Yashchuk, V. N., Migration of excitons and their localization on defect and impurity levels in macromolecules of nitrated polyvinylcarbazole, *Dopov. Akad. Nauk UkrSR. Ser. A*, N 2, 51–54 (1982) (Ukr) (P.A. **85**:82896).
1096. Klymko, P. W., and Kopelman, R., Critical exciton annihilation: diffusion, percolation or Anderson transition? *J. Lumin.* **24/25**, pt. 1, 457–460 (1981) (Eng).
1097. Lawson, C. M., Freed, E. E., and Powell, R. C., Models for energy transfer in solids. 2, *J. Chem. Phys.* **76**, N 8, 4171–4177 (1982) (Eng) (P.A. **85**:77566).
1098. Nedbal, L., Higher-order test of the Kenkre–Knox relation for excitonic optical and transport properties of molecular crystals, *Phys. status solidi (b)* **109**, N 1, 109–118 (1982) (Eng) (P.A. **85**:45844).
1099. Parris, P. E., and Kenkre, V. M., Exciton migration with end detectors: calculation of time-dependent luminescence, *Chem. Phys. Lett.* **90**, N 5, 342–345 (1982) (Eng).
1100. Parson, R. P., and Kopelman, R., Percolative versus homogeneous energy transport kinetics: time-resolved donor and acceptor fluorescence of isotopic mixed naphthalene crystals, *Chem. Phys. Lett.* **87**, N 6, 528–532 (1982) (Eng) (P.A. **85**:72532).
1101. Patel, J. S., and Hanson, D. M., Electric field effects on quasi-coherent energy transfer, *Chem. Phys. Lett.* **89**, N 6, 473–477 (1982) (Eng).
1102. Patel, J. S., and Hanson, D. M., A method of investigating resonance energy transfer in mixed molecular crystals by electric field switching, *J. Chem. Phys.* **77**, N 8, 3779–3783 (1982) (Eng).

1103. Rockwitz, K.-D., and Bässler, H., Energy-dependent incoherent singlet exciton motion in an amorphous organic solid (polyvinylcarbazole), *Chem. Phys.* **70**, N 3, 307–317 (1982) (Eng).
1104. Schlosser, D. W., and Philpott, M. R., Energy transfer in molecular crystals: nondipolar Coulomb exciton transfer interaction in crystalline naphthalene and anthracene, *J. Chem. Phys.* **77**, N 4, 1969–1983 (1982) (Eng).
1105. Schmid, U., and Reineker, P., Coherent motion of triplet excitons in molecular crystals with two differently oriented molecules per unit cell. Application to the charge transfer crystal anthracene/tetracyanobenzene, *Phys. status solidi (b)* **109**, N 1, 265–273 (1982) (Eng) (P.A. 85:56445).
1106. Soukoulis, C. M., Klafter, J., and Economou, E. N., Role of the incipient Anderson transition in electronic energy transfer in mixed organic crystals, *Solid State Commun.* **44**, N 6, 833–836 (1982) (Eng).
1107. Travníkov, V. V., and Krivolapchuk, V. V., Exciton diffusion and resonance radiation self-absorption, *Fiz. Tverd. Tela* **24**, N 4, 961–970 (1982) (Russ).
1108. Vitukhnovskii, A. G., and Zhevandrov, N. D., Calculation of the diffusion tensor of singlet excitons in monoclinic molecular crystals, *Kratkie soobshch. po fizike* N 6, 36–41 (1980) (Russ) (P.A. 85:87158).

8. PHOTOCONDUCTIVITY OF MOLECULAR CRYSTALS. PHOTOELECTRONIC EMISSION

1109. Abakumov, G. A., Polyakov, B. I., Simonov, A. P., Chuiko, L. S., and Yaroslavtsev, V. T., Stepwise photoionization of anthracene in the gas phase by the pulsed ultraviolet laser radiation, *Opt. and Spektrosk.* **53**, N 2, 258–262 (1982) (Russ) (P.A. 86:60854).
1110. Anderson, S. L., Rider, D. M., and Zare, R. N., Multiphoton ionization photoelectron spectroscopy: a new method for determining vibrational structure of molecular ions, *Chem. Phys. Lett.* **93**, N 1, 11–15 (1982) (Eng).
1111. Bounds, P. J., and Siebrand, W., Optical charge carrier generation by charge-transfer excitation in pentacene crystals, *Chem. Phys. Lett.* **85**, N 5, 6, 496–498 (1982) (Eng) (P.A. 85:46632).
1112. Bounds, P. J., Siebrand, W., and Petelenz, P., Time dependence of optical charge carrier generation in anthracene crystals, *Chem. Phys. Lett.* **89**, N 1, 1–3 (1982) (Eng) (P.A. 85:87316).
1113. Campbell, M. J., Liesegang, J., Riley, J. D., and Jenkin, J. G., Ultraviolet photoelectron spectroscopy of the valence bands of solid NH₃, H₂O, CO₂, SO₂ and N₂O₄, *J. Phys. C: Solid State Phys.* **15**, N 11, 2549–2558 (1982) (Eng) (P.A. 85:67190).
1114. Capek, V., and Munn, R. W., From band to hopping diffusion of excitons and charge carriers in molecular crystals. 2. Results for local and weak nonlocal electron-phonon coupling, *Phys. status solidi (b)* **109**, N 1, 245–253 (1982) (Eng).
1115. Dietz, W., Neusser, H. J., Boesl, U., and Schlag, E. W., A model for multiphoton ionisation mass spectroscopy with application to benzene, *Chem. Phys.* **66**, N 1/2, 105–127 (1982) (Eng) (P.A. 85:64158).
1116. Glinski, J., and Kalinowski, J., Influence of contacts of spatial distribution of electroluminescence in organic crystals, *Mater. Sci.* **7**, N 2–3, 157–162 (1981) (Eng) (P.A. 85:72556).
1117. Hisa, M., Higashino, K., and Oshio, T., Measurements of the photoemission spectra of oxygen-free and oxygen-doped *p*-terphenyl single crystals in the vacuum UV region, *J. Photochem.* **20**, N 4, 305–317 (1982) (Eng).

1118. Kalinowski, J., Electroluminescence in organic crystals, *Mater. Sci.* **7**, N 1, 43–50 (1981) (Eng) (P.A. 85:36706).
1119. Katsumata, S., Shiromaru, H., Mitani, K., Iwata, S., and Kimura, K., Photoelectron angular distribution and assignments of photoelectron spectra of nitrogen dioxide, nitromethane and nitrobenzene, *Chem. Phys.* **69**, N 9, 423–431 (1982) (Eng).
1120. Kelsall, B. J., and Andrews, L., Two-color resonance photoionization of aromatic molecules in solid argon, *J. Chem. Phys.* **76**, N 10, 5005–5013 (1982) (Eng) (P.A. 85:85751).
1121. Krylova, I. V., and Mel'nikov, M. Ya., Photostimulated exoemission from some organic compounds, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 7, 1412–1415 (1982) (Russ) (P.A. 86:72943).
1122. Lange, J., and Bässler, H., Temperature dependence of the hopping mobility in amorphous tetracene, *Phys. status solidi (b)* **114**, N 2, 561–569 (1982) (Eng).
1123. Leutwyler, S., Even, U., and Jortner, J., Electronic spectroscopy of large van der Waals molecules by resonant two-photon ionization, *Chem. Phys. Lett.* **86**, N 5, 6, 439–444 (1982) (Eng) (P.A. 85:54907).
1124. Lojczyk, B., and Kalinowski, J., Magnetic field effects on photoconductivity in tetracene crystals, *Mater. Sci.* **7**, N 2–3, 245–249 (1981) (Eng) (P.A. 85:72021).
1125. Loutfy, R. O., Photoconduction of phthalocyanines in the near-infrared, *J. Phys. Chem.* **86**, N 17, 3302–3306 (1982) (Eng).
1126. Mitra, S., Roy, K., and Mathur, S. C., Charge carrier transport in phthalocyanine in energy bands, *Indian J. Phys.* **56A**, N 3, 197–200 (1982) (Eng).
1127. Popovic, Z., Carrier generation and electric field induced fluorescence quenching in organic photoconductors, *Mater. Sci.* **7**, N 2–3, 303 (1981) (Eng) (P.A. 85:67108).
1128. Popovic, Z. D., Electric field induced fluorescence quenching and photocarrier generation in x-metal-free phthalocyanine, *J. Chem. Phys.* **76**, N 5, 2714–2719 (1982) (Eng).
1129. Sauer, M. C., Jr., Trifunac, A. D., Cooper, R., and Meisel, D., dc conductivity signals observed following pulsed photoionization of solutions of anthracene in dielectric liquids, *Chem. Phys. Lett.* **92**, N 2, 178–180 (1982) (Eng).
1130. Scott, T. W., Braun, C. L., and Albrecht, A. C., Multiphoton ionization in the organic condensed phase: A three-photon study of liquid benzene, *J. Chem. Phys.* **76**, N 11, 5195–5202 (1982) (Eng) (P.A. 85:80749).
1131. Sharma, J., Garrett, W. L., Owens, F. J., and Vogel, V. L., X-ray photoelectron study of electronic structure and ultra-violet and isothermal decomposition of 1,3,5-triamino-2,4,6-trinitrobenzene, *J. Phys. Chem.* **86**, N 9, 1657–1661 (1982) (Eng).
1132. Twarowski, A. J., Photocurrent generation in zinc phthalocyanine films, *J. Chem. Phys.* **76**, N 5, 2640–2645 (1982) (Eng).
1133. Warman, J. M., De Haas, M. P., Hummel, A., Varma, C. A. G. O., and Van Zeyl, P. H. M., Dipole moment changes in the singlet and triplet excited states of 4-dimethylamino-4'-nitrostilbene detected by nanosecond time-resolved microwave conductivity, *Chem. Phys. Lett.* **87**, N 1, 83–86 (1982) (Eng).
1134. Yokoyama, M., Shimokihara, S., Matsubara, A., and Mikawa, H., Extrinsic carrier photogeneration in poly-N-vinyl-carbazole. 3. CT fluorescence quenching by an electric field, *J. Chem. Phys.* **76**, N 1, 724–728 (1982) (Eng) (P.A. 85:41395).
1135. Zschokke-Granacher, I., Charge-carrier recombination in molecular crystals, *Mater. Sci.* **7**, N 1, 87–92 (1981) (Eng) (P.A. 85:36054).
1136. Zverev, V. V., and Ermolaeva, L. V., Ionization potentials and intramolecular charge transfer. 2. The photoelectron spectrum and electronic structure of trichloromethylbenzene, *Zh. Strukt. Khim.* **22**, N 5, 22–27 (1981) (Russ) (P.A. 85:90626).

9. EFFECTS OF HIGH EXCITON CONCENTRATION IN NON-METALLIC CRYSTALS

1137. Mirjanic, D., Luburic-Kozmidis, U., Marinkovic, M. M., and Tosic, B. S., Combined effect of exciton-exciton and exciton-phonon interaction on crystal's dielectric properties, *Can. J. Phys.* **60**, N 12, 1838–1845 (1982) (Eng).
1138. Naboikin, Yu. V., and Samartsev, V. V., Effects of nonlinear coherent interaction in impure molecular crystals, *Izv. Akad. Nauk SSSR Ser. Fiz.* **46**, N 8, 1491–1495 (1982) (Russ).
1139. Schmitt-Rink, S., and Haug, H., Nonlinear energy transport of radiation in dielectrics due to virtual biexciton formation, *Phys. status solidi (b)* **108**, N 2, 377–387 (1981) (Eng) (P.A. **85**:41317).

