

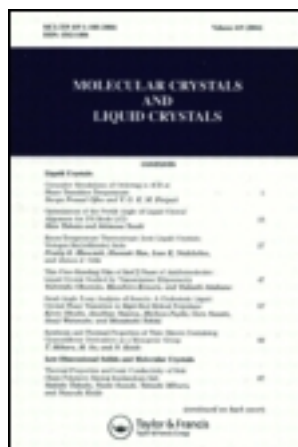
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Thermotropic Liquid-Crystalline Polymers, Re-Entrant and Discotic Liquid Crystals. A Bibliography for 1977-1984

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Thermotropic Liquid-Crystalline Polymers, Re-Entrant and Discotic Liquid Crystals. A Bibliography for 1977–1984

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INTRODUCTION

This bibliography contains bibliographic data of books and papers concerning the thermotropic liquid-crystalline polymers, re-entrant and discotic liquid crystals for 1977–1984 years. The bibliography of the thermotropic liquid-crystalline polymers contains also bibliographic data of papers describing both the thermotropic and lyotropic behavior of the liquid-crystalline polymers, liquid-crystalline melts, solutions of thermotropic liquid-crystalline polymers, solutions of polymer chains in a nematic solvent and some polymerization problems. In this bibliography are included also bibliographic data of papers which according to the citation in the literature are important for the study of both the thermotropic and lyotropic liquid-crystalline polymers. In the bibliography of the re-entrant liquid crystals (at atmospheric pressure) are included the papers published after the first work in this field of Cladis (*Phys. Rev. Lett.* **35**, 48–51 (1975)) up to the end of 1984 year. Similarly, in the bibliography of the discotic liquid crystals are included the papers published after the first work of Chandrasekhar, Sadashiva and Suresh (*Pramana* **9**, 477–480, (1977)) also up to the end of 1984 year.

1. THERMOTROPIC LIQUID-CRYSTALLINE POLYMERS: BOOKS AND PAPERS

1. Blumstein, A., Ed., *Liquid Crystalline Order in Polymers*, Academic Press (New York) (1978) (Eng).
2. Blumstein, A., Ed., *Mesomorphic Order in Polymers and Polymerization in Liquid-Crystalline Media*, ACS symposium series vol. 74, Symposium on Mesomorphic Order in Polymers Held at Chicago, Illinois, August 29–30, American Chemical Society (Washington) (1978) (Eng).
3. Ciferri, A., Krigbaum, W. R. and Meyer, R., Eds., *Polymer Liquid Crystals*, Academic Press (New York) (1982) (Eng).
4. Elias, H. G., Ed., *Polymerization of Organized Systems*. Midland macromolecular monographs vol. 3, Gordon and Breach (1977) (Eng).
5. Ericksen, J. L., Ed., *Orienting Polymers*, Lecture notes in mathematics vol. 1063, Springer-Verlag (Berlin) (1984) (Eng).
6. Gordon, M., and Platé, N. A., Eds., *Advances in Polymer Science* vol. 59, Springer-Verlag (Berlin) (1984) (Eng).
7. Gordon, M., and Platé, N. A., *Advances in Polymer Science* vol. 60/61, Springer-Verlag (Berlin) (1984) (Eng).
8. Platé, N. A., and Shibaev, V. P., Eds., *Grebneobraznye polimeri i Zhidkie Kristally* (Comblike Polymers and Liquid Crystals), Khimiya (Moscow) (1980) (Russ).
9. Abe, A., Configurational aspects of the odd-even effect in thermotropic liquid crystal polyesters, *Macromolecules* **17**, No. 11, 2280–7 (1984) (Eng).
10. Abhiraman, A. S., and George, W., Orientable polymer fluids—suggestions from Ericksen's theory of anisotropic fluids, *J. Polym. Sci., Polym. Phys. Ed.* **18**, No. 1, 127–156 (1980) (Eng).
11. Achard, M. F., Sigaud, G., Hardouin, F., Weill, C., and Finkelmann, H. Diamagnetic anisotropy of liquid crystal side chain polysiloxanes in the nematic and smectic phases, *Mol. Cryst. Liq. Cryst. Lett.* **92**, Nos. 4–5, 111–18 (1983) (Eng).
12. Acierno, D., La Mantia, F. P., Polizzotti, G., Ciferri, A., and Valenti, B., Ultrahigh modulus liquid crystalline polyesters p-hydroxy benzoic acid copolyesters, *Macromolecules* **15**, No. 6, 1455–1459 (1982) (Eng).
13. Acierno, D., La Mantia, F. P., Polizzotti, G., Ciferri, A., Krigbaum, W. R., and Kotek, R., Thermotropic homopolyesters. IV. Study of fiber formation, *J. Polym. Sci., Polym. Phys. Ed.* **21**, No. 10, 2027–2036 (1983) (Eng).
14. Aguilera, C., Bartulin, J., Hisgen, B., and Ringsdorf, H., Liquid crystal main chain polymers with highly flexible siloxane spacers, *Macromol. Chem.* **184**, No. 2, 253–262 (1983) (Eng).
15. Aharoni, S. M., Rigid backbone polymers. 2. Polyisocyanates and their liquid-crystal behavior, *Macromolecules* **12**, No. 1, 94–102 (1979) (Eng).
16. Aharoni, S. M., Rigid backbone polymers. 10. Transitions in bulk polyisocyanates, *J. Polym. Sci., Polym. Phys. Ed.* **18**, No. 6, 1303–1310, (1980) (Eng).
17. Aharoni, S. M., Rigid backbone polymers. 23. Thermotropic and lyotropic tri-fluoroacetoxypropyl cellulose, *J. Polym. Sci., Polym. Lett. Ed.* **19**, No. 10, 495–496 (1981) (Eng).
18. Al-Dujaili, A. H., Jenkins, A. D., and Walton, D. R. M., Liquid crystal polymers with tolan units, *J. Polym. Sci., Polym. Chem. Ed.* **22**, No. 11, 3129–3134 (1984) (Eng).
19. Al-Dujaili, A. H., Jenkins, A. D., and Walton, D. R. M., Liquid crystal polymers with tris (oxy- 1,4-) phenylene units, *Macromol. Chem., Rap. Commun.* **5**, No. 1, 33–36 (1984) (Eng).
20. Andruzzi, F., Lupinacci, D., and Magagnini, P. L., Studies of comb-like polymers. 2. poly (octadecylethylene oxide), *Macromolecules* **13**, No. 1, 15–18 (1980) (Eng).