10. MOLECULAR CRYSTAL STRUCTURE. THERMODYNAMIC DATA

1140. Ahlmeyer, E., Bich, E., Opel, G., Schulze, P., and Vogel, E., Der zweite Virialkoeffizient und der Viskositätskoeffizient des Dampfes von Chlorbenzen und ihre Darstellbarkeit durch Ansätze für das intermolekulare Potential, *Z. Phys. Chem. Leipzig*, **263**, N 3, 519–528 (1982) (Ger).
1141. Alt, H. C., and Kalus, J., X-ray powder diffraction investigation of naphthalene up to 0.5 GPa, *Acta crystallogr.* **B38**, N 10, 2595–2600 (1982) (Eng).
1142. Amoureux, J. P., Bee, M., and Sauvajol, J. L., Structure of 1-fluoroadamantane, $C_{10}H_{15}F$, in its plastic phase, *Acta crystallogr.* **B38**, N 7, 1984–1989 (1982) (Eng).
1143. Aptekar', I. L., and Galashin, A. E., Critical point of isostructural phase transformation of anthracene photomodification, *Pis'ma v Zh. Eksp. and Teor. Fiz.* **36**, N 7, 256–259 (1982) (Russ).
1144. Arakelyan, S. M., Karayan, A. S., and Chilingaryan, Yu. S., Adiabatic and nonadiabatic distortions of modulated structures in nematic liquid crystals induced by the laser field, *Kvantovaya Elektron.* **9**, N 12, 2481–2490 (1982) (Russ).
1145. Asenbaum, A., Thermodynamics and vibrational dynamics of tetrachloromethane, benzene, and cyclohexane, *Adv. Mol. Relaxation and Interaction Processes* **22**, N 3, 187–198 (1982) (Eng) (P.A. **85**:72511).
1146. Atake, T., Gyoten, H., and Chihara, H., A concealed anomaly at 117.5 K in the heat capacity of hexamethylbenzene, *J. Chem. Phys.* **76**, N 11, 5535–5540 (1982) (Eng).
1147. Azarenkov, V. P., Tolkachev, A. M., Aleksandrovskii, A. N., and Kosobutskaya, E. A., The effect of rotational motion of impurity molecules N_2 on thermal expansion of solid Ar, *Fiz. Nizk. Temp.* **8**, N 12, 1285–1288 (1982) (Russ).
1148. Baglioni, P., Cardini, G., Gabrielli, G., and Taddei, G., Hydrogen-bonded two-dimensional molecular crystals at liquid interfaces, *J. Phys. Chem.* **86**, N 24, 4684–4689 (1982) (Eng).
1149. Baharic, E., and Pawley, G. S., The temperature dependence of the anharmonic properties of crystalline naphthalene- d_8 , *Acta Crystallogr.* **A38**, N 6, 803–810 (1982) (Eng).
1150. Barash, Yu. S., Contribution of Van der Waals forces to the free energy of condensed media, *Zh. Eksp. and Teor. Fiz.* **82**, N 2, 631–645 (1982) (Russ).
1151. Bee, M., Sauvajol, J. L., and Amoureux, J. P., Molecular reorientations of bicyclo [2, 2, 2] octane in its plastic solid phase: correlation times from incoherent quasielastic neutron scattering study, *J. Phys.* **43**, N 12, 1797–1808 (1982) (Eng).
1152. Bhatnagar, A. K., Quamara, J. K., and Bhatnagar, C. S., Dielectric behaviour of thermo-magnetically treated naphthalene, *Indian J. Pure and Appl. Phys.* **20**, N 3, 215–217 (1982) (Eng).

1153. Bich, E., and Opel, G., Auswertung des zweiten Virialkoeffizienten von Benzen, Toluën, p-Xylen, Fluorbenzen, Chlorbenzen und Phenol mit Lennard-Jones-(m-n)-, (m-6-8)- und (m-6-8-3)-Potentialansätzen, *Z. Phys. Chem., Leipzig* **263**, N 3, 470–480 (1982) (Ger).
1154. Birner, P., Kugler, S., Simon, K., and Naray-Szabo, G., Theoretical conformational analysis of substituted phenylbenzoates, *Mol. Cryst. and Liquid Cryst.* **80**, N 1–4, 11–17 (1982) (Eng) (P.A. 85:59961).
1155. Bondarenko, A. I., Manzhelii, V. G., Popov, V. A., Strzhemechny, M. A., and Gavrilko, V. G., Isochoric thermal conductivity of Kr and Ar crystals. Heat transfer by vacancies, *Fiz. Nizk. Temp.* **8**, N 11, 1215–1224 (1982) (Russ).
1156. Brassy, C., Bachet, B., Bodo, B., and Molho, D., Structure de l'atranorine, *Acta Crystallogr.* **B38**, N 12, 3126–3128 (1982) (Fr).
1157. Calvarin, F., Berar, J. F., and Clec'h, G., Study of static disorder in a ferrocene crystal: Molecular configuration and packing, by X-ray diffraction and lattice-energy calculations, *J. Phys. and Chem. Solids* **43**, N 9, 791–796 (1982) (Eng).
1158. Crisp, G. M., and Walmsley, S. H., Slip planes crystal growth and the photodimerisation of anthracene, *Chem. Phys.* **68**, N 1, 2, 213–222 (1982) (Eng).
1159. Datsenko, E. I., and Pakhomov, L. G., Melting diagrams of diphenylamine with some organic compounds, *Zh. Fiz. Khim.* **56**, N 2, 307–309 (1982) (Russ).
1160. Ecolivet, C., Granger, M. M., Sanquer, M., Toupet, L., and Charbonneau, G. P., Structure and elastic properties of dibenzyl at 293 K and 110 K, *Mol. Cryst. and Liquid Cryst.* **80**, N 1–4, 1–10 (1982) (Eng) (P.A. 85:60967).
1161. Eiermann, R., Parkinson, G. M., Bässler, H., and Thomas, J. M., Amorphous organic molecular solids. Vapor-deposited tetracene, *J. Phys. Chem.* **86**, N 3, 313–315 (1982) (Eng) (P.A. 85:81674).
1162. Geguzin, Ya. E., Kononenko, V. G., and Chan Kieu Zung, The motion of a heterogeneous inclusion in naphthalene and stilbene crystals in the premelting temperature range, *Ukr. Fiz. Zh.* **27**, N 1, 74–78 (1982) (Russ).
1163. Gorbunova, N. I., Simonov, V. M., and Shipova, V. A., Thermodynamic properties of hexafluorobenzene, *Dokl. Akad. Nauk SSSR* **266**, N 4, 850–853 (1982) (Russ).
1164. Griot, A., Philippe, R., Merlin, J.-L., Thermal pressure coefficients and expansion coefficients at 298.15 K for pyridine and pyridine derivatives, *J. chim. phys. et phys.-chim. biol.* **79**, N 9, 671–675 (1982) (Fr).
1165. Gyoten, H., Yoshimoto, Y., Atake, T., and Chihara, H., Thermodynamic studies of phase transitions in chloropentamethylbenzene, *J. Chem. Phys.* **77**, N 10, 5097–5107 (1982) (Eng).
1166. Herstein, F. H., and Kapon, M., 1,4,5,8-naphthalenetetrone, *Acta crystallogr.* **B38**, N 12, 3123–3125 (1982) (Eng).
1167. Ivanov, Yu. P., Antipin, M. Yu., and Pertsin, A. I., Thermal expansion of some organic crystals, *Kristallografiya* **27**, N 3, 627–629 (1982) (Russ).
1168. Ivanov, Yu. P., Pertsin, A. I., Ivanova, L. V., and Kitaigorodsky, A. I., Thermodynamical functions of acenaphthene, *Kristallografiya* **27**, N 4, 704–708 (1982) (Russ).
1169. Jokisaari, J., Vaananen, T., and Lounila, J., The r_a -structure and orientational behaviour of moniodobenzene in nematic liquid crystals, *Mol. Phys.* **45**, N 1, 141–148 (1982) (Eng) (P.A. 85:49462).
1170. Jordan, J. F. J., Axmann, A., Egger, H., and Kalus, J., Temperature dependence of the compressibility of d_8 -naphthalene, *Phys. status solidi (a)* **71**, N 2, 457–462 (1982) (Eng) (P.A. 85:92085).
1171. Julian, M. M., and Bloss, F. D., Optical measurements of anthracene, *Acta crystallogr.* **A38**, N 1, 167–169 (1982) (Eng) (P.A. 85:46524).
1172. Kirin, D., and Pawley, G. S., Low-frequency Raman spectrum and pressure-induced phase transition of crystalline 4,4'-dichlorobenzophenone, *Chem. Phys. Lett.* **85**, N 3, 298–301 (1982) (Eng) (P.A. 85:46557).
1173. Kobashi, K., Helmy, A. A., Etters, R. D., and Spain, I. L., Prediction of a new phase in solid N_2 at high pressure, *Phys. Rev. B* **26**, N 10, 5996–5999 (1982) (Eng).

1174. Kohda, K., Nakamura, N., and Chihara, H., Proton magnetic relaxation study of critical phenomenon in benzil, *J. Phys. Soc. Jap.* **51**, N 9, 2709–2710 (1982) (Eng).
1175. Krivoglaз, M. A., and Min'kov, A. V., The Debye–Waller factor in quasi-one-dimensional and quasi-two-dimensional crystals, *Kristallografiya* **27**, N 5, 837–842 (1982) (Russ) (P.A. 86:62050).
1176. Kuroda, R., Neidle, S., and Subbiah, A., Structure of benz[*a*]anthracene-7, 12-dione, *Acta crystallogr.* **B38**, N 5, 1674–1676 (1982) (Eng).
1177. Medina, F. D., On the existence of phase IV of solid methane, *Chem. Phys. Lett.* **85**, N 1, 91–93 (1982) (Eng).
1178. Mitus, A. Ya., and Patashinskii, A. Z., On point symmetry of crystals with triclinic local order parameter, *Fiz. Tverd. Tela* **24**, N 10, 2881–2887 (1982) (Russ).
1179. Mokichev, N. N., and Pakhomov, L. G., Computer simulation of edge dislocation in naphthalene crystal, *Fiz. Tverd. Tela* **24**, N 11, 3389–3393 (1982) (Russ).
1180. Ovsienko, D. E., Alfintsev, G. A., Chemerinsky, G. P., Budurov, S., and Stoichev, N., Growth shapes and kinetics of benzophenone crystals, *J. Cryst. Growth* **60**, N 1, 107–112 (1982) (Eng).
1181. Parlinski, K., On the phase transition in adamantane, *Phys. status solidi (a)* **74**, N 1, K37–K40 (1982) (Eng).
1182. Puttaraja, Nirmala, K. A., Sakegowda, D. S., and Duax, W. L., Crystal structure of griseofulvin, *J. Crystallogr. and Spectrosc. Res.* **12**, N 5, 415–423 (1982) (Eng).
1183. Schlemper, E. O., 2, 2'-dihydroxybenzophenone, *Acta crystallogr.* **B38**, N 5, 1619–1622 (1982) (Eng).
1184. Sherman, W. F., Pressure-induced changes in mode Grüneisen parameters and general equations of state for solids, *J. Phys. C: Solid State Phys.* **15**, N 1, 9–23 (1982) (Eng) (P.A. 85:50817).
1185. Sinha, D. P., and Prasad, K. N., Crystallographic studies of ω -bromo-4-chloroacetophenone, *Indian J. Phys.* **56A**, N 1, 61–62 (1982) (Eng).
1186. Sobry, R., and Van Den Bossche, G., Anisotropies diamagnetiques cristalline et moléculaires du naphthalene, *Acta crystallogr.* **A38**, N 2, 286–287 (1982) (Fr).
1187. Sonnenblick, Y., Kalman, Z. H., and Steinberger, I. T., Growth and crystal structures of solid xenon and krypton, *J. Cryst. Growth* **58**, N 1, 143–151 (1982) (Eng).
1188. Terauchi, H., Kojima, T., Sakaue, K., Tajiri, F., and Maeda, H., Structural phase transition of benzil, *J. Chem. Phys.* **76**, N 1, 612–615 (1982) (Eng) (P.A. 85:40531).
1189. Tishchenko, N. P., Self-diffusion in rare-gas solids, *Phys. status solidi (a)* **73**, N 1, 279–286 (1982) (Eng).
1190. Umapathy, S., Contribution of noncentral forces to elastic constants in molecular crystals, *Indian J. Pure and Appl. Phys.* **20**, N 2, 133–134 (1982) (Eng) (P.A. 85:61084).
1191. Van Havere, W., Lenstra, A. T. H., and Geise, H. J., 4-tert-butyl-3, 5-dinitroanisole, *Acta crystallogr.* **B38**, N 12, 3119–3120 (1982) (Eng).
1192. Wakayama, N. I., Fluorescence and phase transition of *p*-terphenyl crystal, *J. Lumin.* **27**, N 3, 299–306 (1982) (Eng).
1193. Welberry, T. R., Jones, R. D. G., and Epstein, J., Crystal exhibiting disorder—The orthorhombic polymorph of 9-bromo-10-methylantracene, *Acta crystallogr.* **B38**, N 5, 1518–1525 (1982) (Eng).
1194. Yoshihara, A., Bernstein, E. R., and Raich, J. C., Critical behavior in annealed and unannealed crystals of benzil, *J. Chem. Phys.* **77**, N 6, 2768–2778 (1982) (Eng).
1195. Yoshihara, A., Wilber, W. D., Bernstein, E. R., and Raich, J. C., On the phase transition in benzil, *J. Chem. Phys.* **76**, N 4, 2064–2072 (1982) (Eng) (P.A. 85:56175).
1196. Zboinski, Z., Zone growth: a simple procedure for growing organic crystals from the melt or from the vapour phase, *J. Cryst. Growth* **58**, N 2, 335–338 (1982) (Eng).

1197. Zink, J. I., and Chandra, B. P., Light emission during growth and destruction of crystals. Crystalloluminescence and triboluminescence, *J. Phys. Chem.* **86**, N 1, 5–7 (1982) (Eng).

11. NEUTRON SPECTROSCOPY OF CRYSTALS

1198. Descamps, M., Intermolecular correlations and neutron scattering in plastic adamantane derivatives: mean-field treatment of the hard-core repulsions, *J. Phys. C: Solid State Phys.* **15**, N 36, 7265–7282 (1982) (Eng).
1199. Dorner, B., Bokhenkov, E. L., Chaplot, S. L., Kalus, J., Natkaniec, I., Pawley, G. S., Schmelzer, U., and Sheka, E. F., The 12 external and the 4 lowest internal phonon dispersion branches in d_{10} -anthracene at 12 K, *J. Phys. C: Solid State Phys.* **15**, N 11, 2353–2365 (1982) (Eng) (P.A. **85**:66149).
1200. Jobic, H., Neutron inelastic scattering from oriented and polycrystalline polyethylene: Observation and polarization properties of the optical phonons, *J. Chem. Phys.* **76**, N 5, 2693–2696 (1982) (Eng).
1201. Nowak, E., and Dederichs, P. H., Coherent and incoherent neutron scattering in disordered alloys, *Phys. Rev. B* **25**, N 2, 875–882 (1982) (Eng) (P.A. **85**:65811).
1202. Tomkinson, J., Braid, I. J., Howard, J., and Waddington, T. C., Hydrogen bonding in potassium hydrogen maleate and some simple derivatives studied by inelastic neutron scattering spectroscopy, *Chem. Phys.* **64**, N 1, 151–157 (1982) (Eng).
1203. White, J. W., Microvolt and millivolt molecular tunneling spectroscopy by neutron scattering, *J. Mol. Struct.* **79**, 199–213 (1982) (Eng) (P.A. **85**:71292).

12. AUTHOR INDEX

- Aahse, A. J., III 294
 Aaviksoo, J., 800
 Abakumov, G. A., 635, 1109
 Abdeen, A. M., 831
 Abdel-Kader, M. M., 46
 Abdel-Malik, T. G., 831
 Abdul-Rasoul, F. A. M., 732
 Abdullaev, F. Kh., 894, 1059
 Abdumalikov, A. A. 894, 1059
 Abe, H., 345, 346, 450
 Abla, A. A., 362
 Abou Sekkina, M. M., 372
 Abram, I., 224
 Abramczyk, H., 327
 Achlama, A. M., 769
 Adnan, S. S. Z., 47
 Aerts, F., 431
 Afanasiev, A. A., 552
 Agarwal, M. L., 130, 131, 132, 251, 747
 Agranovich, V. M., 1, 980, 981
 Agresti, A., 347
 Ahlmeyer, E., 1140
 Ahmad, S. F., 752, 860, 883, 937
 Aihara, M., 892
 Akimov, A. I., 553, 554
 Akimov, A. N., 348, 435
 Al-Ani, K. E., 451
 Al-Chalabi, A. O., 117, 716
 Albrecht, A. C., 151, 217, 805, 1130
 Aleksandrovskii, A. N., 1147
 Alekseev, N. N., 112
 Alekseev, V. I., 414
 Alfimov, M. V., 444
 Alfintsev, G. A., 1180
 Aliev, M. R., 29
 Allgeier, J., 695
 Almgren, M., 398
 Alms, G. R., 249
 Aloisi, G. G., 661
 Alt, H. C., 1141
 Altschuh, J., 81
 Altshuler, G. B., 555
 Aly, A. A. 831
 Amat, G., 225
 Amirav, A., 173, 218, 349
 Amos, R. D. 48
 Amoureux, J. P., 771, 903, 962, 1142, 1151
 Anderson, S. L., 1110
 Anderson, V. C., 832
 Andre, J. C., 350, 452
 Andreev, V. A., 1060
 Andrews, L., 174, 207, 833, 881, 1120
 Andrews, S. R., 377
 Andrievskii, A. M., 196, 390, 861
 Angeloni, L., 765
 Angliker, H., 157
 Anikiev, A. A., 895
 Aniyalg, A. O., 351, 453
 Anoshin, A. N., 226, 227, 352
 Antipin, M. Yu., 1167
 Antonov, V. S., 118
 Antonyuk, B. P., 980
 Antsygina, T. N., 738, 896
 Apanasevich, P. A. 556
 Aptekar', I. L., 1143
 Arabei, S. M., 175
 Arakelyan, S. M. 1144
 Arbeloa, I. L., 353
 Argyrakis, P., 834, 1061
 Aristov, A. V., 119, 636
 Armand, J., 49
 Aroca, R., 295, 502, 739
 Artyukhov, V. Ya., 354
 Asaf, U., 1002
 Asenbaum, A., 740, 1145
 Ashkinadze, L. D., 243
 Ashrafullina, L. Kh., 314
 Asimov, M., 125
 Asimov, M. M., 158, 557, 558
 Aslangul, C., 998
 Assar, S. S., 372, 761
 Ata, M., 50
 Atake, T., 1146, 1165
 Atakhodzhaev, A. K., 404
 Atreya, C. P., 306
 Auch, W., 695
 Aufderheide, K. H., 51, 52
 Auweter, H., 717, 801
 Avakyan, P. B. 786
 Avarmma, R. A., 209
 Avdeenko, A. A., 696, 802
 Averyushkin, A. S., 835, 1062, 1088
 Axmann, A., 1170
 Azarenkov, V. P., 1147
 Azumi, T., 416, 442, 486, 487, 496, 528
 Baba, H., 205, 334, 512, 886
 Babcock, E. E., 55
 Bacci, M., 347
 Bachet, B., 1156
 Baer, T., 454, 642
 Baglioni, P., 1148
 Baharie, E., 897, 1149
 Bakhshiev, N. G., 176, 419, 455
 Balfour, W. J., 120
 Balzani, V., 521
 Band, Y. B., 215, 216
 Bandrauk, A. D., 697
 Banerjee, S. B., 393
 Bär, M., 169

- Baraldi, I., 53, 95
 Baranov, A. V., 296, 297, 298
 Baranov, P. A. 559
 Baranov, V. I., 177, 188, 252
 Baranova, N. B., 121
 Baranska, H., 327
 Barash, Yu. S., 1150
 Bareika, B. F., 560
 Bar-Joseph, I., 159, 561
 Barker, J. R. 274, 413, 456, 542, 637
 Barkley, M. D., 457
 Baroni, S., 982
 Bartels, D. M., 458
 Bartocci, G., 638
 Basanagoudar, L. D., 459
 Basavarajappa, G., 459
 Basilevsky, M. V., 898
 Basov, N. G., 562
 Bässler, H. (Bassler, H.), 789, 812, 1084, 1103, 1122, 1161
 Bates, D., 32
 Batheja, P., 899
 Batyrev, V. A., 552
 Bauer, R. K., 460
 Bazyl, O. K., 54, 563
 Bechthold, P. S., 316, 708
 Bechtold, W. E., 55
 Beck, S. M., 299
 Bee, M., 1142, 1151
 Beecroft, R. A., 639
 Beguery, M., 865
 Behera, S. N., 900, 1063
 Bekkiev, A. Yu., 300
 Bellows, J. C., 770, 836, 1011
 Belousov, M. V., 837, 838, 901, 902
 Belskii, V. K., 22
 Belushkin, A. I., 977
 Belyaev, Al. K., 461
 Belyakov, V. A., 2
 Benadda, M. D., 771, 903
 Bendersky, V. A., 839, 1064, 1089
 Benk, H., 772, 1013, 1065
 Benthem, L., 355
 Berar, J. F., 909, 1157
 Bergström, H., 537
 Berkovic, G. E., 718, 728, 803, 813
 Bernardini, R., 775
 Bernstein, E. R., 139, 317, 884, 1194, 1195
 Bernstein, M., 178
 Bernstein, P., 692
 Berry, D. E., 904
 Berry, M. J., 272
 Bews, J. R., 56, 57
 Bezrodnyi, V. I., 564, 565
 Bhatnagar, A. K., 1152
 Bhatnagar, C. S., 1152
 Bhattacharyya, S., 47
 Bhowmik, B. B., 698
 Bianconi, A., 775
 Bich, E., 1140, 1153
 Bigelow, R. W., 58
 Binder, W., 858
 Birckner, E., 462, 699
 Bird, G. R., 690
 Birner, P., 1154
 Blackadar, R. L., 700
 Blankenship, T. A., 174, 833
 Blatt, E., 463
 Bloembergen, N., 3, 279
 Bloss, F. D., 1171
 Blumstein, A., 4
 Boardman, A. D., 5
 Bobovich, Ya. S., 296, 297, 298, 301, 325
 Bobulescu, R. C., 616
 Bodo, B., 1156
 Bodunov, E. N., 464
 Boesl, U., 1115
 Bogdanov, V. L., 180, 181, 182, 356, 357, 358, 359
 Bois, C., 49
 Boitsov, V. M., 122, 179
 Bojarski, C., 465
 Bokhenkov, E. L., 746, 750, 905, 920, 933, 1199
 Boldridge, D. W., 466
 Bolduan, F., 856, 934
 Bolot'ko, L. M., 160
 Bolotnikova, T. N., 840, 841
 Bonadeo, H., 906
 Bonch-Bruevich, A. M., 640
 Bondar, M. V., 564
 Bondar, V. V., 804
 Bondarenko, A. I., 1155
 Bondybey, V. E., 59, 60, 583
 Bonno, B., 1012
 Borisevich, A. N., 627
 Borisevich, N. A., 228, 229, 230, 360, 361, 467, 566
 Borodavkin, A. V., 61
 Bothem, T., 542
 Bouillot, J., 908
 Bounds, P. J., 1111, 1112
 Bowman, M. K., 893
 Boxer, S. G., 609
 Braid, I. J., 1202
 Bramley, R., 799
 Brand, J., 189, 488
 Brand, L., 457
 Brasher, J. D., 984
 Brassy, C., 1156
 Bräuchle, C., 183
 Bräuchle, Ch., 62

- Braun, C. L., 805, 1130
 Bree, A., 231, 302, 741
 Breheret, E., 660
 Brichkin, S. B., 153, 678
 Briding, A. J., 572
 Brikenshtein, V. Kh., 839, 1064, 1089
 Brink, G. O., 567
 Brock, C. P., 742
 Brodin, M. S., 983
 Broekmans, G., 232
 Bron, W. E., 907
 Brown, D. H., 324
 Brown, R., 842, 865, 878, 1066, 1082
 Brunero, P., 659
 Bruni, M. C., 95
 Brunvoll, J., 341
 Brus, L. E., 299, 517
 Bryukhanov, V. N., 233, 468
 Bubekov, Yu. I., 361, 467
 Budurov, S., 1180
 Bugueno-Huffmann, R., 743
 Bumgarner, L. S., 469
 Buono-Core, G. E., 676
 Burakov, V. S., 568
 Burger, D., 827
 Burggraf, H., 582
 Burgos, E., 906
 Burkhart, R. D., 362
 Burshtein, A. I., 536
 Burum, D. P., 875
 Burzynski, R., 63
 Bushchuk, B. A., 470
 Bushuk, B. A., 518, 519
 But'ko, A. I., 471
 Byteva, I. M., 641

 Cailleau, H., 908
 Califano, S., 6
 Calkins, J., 569
 Callis, P. R., 151, 217
 Calvarin, F., 909, 1157
 Campani, E., 309
 Campbell, M. J., 1113
 Capek, V., 1027, 1090, 1091, 1114
 Capomacchia, A. C., 363
 Cardini, G., 1148
 Cardona, M., 7
 Carlone, C., 697, 744
 Carmeli, B., 234
 Carmichael, H. J., 1042
 Carney, T. E., 642
 Carru, J. C., 771, 903
 Carter, T. P., 364, 843
 Casalegno, R., 757
 Cassidei, L., 64
 Castelain, M., 771, 903

 Castellucci, E., 347, 365
 Chakravorti, S., 393
 Champion, P. M., 184
 Chan Kieu Zung, 1162
 Chandler, D., 526
 Chandra, A. K., 711
 Chandra, B. P., 830, 1197
 Chaplot, S. L., 746, 750, 910, 920, 933, 1199
 Chapoton, A., 771, 903
 Charbonneau, G. P., 1160
 Charlton, J. L., 523
 Charlton, T. R., 408
 Chayanov, B. A., 72
 Cheglovkov, E. I., 102
 Chekalyuk, A., 472
 Chekalyuk, A. M., 573
 Chekhonin, I. A., 304
 Chemerinsky, G. P., 1180
 Cherkasov, A. S., 366, 426
 Chernyak, V. Ya., 981
 Chesnulyavichus, Y., 622
 Chewter, L. A., 639
 Chihara, H., 1146, 1165, 1174
 Chilingaryan, Yu. S., 1144
 Chin, S. L., 574
 Chirva, L. A., 879
 Chiu, L. C., 591, 592
 Chizhikova, Z. A., 380, 480
 Choi, K.-J., 376
 Chow, Y. L., 676
 Chowdhury, M., 381
 Christen, D., 65
 Chistova, N. J., 669
 Chronister, E. L., 745, 1029
 Chuang, T. J., 328, 643
 Chubarov, V. V., 573
 Chuiko, L. S., 1109
 Chung-Phillips, A., 52
 Chupka, W. A., 207, 881
 Churcher, C. D., 911
 Clark, J. B., 532, 733
 Clark, R. J. H., 8
 Clarke, R. H., 9
 Clec'h, G., 909, 1157
 Clerc, J. T., 10
 Cline Love, L. J., 686, 687
 Clouter, M. J., 752, 860, 883, 937
 Cofino, W. P., 844
 Cognard, J., 11
 Cohen, S. G., 650
 Cole, T. W., Jr., 235
 Colley, E., 569
 Colonna, F. P., 66
 Colpa, J. P., 644
 Colson, S. D., 207, 881, 912

- Consiglio, G., 66
 Constantinescu, A., 614
 Cooney, R. P., 310
 Cooper, D. E., 123
 Cooper, R., 845, 1129
 Corkill, P. J., 685
 Corvaja, C., 701
 Coulter, D. R., 645
 Craig, B. B., 832
 Craig, D. P., 913, 1028
 Creighton, J. A., 303
 Crisp, G. M., 719, 1158
 Currat, R., 914
 Cyr, C., 744
 Cyvin, B. N., 236, 237, 238, 341
 Cyvin, S. J., 236, 237, 238, 341
 Czajko, 367

 Dagher, M., 197
 Dakhnov, P. D., 648
 Damany, H., 620
 Dambal, S. B., 459
 Dana, I., 1067
 Danchinov, K. M., 368, 846
 Danielius, R. V., 560
 Danilova, V. I., 54, 73, 160, 563
 Darmany, A. P., 473
 Darwent, J. R., 702
 Das, P. K., 527
 Dashevskii, V. G., 12
 Dasko, A. D., 629
 Datsenko, E. I., 1159
 Davidovic-Ristovski, G. S., 1092
 Davidson, A. T., 124
 Davidson, E. R., 69
 Davidson, R. S., 639
 Davydov, B. L., 631
 Davydov, S. Yu., 915
 De Backer, M. G., 277
 De Bree, P., 847
 De Haas, M. P., 114, 1133
 De Jeu, W. H., 13
 De Martino, A., 224
 Dederichs, P. H., 1201
 Dekkers, H. P. J. M., 525
 Dellepiane, G., 759, 784
 Dellonte, S., 638
 Delyukov, A. A., 848
 Dementjev, V. A., 905
 Denchev, O. E., 570
 Denison, L., 845
 Denisov, L. K., 553
 Derkacheva, L. D., 646
 Descamps, M., 962, 1198
 Deshpande, A., 613
 Despres, A., 849

 Devdariani, A. Z., 461
 Devi, A., 150
 Devlin, F., 278
 Devlin, J. P., 240
 Devyatov, A. A., 300
 Dhar, G. M., 273
 Dharmaraju, G., 546
 Di Stefano, S., 645
 Diaz Peña, M., 916, 917
 Dicker, A. I. M., 185, 541
 Dieperink, A. E. L., 290
 Dietel, W., 571
 Dietz, T. G., 161, 474
 Dietz, W., 1115
 Dikchius, G. A., 560
 Dil, J. G., 918
 DiLella, D. P., 295, 739
 Dinse, K.-P. (Dinse, K. P.), 169, 769
 Dissado, L. A., 720, 919, 1068
 Distefano, G., 66, 93, 94
 Dlott, D. D., 745, 1029
 Doany, F. E., 484
 Doberer, U., 772, 1013
 Dolin, Yu. S., 61
 Domenicano, A., 67
 Dorko, E. A., 572
 Dornauf, H., 1093
 Dorner, B., 14, 746, 750, 910, 920, 933, 1199
 Dorokhin, A. V., 369
 Drickamer, H. G., 409
 Driscoll, T. A., 307
 Duax, W. L., 1182
 Dudkiewicz, J., 370
 Duignan, M. T., 241
 Dulneva, E. G., 555
 Dumbraveanu, G., 614
 Duncan, M. A., 161, 474
 Dunitz, J. D., 742
 Dupuy, F., 842, 865, 878, 1066, 1082
 Duran, J., 1069
 Dy, K. S., 984
 Dyadyusha, G. G., 560
 Dykhanov, S. M., 104
 Dyumaev, K. M., 164, 440, 581, 648

 Eaton, D. F., 475, 703
 Eckhardt, C. J., 780, 781, 782, 783
 Ecolivet, C., 921, 1160
 Economou, E. N., 1085, 1106
 Edelson, M., 231
 Ediger, M. D., 609
 Efendiev, T. Sh., 621, 622, 629
 Egger, H., 1170
 Egorov, V. S., 304
 Egorova, G. D., 175

- Eiermann, R., 1161
 Eisenhardt, G., 682
 Eisetthal, K. B., 16
 El-Hefnawey, G. B., 372
 El-Karadagi, S., 550
 El-Labany, H. M., 831
 El'kin, M. D., 68, 242
 Ellenbogen, J. C., 69
 Encinas, M. V., 647
 Eng, R. S., 17
 English, J. H., 59, 60
 Englman, R., 806, 985
 Epstein, J., 1193
 Epstein, L. M., 243
 Eremko, A. A., 922
 Erenburg, A. I., 738, 896
 Erikhman, N. S., 949
 Ermakov, V. N., 1070
 Ermalitsky, F. A., 850
 Ermolaev, V. L., 298, 371, 538
 Ermolaeva, L. V., 1136
 Ernsting, N. P., 125
 Etaiw, S. H., 372
 Etters, R. D., 1173
 Evans, D. L., 147
 Even, U., 137, 173, 218, 349, 373, 374, 375, 1123
 Eyring, E. M., 273

 Fabian, W., 126
 Fadeev, V., 472
 Fadeev, V. V., 300, 573
 Faidish, A. M., 857, 1095
 Faidysh, A. N., 417, 531, 868, 869
 Fainberg, B. D., 127, 186, 509
 Fang, T.-S., 436, 476
 Faubert, D., 574
 Faure, J., 659
 Fayer, M. D., 609, 724, 757, 863, 875
 Fedorova, L. N., 417, 531, 857, 1095
 Felder, P., 256, 477
 Felder, T. C., 376
 Felker, P., 377, 420, 683
 Feller, D. M., 69
 Feltelson, J., 378
 Fenn, J. B., 286
 Ferguson, A. I., 575
 Ferraudi, G., 515
 Feuer, H., 32
 Fiksel, A. I., 478
 Filippini, G., 927
 Filippov, P. G., 839, 1064, 1089
 Fischer, G., 128
 Fischer, S. F., 187
 Flament, J. P., 70
 Fofonova, R. M., 99, 354

 Foggi, P., 365
 Fokin, V. A., 539
 Forlani, L., 64
 Fouassier, J.-P., 658, 659
 Foulon, M., 962
 Frank-Kamenetskii, M. D., 321
 Frankevich, E. L., 710
 Freed, E. E., 1097
 Freed, K. F., 547
 Freedman, P. A., 255, 259
 Freeman, R. R., 633
 Freiberg, A. M., 351, 453
 Freiman, Yu. A., 738, 896
 Freud, H.-J., 58
 Frey, R., 224
 Friedman, J., 373, 374
 Friedrich, J., 379
 Friesner, R., 1071
 Fröhling, W., 92
 Frueholz, R. P., 123
 Fugol, I. Ya., 773, 807, 810, 986, 987
 Fujita, M., 334
 Fujiwara, Y., 83
 Fujiyama, T., 923
 Fuke, K., 704, 721
 Fukuda, E., K., 71
 Fukumura, H., 479
 Fung, K. H., 705
 Fuss, W., 651

 Gabrielli, G., 1148
 Gachko, G. A., 348, 435
 Gadzhiev, A. Z., 244
 Gaevskii, A. Yu., 988
 Gagulin, V. V., 72
 Gaisenk, V. A., 471
 Galabov, B., 245
 Galagan, B. I., 648
 Galanin, M. D., 380, 480, 808
 Galashin, A. E., 1143
 Galashin, E. A., 694
 Gale, P. J., 286
 Galeeva, A. I., 73
 Galin, V. Ya., 233
 Gambi, A., 246, 247
 Gandolfi, M. T., 521
 Ganguly, T., 393
 Garcia, D., 241
 Garetz, B. A., 19
 Garg, S., 899
 Garrett, W. L., 1131
 Gastilovich, E. A., 227, 248, 368, 441, 846
 Gauglitz, G., 576
 Gavrilenko, V. N., 158, 557, 558
 Gavrilko, T. A., 774

- Gavrilko, V. G., 1155
 Geguzin, Ya. E., 1162
 Geise, H. J., 1191
 Gelatt, C. D., Jr., 1078
 Gentry, S. T., 851, 1072
 George, T. F., 394
 Georger, J. H., 437
 Georgiev, G., 472, 577
 Gerritsen, H. J., 307
 Gervais, H. P., 70
 Getoff, N., 495
 Gevorkyan, L. P., 578
 Ghersetti, S., 246, 247
 Ghiggino, K. P., 463, 679
 Ghosh, S., 381
 Ghoshal, S. K., 821
 Giachino, G. G., 437
 Gierke, T. D., 249
 Gilbert, R. G., 463, 788
 Gillbro, T., 537, 681
 Gillispie, G. D., 364, 843
 Giorgianni, S., 246, 247
 Giovannardi, S., 765
 Girardet, C., 852, 1073
 Girin, O. P., 176, 455
 Gladkov, S. M., 250
 Glagoleva, O. N., 129
 Glidewell, C., 56, 57
 Glinski, J., 775, 1116
 Gloriov, I. P., 98
 Glushko, E. Ya., 989
 Goda, M., 924, 1074
 Godfried, H. P., 305, 722
 Godlewski, J., 809, 990
 Goel, R. K., 130, 131, 132, 251, 306, 747
 Goldstein, J. H., 55
 Golomb, O. L., 641
 Golovko, V. A., 748
 Gondra, A. D., 579
 Goodman, L., 145, 882
 Goodwin, D., 639
 Gooijer, C., 844
 Gorban, K. N., 1075
 Gorbatshevich, S. K., 382, 383
 Gorbunova, N. I., 1163
 Gorelenko, A. Ya., 568
 Gorelik, M. V., 227
 Gorelik, V. S., 749, 895, 925, 926
 Gorini, G., 309
 Gorobchenko, V. S., 853
 Graham, D. J., 162
 Graham, R., 580
 Gramaccioli, C. M., 927
 Granger, M. M., 1160
 Grebneva, E. A., 481
 Gredeskul, S. A., 27
 Grellmann, K.-H., 172, 689, 734, 735
 Gribov, L. A., 74, 188, 252, 253, 254
 Griffiths, A. M., 255
 Griffiths, J. H., 65
 Grigorashchenko, O. N., 773, 810, 986
 Griot, A., 1164
 Grishaeva, T. I., 449
 Gromov, D. A., 581
 Grosso, G., 982
 Grunwald, E., 241
 Grupp, A., 706
 Gruzinskii, V. V., 160, 360
 Gryczynski, I., 75
 Grzywacz, J., 482
 Guerra, M., 66
 Guglielmi, M., 1023
 Guidotti, D., 307
 Gulis, I. M., 382, 383, 508
 Gunde, R., 256
 Günthard, Hs. H., 256, 477
 Güntherodt, G., 7
 Gupta, A., 489, 645
 Gupta, R. C., 105
 Gurinovich, G. P., 384, 385, 641
 Guryanova, E. N., 72
 Guseinov, N. M., 928
 Gutman, I., 76
 Gutsche, E., 1030
 Gyoten, H., 1146, 1165
 Haarer, D., 379
 Haken, H., 386, 1065
 Halonen, L., 257
 Hamilton, T. D. S., 872
 Hanamura, E., 1046, 1047
 Hanson, D. M., 670, 787, 816, 877, 1017, 1081, 1101, 1102
 Harde, H., 582
 Hargittai, I., 67
 Hari, V., 785
 Harke, U., 769
 Harley, R. T., 737
 Hassan, M. M. A., 77
 Haucke, G., 462, 699
 Haug, H., 1053, 1139
 Hayon, A., 483
 Hazle, J., 569
 Heaven, M., 583
 Heber, J., 1093
 Heilweil, E. J., 484, 533
 Heller, D. F., 272
 Helmy, A. A., 1173
 Henkel, J. H., 929
 Henry, B. R., 405, 510
 Herbst, E., 485
 Herstein, F. H., 1166

- Herrmann, J., 584
 Hess, L. A., 854, 930, 1076
 Hesselink, W. H., 610
 Hester, R. E., 8, 308
 Heym, H., 858
 Higashino, K., 1117
 Higuchi, J., 171, 448
 Higuchi, S., 344
 Hills, G. W., 585
 Hino, S., 133
 Hirai, M., 168
 Hirano, H., 486, 487
 Hiroike, E., 258
 Hirota, N., 891
 Hirschfelder, J. O., 931
 Hisa, M., 1117
 Hizhnyakov, V. V., 991, 1031, 1032, 1033
 Ho, F. F.-L., 45
 Hochstrasser, R. M., 420, 484, 533, 683
 Hoffnagle, J., 586
 Hofstraat, J. W., 844
 Höhnerbach, M., 580
 Hollas, J. M., 259
 Holt, P. L., 170
 Honda, K., 388, 490
 Hoornweg, G. Ph., 844
 Horie, K., 649
 Hornburger, H., 189, 488
 Horne, M. D., 405, 510
 Hoshino, M., 691, 723, 736
 Hota, N. K., 744
 Houben, J. L., 309
 Howard, J., 1202
 Howard, M. W., 310
 Hu, C.-K., 311
 Huang, C.-Y., 311
 Huang, T.-H., 78, 190, 855
 Huber, D. L., 1094
 Huber, J. R., 213, 520
 Huber-Wälcchli, P., 312
 Hudson, B., 760
 Hug, G. L., 527
 Hulsman, H., 431
 Hummel, A., 114, 1133
 Hunklinger, S., 932
 Huong, P. V., 25
 Huppert, D., 191
 Huston, A. L., 489
 Hynes, J. T., 530
 Iachello, F., 290
 Ibraev, N. Kh., 387
 Iemura, M., 779, 1043
 Igarashi, T., 333
 Iizuka, T., 529
 Imamura, M., 691, 723, 736
 Imamura, T., 167, 870
 Inamdar, A. S., 785
 Inbar, S., 650
 Indelli, M. T., 521
 Innes, K. K., 192
 Inokuchi, H., 133
 Ioselevich, A. S., 1034, 1035
 Irion, M. P., 651
 Ishchenko, A. A., 404, 560
 Ishizu, K., 97
 Ito, M., 345, 346, 450
 Itoh, K., 168
 Iton, K., 388, 490
 Ivanov, Yu. P., 1167, 1168
 Ivanova, E. A., 838, 902
 Ivanova, L. V., 1168
 Iwamura, H., 168
 Iwata, S., 1119
 Jackson, B., 1014
 Jacques, P., 652, 658
 Jaffe, H. H., 89
 Jain, R. K., 587
 Jalkanen, K., 278
 Jandl, S., 744
 Janecka-Styrcz, K., 811
 Janic, I., 75
 Jankowiak, R., 812
 Jastrabik, L., 156
 Jenkin, J. G., 1113
 Jenkins, T. E., 737
 Jindal, V. K., 750, 910, 933
 Jobic, H., 715, 1200
 Jodl, H. J., 856, 934
 Johnson, C. K., 588, 792, 992, 1006, 1057
 Johnson, P., 155
 Johnson, P. M., 653
 Johnson, S., Jr., 572
 Jokisaari, J., 1169
 Jones, A. C., 811
 Jones, D., 66, 93
 Jones, D. W., 79
 Jones, G. L., 294
 Jones, R. D. G., 1193
 Jones, W., 682
 Jonkman, H. Th., 110, 544
 Jordan, J. F. J., 1170
 Jortner, J., 137, 173, 218, 275, 349, 373,
 374, 375, 935, 942, 1038, 1123
 Joshi, U. C., 260
 Jouvet, C., 283
 Julian, M. M., 1171
 Jung, Ch., 163, 193, 313
 Kabanov, V. V., 589
 Kabelka, V. I., 467

- Kachura, T. F., 672
 Kaiser, W., 497
 Kalantar, A. H., 438, 491
 Kalinowski, J., 775, 809, 812, 990, 1116, 1118, 1124
 Kalkanjev, T., 472, 577
 Kalman, Z. H., 1187
 Kalnitskii, A. Ya., 857, 1095
 Kalos, M. H., 234
 Kalus, J., 746, 750, 910, 920, 933, 1141, 1170, 1199
 Kanai, H., 421
 Kanamaru, N., 529
 Kanda, Y., 203, 443
 Kaneko, N., 333
 Kanesaka, 261
 Kano, K., 492
 Kaplan, I. G., 21, 936, 988
 Kapon, M., 1166
 Karachevtsev, V. A., 696
 Karaki, I., 513, 730
 Karayan, A. S., 1144
 Karbovsky, A. V., 940
 Karel'skikh, I. L., 1036
 Karimov, M. G., 250
 Karl, N., 858
 Karpov, V. V., 641
 Kartha, S. B., 262
 Karyakin, A. V., 493
 Kasama, K., 494
 Kashmar, R. J., 169
 Kastha, G. S., 821
 Kataev, E. G., 314
 Kataeva, L. M., 314
 Katsumata, S., 1119
 Katz, B., 216
 Kawai, K., 261
 Kawenoki, I., 350, 452
 Kawski, A., 194, 266, 319, 859
 Kaya, K., 704, 721
 Kazachenko, L. P., 134
 Kazaryan, S. A., 786
 Kazitsyna, L. A., 243
 Kellman, M. E., 195, 1037
 Kelsall, B. J., 174, 833, 1120
 Kenkre, V. M., 1077, 1099
 Ketsle, G. A., 387, 389, 439, 468
 Ketterer, W., 858
 Kettler, U., 316, 708
 Khalimanovich, D. M., 590, 627
 Khan-Magometova, Sh. D., 808
 Khitrin, M. K., 566
 Kholmanskii, A. S., 164, 440
 Khotyaintsev, V. N., 1005
 Kida, K., 668
 Kieffe, H., 752, 860, 883, 937
 Kikas, Ya., 433
 Kikuchi, K., 479, 494
 Kimel, S., 483
 Kimura, K., 1119
 Kirilenko, E. K., 595
 Kirin, D., 753, 938, 1172
 Kirsanov, A. A., 429
 Kirsanov, B. P., 808
 Kirste, B., 165
 Kirtley, J. R., 336
 Kiselev, A. A., 939
 Kislukha, N. I., 940, 941
 Kitai, M. S., 263
 Kitaigorodskii, A. I., 22, 1168
 Kittel, G., 495
 Kivach, L. N., 348, 435
 Kivelson, S., 1078
 Klaeboe, P., 263, 341
 Klafter, J., 942, 1038, 1085, 1106
 Klein, G., 427
 Klein, M. L., 961
 Klessinger, M., 264
 Klimcak, C. M., 123
 Klimenko, V. G., 196, 248, 390, 441, 861
 Klimusheva, G. V., 776, 848
 Klindukhov, V. P., 504
 Klochkov, V. P., 180, 181, 182, 356, 357, 358, 359
 Klots, C. E., 391
 Klymko, P. W., 862, 1015, 1079, 1096
 Knee, J., 155
 Knee, J. L., 653
 Knight, A. E. W., 199, 200, 499
 Kobashi, K., 1173
 Kobayashi, T., 340, 707
 Kobayashi, Y., 333
 Kobeissi, H., 197
 Koch, T. L., 591, 592
 Koch, T. H., 632
 Koda, T., 794, 1058
 Koehorst, R. B. M., 355
 Kohda, K., 1174
 Köhler, G., 495
 Koiller, B., 1083
 Kojima, T., 1188
 Kokai, F., 442, 496
 Kokubun, H., 479, 494
 Kolesnikov, A. I., 905
 Kolesnikova, A. N., 102
 Koliya, O. L., 656
 Kolmeder, C., 497
 Komada, Y., 891
 Komlev, I. V., 648
 Kommandeur, J., 110, 540, 544
 Kompa, K.-L., 651
 Komyak, A. I., 382, 383

- Kondratenko, A. V., 23
 Konishi, S., 723
 Kononenko, V. G., 1162
 Konstantinova, E. V., 88, 141
 Kopelman, R., 834, 851, 862, 1015, 1061, 1072, 1079, 1096, 1100
 Kopteva, T. S., 226, 227, 352
 Koptug, V. A., 24
 Kopylova, T. N., 54, 160, 563
 Korn, G., 612
 Korol'kov, M. V., 552
 Korol'kova, N. V., 553
 Koroteev, N. I., 250
 Korpinkov, I. G., 593
 Kosobutskaya, E. A., 1147
 Kossanyi, J., 350, 452
 Kostko, M. Ya., 392
 Kostyuchenko, L. S., 135, 198
 Kothari, L. S., 899
 Kotlyar, I. P., 371
 Kotov, A. A., 369
 Kotovshchikov, S. G., 631
 Kottis, P., 725, 864, 998
 Kottis, Ph., 842, 865, 878, 1066, 1082
 Kovalev, A. A., 615
 Kowalczyk, A. A., 457
 Koyanagi, M., 203, 443
 Koyava, V. T., 348, 435
 Kozich, V. P., 556
 Kozintsev, V. I., 559
 Kozma, L., 367
 Kramer, J., 654
 Krashakov, S. A., 594
 Krashenninnikov, A. A., 498
 Krasnovsky, A. A., Jr., 425, 630
 Krasovsky, A. N., 519
 Krasser, W., 315, 316, 708
 Krauss, R., 777, 827, 1016
 Kravchenko, V. I., 595
 Kravers, M. A., 776
 Kredentser, E. I., 68
 Kresin, V. Z., 80
 Krivenko, T. A., 905
 Krivoglaz, M. A., 1175
 Krivolapchuk, V. V., 823, 1107
 Kruglik, E. K., 134
 Krylov, K. I., 555
 Krylova, I. V., 1121
 Krymova, A. I., 646
 Ksenofontova, N.M., 768
 Ku, R. T., 17
 Kuball, H.-G., 81
 Kuchta, B., 943
 Kudinova, M. A., 560
 Kugler, S., 1154
 Kukulich, S. G., 82
 Kulagin, S. A., 1039, 1040, 1080
 Kunavin, N. I., 164, 440
 Kunze, B., 717, 801
 Kurihara, T., 713
 Kurik, M. V., 804
 Kuroda, R., 1176
 Kuroda, Y., 83
 Kursky, A. N., 265
 Kury, R., 454
 Kusmartsev, F. V., 993, 1041
 Kuts, V. S., 84
 Kut'yonkov, A. A., 480
 Kuznetsov, V. A., 166
 Kuznetsov, V. V., 596
 Kunznetsova, N. A., 656
 Kuznetsova, R. T., 354
 Kvach, V. V., 556
 Łabudzinska, A., 327
 Lacey, A. R., 788
 Laha, S., 393
 Lalov, I. J., 994
 Lam, K.-S., 394
 Lambert, Wm. R., 337, 420, 683
 Lange, J., 1122
 Laplante, J. P., 655
 Laporte, J. L., 1012
 Laporte, P., 1002
 Laposa, J. D., 754
 Lascombe, J., 25
 Lastochkina, V. A., 228, 229
 Latajka, Z., 85
 Lau, A., 163, 193, 313
 Laubereau, A., 211, 516, 619
 Law, K. S., 709
 Lawrance, W. D., 199, 200, 499
 Lawson, C. M., 1097
 Lax, M., 1042
 Lazzaretti, P., 86
 Lebedeva, N. S., 656
 LeBreton, P. R., 87
 Ledwith, A., 732
 Lee, C. W. B., 676
 Lee, E., 524, 675
 Lee, H. W. H., 724, 863, 875
 Lee, J., 139, 317, 884
 Lee, L. K., 87
 Lee, P. C. C., 543
 Lefebvre, J., 962
 Lejeune, V., 849
 Lemaistre, J.-P. (Lemaistre, J. P.), 725, 842, 864, 865, 878, 1066, 1069, 1082
 Lenzian, F., 92
 Lenstra, A. T. H., 1191
 Lesin, V. I., 710
 Lesnenko, L. G., 103

- Leugers, M. A., 136, 201, 395
 Leutwyler, S., 137, 1123
 Levanon, H., 373
 Levanyuk, A. P., 748
 Levine, Y. K., 223
 Levinsky, H., 726
 Levinson, I. B., 928
 Levinson, Y. B., 907
 Levshin, L. V., 121, 138, 152, 387, 389, 396, 439, 468, 500, 550, 551, 553, 554, 597, 657
 Li, F., 139, 317
 Li, S., 598
 Li, Yu., 599
 Liang, R. H., 645
 Lianos, P., 397
 Liao Mu-Zhen, 115
 Liao, P. F., 633
 Liesegang, J., 1113
 Lifshits, I. M., 27
 Ligeza, M., 194, 859
 Liidja, G., 800
 Likholt, N. I., 318
 Lim, B. T., 711
 Lim, E. C., 407, 522, 711
 Lin, J., 436, 476
 Lin, S. H., 147, 501
 Lin, T.-S., 893
 Lindner, M. B., 140, 866
 Linschitz, H., 650
 Lisitsa, M. P., 774
 Lisovenko, V. A., 867
 Lissi, E. A., 647
 Litvinenko, V. Yu., 815
 Löfroth, J.-E., 398
 Logunov, O. A., 562, 600
 Lojczyk, B., 1124
 Lombardi, J. R., 19
 Lopez Arbeloa, I., 727
 Lopina, S. V., 634
 Lorch, A., 576
 Loughnot, D.-J., 658, 659
 Lounila, J., 1169
 Loutfy, M. A., 77
 Loutfy, R. O., 295, 502, 739, 1125
 Love, L. J. C., 423
 Lozanova, C., 245
 Lozenko, G. F., 254
 Lubart, R., 140, 866
 Lubitz, W., 92
 Luburic-Kozmidis, U., 1045, 1137
 Ludmer, Z., 718, 728, 729, 803, 813, 814
 Lugeza, M., 266, 319
 Lukashin, A. V., 320, 321, 322
 Lukomsky, N. G., 601
 Lukyanets, E. A., 656
 Lund, P. A., 323
 Lungershausen, T., 612
 Luty, T., 63, 943, 944
 Luzanov, A. V., 995
 Lyakhov, G. A., 578
 Lysenko, G. N., 287
 Lyubimtsev, V. A., 371
 Macfarlane, R. M., 875
 Macho, V., 695
 Maclean, C., 844
 McCubbin, I., 702
 McIver, R. T., Jr., 71
 McKennis, J. S., 240
 Madani, A.-A.E., 77
 Maeda, H., 1188
 Magen, J., 373, 374
 Maier, G. V., 54, 73, 88, 141, 399, 563, 996
 Maillard, D., 852, 1073
 Majewski, W. A., 110
 Majoube, M., 755
 Makarov, A. A., 267
 Makarov, V. A., 578
 Makarov, V. N., 559
 Makhotenko, A. N., 815
 Makhviladze, T. M., 925
 Maki, A. H., 446
 Maksimov, A. A., 826, 1008
 Makushkin, Yu. S., 233
 Mallett, C. P., 913
 Malykhina, N. N., 867
 Malyshev, V. A., 464
 Mamaev, V. M., 98
 Manenkov, A. A., 581
 Manolescu, N., 616
 Manzhelii, V. G., 1155
 Marason, E. G., 602
 Marchand, G. R., 523
 Marchese, F. T., 89
 Margolin, V. I., 915
 Marinkovic, M. M., 1045, 1137
 Marisova, S. V., 983
 Markey, B. R., 945
 Martin, M. M., 660
 Martin, R. L., 90
 Martin-Bouyer, M., 825
 Martsenyuk, O. V., 550
 Marty, A., 142
 Marzhocci, M. P., 765
 Masetti, F., 638, 661
 Masetti, G., 309
 Mashkovsky, A. A., 268, 269
 Masilamani, V., 603, 604
 Maskevich, S. A., 348, 435
 Maslov, V. G., 119, 371

- Maslyukov, A. P., 581
 Massoth, F. E., 273
 Mataga, N., 513, 668, 730
 Mathur, S. C., 1126
 Matsubara, A., 1134
 Matsui, A., 778, 779, 1043, 1044
 Matsunaga, M., 171, 448
 Matsuo, T., 713
 Matsuoka, Y., 91
 Matsuzawa, E., 513, 730
 Matyushin, G. A., 581, 648
 Mautner, M., 415
 Mauzerall, D., 378
 Mavrenik, O. V., 857, 1095
 May, P. G., 605
 Mazalov, L. N., 23
 Mazzucato, U., 638, 661
 Mchedlov-Petrosyan, N. O., 400
 Medhi, K. C., 143
 Medina, F. D., 756, 1177
 Medvedev, E. S., 202, 503
 Meerts, W. L., 110
 Megel, J., 842, 865, 878, 1066, 1082
 Mehendale, N., 785
 Meisel, D., 715, 1129
 Meister, T. G., 504
 Melker, A. I., 946
 Melnik, V. I., 868, 869
 Mel'nikov, M. Ya., 1121
 Meltzer-Shafran, L. V., 662
 Men', A. N., 966
 Merlin, J.-L., 1164
 Merski, J., 780, 781, 782, 783
 Meshkovskii, I. K., 434, 555
 Mestechkin, M. M., 995
 Meyer, Y. H., 606
 Michard, F., 951
 Migirdicyan, E., 849
 Mikami, N., 345, 346, 450
 Mikami, Y., 505
 Mikawa, H., 1134
 Mikhailenko, F. A., 671
 Mikhailov, Yu. T., 663
 Mikhailova, K. V., 226, 352
 Mikityuk, O. Yu., 1070
 Miksyuk, Yu. I., 382
 Millar, D. P., 607
 Miller, F. A., 294
 Miller, R. J. D., 757
 Miller, T. A., 59, 60, 583
 Mills, D. L., 1
 Milyauskas, A. A., 467
 Min'ko, A. A., 768
 Min'kov, A. V., 1175
 Mirek, J., 664
 Mirjanic, D., 1045, 1137
 Mirumyants, S. O., 401
 Mishenina, K. A., 248
 Misra, C. K., 626
 Misra, T. N., 665, 887, 888, 1022
 Misumi, S., 513, 730
 Mita, I., 649
 Mitani, K., 1119
 Mitani, T., 794, 1058
 Mitra, S., 1126
 Mitus, A. Ya., 1178
 Miyagi, Y., 203, 443
 Miyazaki, H., 1046, 1047
 Mizuno, K., 778, 779, 1043
 Mkhitaryan, V. M., 608
 Mnuskin, V. E., 579
 Moacanin, J., 645
 Möbius, K., 92
 Modelli, A., 93, 94
 Moder, R., 148
 Mohler, E., 1053
 Mokichev, N. N., 1179
 Mokoena, T. T., 79
 Molho, D., 1156
 Momicchoili, F., 95
 Montgomery, C., 754
 Monti, S., 666
 Moog, R. S., 609
 Moore, J. C., 240
 Moore, R., 484
 Morales, R. G. E., 96, 144, 402
 Morel, D., 690
 Morozov, Yu. V., 61
 Morris, J. M., 406, 511
 Morsink, J. B. W., 610, 1048
 Motschmann, U., 584
 Moussa, F., 908
 Mrozek, J., 712
 Mugnai, D., 806, 985
 Mühle, W., 728, 813, 827
 Mukherjee, D., 47
 Mukhtarov, E. I., 763, 764
 Mulazzi, E., 784
 Munn, R. W., 1027, 1090, 1091, 1114
 Murai, H., 167, 870
 Murao, T., 549
 Musa, G., 614
 Mushkalo, I. L., 404
 Myasnikov, E. N., 983
 Mymrina, R. A., 102
 Naboikin, Yu. V., 634, 696, 871, 1138
 Nagamura, T., 713
 Najbar, J., 506, 872
 Nakajima, A., 507
 Nakamura, A., 892

- Nakashima, N., 667, 684
 Naray-Szabo, G., 1154
 Nastase, L., 614
 Natkaniec, I., 746, 750, 910, 920, 933, 977, 1199
 Naumenko, V. I., 768
 Naumov, A. V., 597
 Neb, D. K., 970
 Nechitailo, V. S., 581
 Nechtschein, M., 1023
 Nedbal, L., 997, 1098
 Neidle, S., 1176
 Nelipovich, K. I., 868, 869
 Nelson, K. A., 757
 Nemkovich, N. A., 508
 Nemoto, F., 97
 Nenchev, M. N., 606
 Neporent, B. S., 509, 611
 Neto, N., 6
 Neusser, H. J., 148, 432, 1115
 Newhouse, J. S., 834, 1061
 Nibler, J. W., 312
 Nickel, B., 403
 Nickles, P. V., 612
 Nickolov, Zh., 472
 Nicolaides, C. A., 113
 Nihira, H., 714
 Nikiforov, V. G., 559
 Nikolaev, G. E., 596
 Nikolov, Zh., 577
 Nikumb, S. K., 785
 Nimmo, J. A., 324
 Nirmala, K. A., 1182
 Nishimura, H., 1044
 Nitsovich, B. M., 1036
 Nitsovich, V. V., 1070
 Nitzan, A., 234
 Nizamov, N., 404
 Nizhnikov, V. V., 850
 Nonhof, C. J., 873, 874
 Norden, B., 91
 Nordgren, J., 204
 Nordling, C., 204
 Norris, J. R., 893
 Northrop, G. A., 758, 947
 Novoselov, A. N., 559
 Nowak, E., 1201
 Nurmukhametov, R. N., 166
 Obi, K., 167, 870
 O'Brien, J. J., 405, 510
 Obyknovennaya, I. E., 366
 O'Connor, D. V., 406, 511, 684
 O'Connor, J. M., 907
 Odinokov, S. E., 268, 269
 Oelkrug, D., 576
 Ogawa, T., 492
 Ogurtsova, L. A., 853
 Ohba, Y., 822, 1004
 Ohno, K., 133
 Ohta, N., 205, 512
 Okada, T., 513, 668, 730
 Okajima, S., 407, 711
 Okamura, T., 408
 Olifirenko, I. V., 314
 Ol'khovik, G. A., 880
 Olkhovskaya, Zh. P., 481
 Olson, R. W., 724, 863, 875
 Opanasyuk, Yu. D., 595
 Opel, G., 1140, 1153
 Orahovats, A. S., 669
 Orlandi, G., 638, 666
 Orlov, V. V., 98
 Orlovich, V. A., 556
 Orrit, M., 998
 Orsa, V. N., 850
 Orville-Thomas, W. J., 85
 Osad'ko, I. S. (Osadko, I. S.), 1039, 1040, 1049, 1080
 Osborne, A. D., 514
 Oshio, T., 1117
 Ostlund, S., 948
 Otis, C. E., 653
 Otto, A., 791
 Oudar, J. L., 1010
 Ovchinnikov, A. A., 949
 Ovsienko, D. E., 1180
 Owens, F. J., 1131
 Padhye, M. R., 613
 Paetzold, R., 462, 699
 Pakes, P. W., 235
 Pakhomov, L. G., 1159, 1179
 Pakulov, S. N., 802
 Palmieri, P., 666
 Pando, C., 916, 917
 Panosyan, Zh. R., 786
 Papadopoulos, M. G., 113
 Papousek, D., 29
 Park, J. M., 876
 Park, S. C., 524, 675
 Parkinson, G. M., 1161
 Parlinski, K., 1181
 Parmon, V. N., 478
 Parris, P. E., 1099
 Parson, R. P., 1100
 Partamyan, Kh. V., 608
 Pascu, M. L., 614
 Pasimeni, L., 701
 Passerini, A., 246, 247
 Pastori Parravicini, G., 982
 Pastur, L. A., 27

- Patashinskii, A. Z., 30, 1178
 Patel, J. S., 670, 787, 816, 877, 1017, 1081, 1101, 1102
 Patterson, F. G., 724, 863, 875
 Paul, T. K., 698
 Pavlova, V. T., 361
 Pavlyuchko, A. I., 254
 Pawley, G. S., 746, 750, 753, 897, 910, 920, 933, 938, 950, 1149, 1172, 1199
 Pawlikowski, M., 116, 206, 342, 731
 Pecora, R., 330
 Pedersen, J. B., 1020
 Pee, Ph., 842, 865, 878, 1066, 1082
 Pekar, S. I., 999
 Pelous, J., 975
 Pensak, D. A., 703
 Pentin, Yu. A., 265
 Peretti, P., 819, 1050
 Pereyaslova, D. G., 879
 Perkins, J., 235
 Perrin, B., 951
 Perry, J. W., 270
 Pershin, V. K., 952, 953, 954, 955
 Pershin, Vl. K., 952, 953, 954, 955
 Person, W. B., 31
 Personov, R. I., 149
 Pertsin, A. I., 1167, 1168
 Petelenz, P., 712, 1112
 Peters, K. S., 178
 Petersson, L., 204
 Petrochenko, S. I., 898
 Petrov, V. I., 301, 325
 Petukhov, V. A., 646
 Petzelt, J., 956
 Pevtsov, A. B., 1000
 Pfeiffer, M., 163, 193, 313
 Philippe, R., 1164
 Philis, J. G., 145
 Phillips, D., 702, 732
 Phillips, D. A., 639
 Phillips, J. P., 32
 Philoche-Levisalles, M., 49
 Philpott, M. R., 1104
 Piaggio, P., 759
 Pick, R. M., 958
 Piechowski, A. P., 690
 Piel, L., 957
 Pilipovich, V. A., 615
 Pinto, M. J., 1083
 Pipa, V. I., 999
 Piskarskas, A.-P. S., 560
 Piskarskaya, I. V., 419
 Pladziewicz, J. R., 456, 637
 Plato, M., 92
 Platonov, N. S., 646
 Plotnichenko, V. G., 926
 Pockrand, I., 326
 Pogarev, D. E., 837, 838, 901, 902
 Pokhodenko, V. D., 84
 Pokrovskaya, F. S., 853
 Pokrovskii, V. L., 30
 Polishchuk, V. A., 601
 Politis, T. G., 409
 Polyakov, B. I., 635, 1109
 Ponte Goncalves, A. M., 700
 Popescu, D., 616
 Popov, A. F., 242
 Popov, V. A., 1155
 Popovic, Z., 817, 1127
 Popovic, Z. D., 818, 1128
 Port, H., 772, 1013
 Pottier, R. H., 655
 Pouet, M.-J., 49
 Poulet, H., 958
 Poulis, N. J., 889
 Povedailo, V. A., 617
 Powell, R. C., 1097
 Prakash, M., 618
 Prasad, D. R., 515
 Prasad, K. N., 1185
 Prasad, P. N., 665, 682, 709, 770, 836, 854, 930, 959, 1011, 1076
 Pratt, D. W., 169, 790, 1021
 Pratt, J. E., 639
 Premaswarup, D., 107, 271
 Pretsch, E., 10
 Privalova, N. Yu., 99
 Priyutov, M. V., 135, 198
 Prokhorov, A. M., 581
 Prokof'eva, N. I., 74
 Przhonskaya, O. V., 564, 671
 Puchkovskaya, G. A., 774
 Pugovkin, M. M., 880
 Puiu, A. C., 207, 474, 881
 Putnam, S., 235
 Puttaraja, 1182
 Puza, M., 128
 Pyatosin, V. E., 672
 Quamara, J. K., 1152
 Queisser, H. J., 410
 Rabek, J. F., 34
 Radchenko, N. F., 84
 Raich, J. C., 1194, 1195
 Rajauria, A. K., 964, 965
 Rajeswara Rao, N., 285, 331
 Rakhmatov, A. S., 894
 Ram, R. S., 120
 Ramakrishna Rao, T. V., 208
 Ramakrishna Reddy, R., 208
 Raman, G. K., 546

- Ramanamurti, D. V., 107
 Ramer, D., 717, 801
 Rand, S. D., 191
 Ranfagni, A., 806, 985
 Rangacharyulu, M., 271
 Ranson, P., 819, 1050
 Rapoport, V. L., 662
 Rashba, E. I., 35, 993, 1001, 1041
 Ratajczak, E., 85
 Ratajczak, H., 85
 Rathore, R. P. S., 969
 Rava, R. P., 145, 882
 Ravindranath, K., 285, 331
 Razumova, N. V., 149
 Razumova, T. K., 640
 Rebane, K., 820, 1052
 Rebane, K. K., 146, 209, 210, 411, 960, 1051
 Rebane, L. A., 960, 1051
 Reddoch, A. H., 876
 Reddy, K. V., 272
 Reimschuessel, W., 327
 Reineker, P., 1018, 1019, 1105
 Reinhardt, W. P., 530
 Reininger, R., 1002
 Reiser, D., 211, 516, 619
 Renouprez, A. J., 315
 Rentsch, S. K., 673
 Rentzepis, P. M., 191
 Renuncio, J. A. R., 916, 917
 Reva, M. G., 121, 129, 138, 396, 553
 Reynolds, A. H., 191
 Rice, S. A., 283, 935
 Rich, N. H., 752, 860, 883, 937
 Richardson, W. B., 147
 Richardt, D., 1018
 Rider, D. M., 1110
 Ridley, T., 259
 Rieckhoff, K. E., 190, 855
 Riedle, E., 148
 Righini, R., 961
 Riley, J. D., 1113
 Riley, M. J., 788
 Riseman, S. M., 273
 Ristovski, Lj. M., 1092
 Ritchie, G. L. D., 100, 101
 Roberts, A. J., 732
 Rockwitz, K. D. (Rockwitz, K.-D.), 1084, 1103
 Roden, G., 403
 Rodimova, O. B., 936
 Rodionov, A. N., 212, 368, 412, 846
 Roesch, L. Ph., 586
 Rogozhin, K. L., 212, 412
 Rohitashava, 154
 Rommel, E., 157
 Ron, A., 483
 Roncin, J.-Y., 620
 Ross, I. G., 128
 Rossetti, R., 517
 Rossi, E., 86
 Rossi, M. J., 274, 413, 456, 637
 Rothberg, L. J., 178
 Rousset, Y., 819, 1012, 1050
 Roy, K., 1126
 Rozenblit, M. M., 539
 Rubanov, A. S., 589
 Rubinov, A. N., 158, 470, 518, 519, 535, 557, 558, 621, 622, 629
 Rubio, M. A., 647
 Rui, M., 759
 Ruiz Ojeda, P., 727
 Rummyantseva, Yu. I., 674
 Rupasov, V. I., 981
 Russegger, P., 213, 520
 Russell, B. R., 532, 733
 Ryali, S. B., 286
 Ryazanov, N. S., 570
 Rybalko, Yu. I., 810
 Rylkov, V. V., 663
 Rysava, N., 156
 Ryzhechkin, S. A., 629
 Ryzhikov, B. D., 121, 129, 138, 152, 396, 553, 657
 Saari, P., 800, 820, 1052
 Saari, P. M., 351, 453
 Sabbatini, N., 521
 Sabelli, N. H., 87
 Sadovskii, V. N., 615
 Saechnikov, V. A., 429, 471
 Sage, M. L., 275
 Saigusa, H., 407, 522
 Saile, V., 1002
 Sakamoto, N., 214
 Sakata, Y., 513, 730
 Sakaue, K., 1188
 Sakegowda, D. S., 1182
 Sakhno, G. V., 196, 390, 861
 Saletskii, A. M., 500, 551, 554, 597
 Salokihiddinov, K. I., 384
 Saltiel, J., 523
 Salvi, P. R., 347, 365
 Samartsev, V. V., 634, 871, 1138
 Sambasiva Rao, P., 208
 Samoilenko, V. D., 149
 Samokhin, A. N., 570
 Samsonov, B. F., 102
 Samsur, Sk., 900, 1063
 Sanquer, M., 1160
 Sanyal, N. K., 150, 276
 Sapozhnikov, M. N., 414

- Sarkar, H. K., 524, 675
 Sarkar, S. K., 821
 Sarychev, M. E., 925
 Sarzhevsky, A. M., 348, 429, 435, 471
 Sataric, M. V., 1003
 Satozaki, Y., 261
 Sauer, M. C., Jr., 845, 1129
 Sauvage, F.-X., 277
 Sauvajol, J. L., 962, 1142, 1151
 Savchenko, E. V., 773, 810, 986
 Savin, F. A., 61
 Saxena, M. C., 626
 Scaiano, J. C., 676, 677
 Sceats, M. G., 788
 Schaafsma, T. J., 355
 Schäfer, F. P., 125
 Scharf, B., 215, 216
 Schauer, M. W., 884
 Schenzle, A., 580
 Schettino, V., 6
 Schippers, P. H., 525
 Schlag, E. W., 432, 705, 1115
 Schlemper, E. O., 1183
 Schlosser, D. W., 278, 1104
 Schlotter, N. E., 760
 Schlumpf, N., 586
 Schmelzer, U., 746, 920, 1199
 Schmid, D., 706, 777, 1016
 Schmid, U., 1018, 1019, 1105
 Schmidt, J., 447, 545, 797, 889, 1025, 1026
 Schmitt-Rink, S., 1053, 1139
 Schneider, R., 436, 476
 Schosser, C. L., 745, 1029
 Schreiber, M., 1054, 1055, 1056
 Schrof, W., 777, 1016
 Schuh, M. D., 469
 Schulman, S. G., 428
 Schulze, P., 1140
 Schwarz, F. P., 415
 Schweizer, K. S., 526
 Sciacovelli, O., 64
 Scott, A. C., 963
 Scott, G. W., 466, 489
 Scott, T. W., 151, 217, 805, 1130
 Sebastian, L., 789
 Sechkarev, A. V., 434
 Sedoyama, O., 50
 Seibl, J., 10
 Seki, H., 328, 623
 Seki, K., 133
 Sekkina, M. M. A., 761
 Selamoglu, N., 282
 Selander, L., 204
 Selco, J. I., 170
 Selinger, B. K., 405, 510
 Seliskar, C. J., 136, 201, 395
 Selkin, A. V., 1000
 Selvarajan, N., 527
 Selzle, H. L., 705
 Semenets, T. I., 624
 Semenov, S. G., 119
 Senatorova, N. R., 152, 553, 657
 Seno, M., 421
 Serebryanskaya, A. I., 220
 Sergienko, A. I., 922
 Shablya, A. V., 498
 Shagidullin, R. R., 314
 Shakhnovich, A. L., 879
 Shakirov, I. Kh., 314
 Shamraev, V. N., 166
 Shanker, J., 964, 965
 Shapiro, I. O., 220, 226, 352
 Shaposhnikov, V. I., 840
 Sharin, Yu. A., 966
 Sharma, J., 1131
 Sharma, S. N., 329, 762
 Sharonov, G. V., 348, 435
 Sharp, J. H., 78
 Sharp, R. C., 279
 Shchelglova, N. A., 40, 103
 Shchekatilova, S. A., 104
 Shcherbina, V. P., 399, 996
 She, C. Y., 598
 Shea, J. A., 82
 Sheka, E. F., 746, 750, 905, 920, 933, 1199
 Shelby, R. M., 875
 Shen, Yu., 599
 Sheridan, J., 65
 Sherman, A. V., 991, 1031
 Sherman, W. F., 967, 1184
 Shevandin, V. S., 119, 636
 Shevchuk, L. I., 671
 Sibanov, A. N., 118
 Shigorin, D. N., 40, 103, 196, 212, 220, 226, 227, 352, 368, 390, 412, 441, 846, 861
 Shiley, R. H., 60
 Shilov, V. B., 596, 611
 Shimizu, Y., 416, 528
 Shimokihara, S., 1134
 Shimura, H., 822, 1004
 Shinozaki, T., 714
 Shionoya, S., 892
 Shipova, V. A., 1163
 Shiromaru, H., 1119
 Shishido, C., 623
 Shizuka, H., 529, 691, 714
 Shkadarevich, A. P., 568
 Shkirman, S. F., 175
 Shpak, M. T., 564, 868, 885
 Shtepa, Yu. D., 1060
 Shubina, E. S., 243

- Shugard, W. J., 1042
 Shukirov, Zh., 318
 Shukla, J. P., 626
 Shukurov, T., 228, 229, 230
 Shul'ga, A. M., 418
 Shultz, G., 67
 Shyampati, 291, 337
 Sibani, P., 1020
 Sibbett, W., 605, 625
 Sibert, E. L., III, 530
 Sidorov, N. V., 763, 764
 Siebold, H., 1093
 Siebrand, W., 1111, 1112
 Siklos, T., 968
 Silaeva, N. B., 634
 Silberberg, Y., 159, 561
 Silbey, R., 1014, 1071
 Silvera, I. F., 305, 722
 Simon, K., 1154
 Simonetta, M., 927
 Simonin, M.-P., 49
 Simonov, A. P., 635, 1109
 Simonov, V. M., 1163
 Singer, L. A., 463, 476
 Singh, A., 626
 Singh, D., 969
 Singh, I. S., 291, 292, 337, 338
 Singh, N. P., 291, 337
 Singh, R. K., 970
 Singh, R. N., 260
 Singham, S. B., 790, 1021
 Sinha, D. P., 1185
 Sircar, R., 105
 Sirutkaitis, V. A., 560
 Sivaram, B. M., 603, 604
 Sixl, H., 1065
 Skaistis, E. G., 1005
 Skalozub, A. S., 280
 Skvortsov, M. G., 493
 Skvortsov, V. I., 444
 Slepukhin, A. Yu., 135, 198
 Slobodyanic, V. V., 417, 531
 Sloop, D. J., 893
 Slyusarev, V. A., 738, 896
 Small, G. J., 588, 792, 992, 1006, 1057
 Smalley, R. E., 161, 281, 474
 Smardzewski, R. R., 323
 Smirl, A. L., 532, 733
 Smirnov, V. A., 153, 678
 Smith, K., 605
 Smith, V. H., Jr., 712
 Smith, W. E., 324
 Smorchkov, V. N., 480
 Smothers, W. K., 523
 Smulevich, G., 218, 765
 Snare, M. J., 679
 Snegov, M. I., 366, 426
 Sobol, T. L., 363
 Sobry, R., 106, 1186
 Soinikov, Yu. A., 387, 389, 439
 Sokolov, M. N., 219
 Sokolova, L. K., 468
 Solov'ev, K. N., 175, 418, 672
 Song, P.-S., 524, 675
 Sonin, A. S., 2
 Sonnenblick, Y., 1187
 Sonnenschein, R., 791
 Sorokina, T. S., 493
 Soukoulis, C. M., 1085, 1106
 Souma, H., 533
 Spain, I. L., 1173
 Spassov, A. W., 669
 Spears, K. G., 458
 Spiglanin, T. A., 466
 Spinelli, D., 66
 Spiro, A. G., 611
 Srihari, D., 107
 Srivastava, G. P., 971
 Srivastava, S. K., 108
 Srivastava, Sushil K., 108
 Srivastava, S. L., 150, 154, 276
 Stal'makhovich, S. I., 138, 396
 Stamenov, K. V., 593
 Stanciulescu, C., 616
 Stanishevsky, I. V., 418
 Stankov, K. A., 593
 Stanton, S. G., 330
 Starobinets, S., 729, 814
 Starobogatov, I. O., 640
 Starodubtseva, M. P., 631
 Starov, V., 282
 Startsev, A. V., 562, 600
 Starukhin, A. S., 418
 Stedman, G. E., 911
 Steel, C., 282
 Stehlik, D., 644, 695
 Steinberger, I. T., 1002, 1187
 Steinhauser, O., 766
 Stelmakh, G. F., 534
 Stepanov, B. I., 535
 Stephens, P. J., 278
 Stevenson, S. H., 792, 1006, 1057
 Stezowski, J. J., 858
 Stizza, S., 775
 Stoichev, N., 1180
 Stoilov, Yu. Yu., 562, 600
 Stolarczyk, L. Z., 957
 Storz, R. H., 633
 Stout, S. A., 523
 Strauss, H. L., 235
 Strekalov, M. L., 536
 Strizhevsky, V. L., 318
 Strokach, N. S., 40, 220
 Struchkov, Yu. T., 776

- Strzhemechny, M. A., 1155
 Studenov, V. I., 419
 Sturge, M. D., 35
 Stymne, B., 277
 Subbiah, A., 1176
 Sugakov, V. I., 1060, 1075
 Sulkes, M., 283
 Sumitani, M., 406, 511, 680, 684
 Sundström, V., 537, 681
 Sur, A., 155
 Surmeian, A., 616
 Sushchinskii, M. M., 767
 Suter, G. W., 445
 Suzuki, S., 284
 Sverdlov, L. M., 135, 198, 219, 242
 Sverdlov, M. L., 219
 Sveshnikova, E. B., 538
 Svishchenko, V. V., 539
 Swarna Kumari, G., 285, 331
 Swiatkiewicz, J., 682
 Syage, J. A., 420, 683
 Syassen, K., 791, 793
 Sygula, A., 664

 Taddei, G., 1148
 Taherian, M.-R., 446
 Tajiri, F., 1188
 Takagi, Y., 684
 Takahashi, H., 332, 333
 Takaoka, A., 97
 Takemura, T., 334, 886
 Takenaka, T., 332
 Takenoshita, I., 492
 Takui, T., 168
 Talapatra, G. B., 887, 888, 1022
 Taliani, C., 302
 Tamm, T. B., 351, 453
 Tamura, S., 972
 Tanabe, K., 335
 Tanaka, S., 344
 Tang, K. T., 973
 Tani, N., 339
 Tarankova, Z. A., 268, 269
 Tartakovskii, I. I., 826, 1008
 Taszner, S., 482
 Tatsii, G. V., 879
 Taylor, J. R., 605, 625
 Taylor, R. A., 575
 Tchuiko, L. S., 635
 Teki, Y., 168
 Terauchi, H., 1188
 Terenetskaya, I. P., 595
 ter Horst, G., 540
 ter Horst, G. M., 544
 Terpugova, A. F., 102
 Tevault, D. E., 323

 Theis, T. N., 336
 Theocharis, C. R., 682
 Thijssen, H. P. H., 541
 Thistlethwaite, P. J., 679, 685
 Thomas, G. W., 950
 Thomas, J. M., 682, 1161
 Thomas, M. P., 469
 Thornton, C., 240
 Thrush, B. A., 408
 Thurnauer, M. C., 715
 Tien, H. L., 286
 Tikhonov, E. A., 564, 565, 671
 Timofeev, Yu. P., 480
 Timpmann, K. E., 351, 453
 Tishchenko, N. P., 1189
 Toennies, J. P., 973
 Tokura, Y., 794, 1058
 Tolkachev, A. M., 1147
 Tolkachev, V. A., 221, 566
 Tolmachev, A. I., 560
 Tolpygo, K. B., 481
 Tolstorozhev, G. B., 361, 467, 627
 Tomin, V. I., 508, 518, 535
 Tomkinson, J., 1202
 Tompkins, R. C., 904
 Toner, J., 948
 Topol', I. A., 23
 Topp, M. R., 376
 Tosic, B. S., 1045, 1092, 1137
 Toupet, L., 1160
 Toyozawa, Y., 1007, 1054, 1055, 1056
 Travers, J. P., 1023
 Traverso, G., 144, 402
 Travnikov, V. V., 823, 1107
 Treloar, F. E., 463, 679
 Trevor, P. L., 542
 Tribel'skii, M. I., 648
 Trifunac, A. D., 1129
 Tripachko, N. A., 848
 Tripathi, S. R., 276
 Trokhimets, A. I., 287
 Trubina, E. L., 504
 Truong, K. D., 697
 Trusov, K. K., 628
 Tsang, J. C., 336
 Tsaune, A. Ya., 280, 288
 Tsekhanskii, R. S., 109
 Tsuchiya, S., 421
 Tsvirko, M. P., 534, 672
 Tu, A. T., 42
 Tubino, R., 759, 784
 Tulach, V. Ya., 566
 Tulman, R., 234
 Tumaev, E. N., 422
 Turchin, A. V., 848
 Turek, A. M., 872

- Turro, N. J., 543
 Tverdislov, V. A., 550
 Twardowski, R., 460
 Twarowski, A. J., 1132
 Tway, P. C., 423, 686, 687
 Tyakht, V. V., 267
 Tyrzyk, J., 465
 Tyuterev, V. I. G., 233

 Uchida, T., 623
 Udagawa, Y., 345, 450
 Ueki, Y., 529
 Uji-ie, K., 494
 Ulenikov, O. N., 293
 Ul'yanova, O. D., 265
 Umakantha, N., 459
 Umapathy, S., 974, 1190
 Umarov, B. S., 895
 Umemura, J., 332
 Umetskaya, V. N., 222
 Upadhyaya, A. P., 289
 Upadhyay, K. N., 289
 Usharov, A. I., 596
 Usova, N. A., 615
 Utkina, L. F., 840, 841
 Uzhinov, B. M., 553, 594

 Vaananen, T., 1169
 Vabishchevich, I. A., 629
 Vacher, R., 975
 Valat, P., 350, 452
 Valkova, G. A., 196, 390, 861
 Valkunas, L., 1086
 Van den Bossche, G., 106, 1186
 Van der Meer, B. J., 110, 544
 Van der Waals, J. H., 873, 874
 Van Havere, W., 1191
 Van Kesteren, H. W., 889
 Van Kooten, J. F. C., 797, 1025
 Van Leeuwen, J. W., 223
 Van Noort, H. M., 447, 545
 Van Roosmalen, O. S., 290
 Van Strien, A. J., 797, 1025, 1026
 Van Stryland, E. W., 532, 733
 Van Villigen, H., 165
 Van Zeyl, P. H. M., 114, 1133
 Vankan, J. M. J., 795, 796, 798, 824, 1024, 1087
 Varadarajan, T. S., 613
 Varma, C. A. G. O., 114, 1133
 Vasiliev, N. N., 568
 Vasiliev, R. F., 424
 Vaughn, C., 60
 Veeman, W. S., 795, 796, 798, 824, 1024, 1087
 Vektaris, G., 1086

 Velthorst, N. H., 844
 Venediktov, E. A., 425, 630
 Venkatacharyulu, P., 107
 Venkataraman, G., 976
 Venkateswarlu, P., 546
 Vereshchagin, A. N., 43
 Vergoten, G., 755
 Veselova, T. V., 366, 426
 Veszpremi, T., 133
 Vial, M., 825
 Viallet, P., 142
 Vidmont, N. A., 826, 1008
 Vieth, H. M., 695
 Viktorova, E. N., 366, 426
 Villaeys, A. A., 427, 547
 Vinogradov, V. V., 596
 Vinogradskii, A. G., 111
 Vishchakas, Yu. K., 467
 Visinoni, R., 246
 Vitenberg, R., 216
 Vitukhnovskii, A. G., 835, 1062, 1088, 1108
 Vizgert, R. V., 631
 Vogel, E., 1140
 Vogel, V. L., 1131
 Vogt, B. S., 428
 Voigt, E. M., 190, 855
 Voithländer, J., 62
 Volf, B. E., 838, 902
 Völker, S., 185, 541
 Von Borczyskowski, C., 890
 Von Schütz, J. U., 695, 827
 Von Trebra, R., 632
 Voropai, E. S., 348, 429, 435, 471
 Vrbancich, J., 101
 Vylegzhanin, O. N., 880
 Vysotskii, Yu. B., 112

 Wäckerle, G., 169
 Waddington, T. C., 1202
 Wadt, W. R., 90
 Waite, J., 113
 Wakayama, N. I., 828, 1192
 Walmsley, S. H., 719, 720, 919, 945, 1068, 1158
 Warman, J. M., 114, 688, 1133
 Warth, M., 858
 Wasiutynski, T., 977, 978
 Weigmann, H.-J., 163, 193, 313
 Weis, A., 586
 Weiser, G., 789
 Weisman, R. B., 170
 Weiss, K., 979
 Weiss, R. G., 832
 Weissman, S. I., 893
 Welberry, T. R., 1193

- Wenckebach, W. Th., 889
 Wendin, G., 44
 Werncke, W., 163, 193, 313
 Wessel, J. E., 123
 Weytens, Ch., H. L., 798
 White, F. L., 363
 White, J. W., 1203
 Whitmer, J. C., 236
 Wiersma, D. A., 610, 724, 726, 847, 863, 1048
 Wilber, W. D., 1195
 Wild, U. P., 445
 Wilhelmi, B., 430, 548
 Willems, P., 431
 Williams, F., 904
 Williams, J. O., 811
 Williams, K. P. J., 308
 Willson, J. P., 605
 Wilson, S. R., 799
 Windawi, H., 45
 Winkworth, A. C., 514
 Winscom, C. J., 92
 Wirnitzer, B., 447, 545
 Wirz, J., 157
 Wokaun, A., 633
 Wolf, H. C., 706, 717, 728, 777, 801, 813, 827, 1016
 Wong, K. N., 912
 Wong, Y. M., 1077
 Wu Guo-Shi, 115
 Wunsch, L., 432

 Yaaniso, R., 433
 Yablonovitch, E., 279
 Yadav, R. A., 291, 292, 337, 338
 Yagi, M., 171, 333, 448
 Yakovenko, S. E., 768
 Yakovenko, V. A., 629
 Yamada, H., 339
 Yamada, T., 436, 476
 Yamada, Y., 886
 Yamaguchi, H., 50
 Yamamoto, S.-a., 172, 689, 734, 735
 Yamamoto, S.-A., 494
 Yamamoto, Y., 339
 Yamauchi, S., 169, 891
 Yamazaki, I., 549
 Yamin, P., 690
 Yang, K.-H., 931
 Yankovskaya, L. B., 868, 869
 Yaremko, A. M., 774
 Yariv, A., 591, 592
 Yaroslavtsev, V. T., 635, 1109
 Yashchuk, V. N., 417, 531, 857, 1095
 Yashkir, Yu. N., 318

 Yasui, S., 623
 Yatsenko, L. P., 776
 Yohnson, B. R., 931
 Yokoyama, K., 340
 Yokoyama, M., 1134
 Yorozu, T., 691, 736
 Yoshihara, A., 1194, 1195
 Yoshihara, K., 406, 511, 549, 667, 680, 684
 Yoshikuni, Y., 892
 Yoshimoto, Y., 1156
 Yu., H.-L., 893
 Yushko, E. G., 879
 Yuzhakov, V., 387, 500, 550, 551, 554, 597

 Zabokrycka, A., 341
 Zagrebin, A. L., 461
 Zak, J., 1009, 1067
 Zakharov, I. A., 449
 Zakhidov, A. A., 980
 Zakhidov, U., 404
 Zakula, R. B., 1003
 Zaleskaya, G. A., 228, 229, 230
 Zalesky, I. E., 850
 Zamaraev, K. I., 478
 Zanas, R., 86
 Zare, P., 692
 Zare, R. N., 1110
 Zauhar, J., 744
 Zboinski, Z., 1196
 Zeegers-Huyskens, Th., 232
 Zeiri, L., 728, 729, 813, 814
 Zelezny, V., 156
 Zenskaya, E. A., 112
 Zenskii, B. P., 112
 Zenskii, V. I., 434
 Zerbi, G., 31
 Zewail, A., 693
 Zewail, A. H., 270, 377, 420, 607, 683
 Zeyen, C. M. E., 908
 Zgierskii, M. Z., 116, 206, 342, 343, 731
 Zhabankov, R. G., 674
 Zhdanov, S. A., 1049
 Zheng, Z., 344
 Zhevdanov, N. D., 829, 835, 1062, 1088, 1108
 Zhiglinsky, A. G., 570
 Zhilyakov, A. S., 293
 Zhukov, V. A., 840, 841
 Zhuravlev, S. V., 551
 Zimmermann, H., 169, 769
 Zink, J. I., 830, 1197
 Zinkovskaya, O. V., 694
 Zinoviev, P. V., 634

- | | |
|------------------------------|----------------------------|
| Zinth, W., 497 | Zugrav, M., 614 |
| Zippelius, A., 948 | Zurkowska, G., 465 |
| Zorkii, P. M., 22 | Zverev, V. V., 1136 |
| Zschokke-Granacher, I., 1135 | Zwarich, R., 231, 302, 741 |
| Zubkov, A. V., 164, 440 | Zyss, J., 1010 |
| Zuev, V. E., 233 | Zywietz, A., 264 |
| Zuev, V. S., 562 | |