21. Antoun, S., Lenz, R. W., and Jin, J.-I., Liquid crystal polymers, pt. 4, *J. Polym. Sci., Polym. Chem. Ed.* **19**, No. 8, 1901-1920 (1981) (Eng).
22. Anufrieva, Y. V., Pautov, V. D., Freidzon, Y. S., Shibaev, V. P., and Platé, N. A., Structural transformations in macromolecules with mesogenic groups in side chains, *Vysokomol. Soedin. Ser. A* **24**, No. 4, 825-830 (1982) (Russ).
23. Anufrieva, E. V., Pautov, V. D., Freidzon, Y. S., Shibaev, V. P., and Platé, N. A., A new type of structure transition in solutions of liquid crystal polymers, *Dokl. Akad. Nauk SSSR* **278**, No. 2, 383-386 (1984) (Russ).
24. Arsenov, V. D., Mal'tsev, S. D., Marevtsev, V. S., Cherkashin, M. I., Freidzon, Y. S., Shibaev, V. P., and Platé, N. A., Features of photochromism of indolinospiranes in comb-like polymers, *Vysokomol. Soedin. Ser. A* **24**, No. 11, 2291-2297 (1982) (Russ).
25. Arslanov, V. V., and Nikolaeva, V. I., Fixation of the structure of liquid-crystalline monomer of the azomethine range by means of its polymerization in mesophase, *Vysokomol. Soedin. Ser. B* **26**, No. 3, 208-209 (1984) (Russ).
26. Asrar, J., Preston, J., Ciferri, A., and Krigbaum, W., Nematogenic block copolymers via the Yamazaki reaction, *J. Polym. Sci., Polym. Chem. Ed.* **20**, No. 10, 373-381 (1982) (Eng).
27. Balanchander, M., Balakrishnan, T., and Kothandaraman, H., Synthesis and characterization of copolymers of PET and substituted p-hydroxybenzoic acids, *J. Polym. Sci., Polym. Chem. Ed.* **17**, No. 11, 3713-3722 (1979) (Eng).
28. Balbi, C., Bianchi, E., Ciferri, A., Tealdi, A., and Krigbaum, W. R., Equilibria of extended-chain polymers exhibiting crystalline and liquid-crystalline phases, *J. Polym. Sci., Polym. Phys. Ed.* **18**, No. 10, 2037-2054 (1980) (Eng).
29. Ballauff, M., and Flory, P. J., Phase equilibria in liquid crystal systems, Part II: Theory and interpretation of experimental results, *Ber. Bunsenges. Phys. Chem.* **88**, No. 5, 530-533 (1984) (Eng).
30. Ballauff, M., Wu, D., and Flory, P. J., Phase equilibria in liquid crystal systems, Part I: Synthesis and liquid crystal properties of oligomers of the p-oxybenzoate series, *Ber. Bunsenges. Phys. Chem.* **88**, No. 5, 524-530 (1984) (Eng).
31. Baird, D. G., Rheology of polymers with liquid crystalline orders, in "Liquid crystalline order in polymers," Ed. A. Blumstein, Academic Press (New York), 237-260 (1978) (Eng).
32. Baird, D. G., The rheology of polymers with liquid-crystalline order, in "Rheology" vol. 3., Applications, 8th International Congress on Rheology, Naples, Italy, September 1-5 (1980), Eds. G. Astarita, G. Marrucci, and L. Nicolais, Plenum Press (New York), 647-658 (1980) (Eng).
33. Barrall, E. M., and Johnson, J. F., A review of the status of polymerization in thermotropic liquid crystal media and liquid crystalline monomers, *J. Macromol. Sci., Rev. Macromol. C* **17**, No. 1, 137- (1979) (Eng).
34. Benedetti, E., Vergamini, P., Andruzzi, F., and Magagnini, P. L., Temperature dependence of the 720 cm^{-1} IR band of poly(octadecyl ethylene) and poly(octadecyl ethylene oxide). Studies on comb-like polymers III., *Polymer Bull.* **2**, No. 4, 241-248 (1980) (Eng).
35. Bhadani, S. N., So-Lan, Tseng, and Gray, D. G., Lyotropic and thermotropic liquid crystal phase formation from fractions of a semiflexible cellulosic polymer, *Makromol. Chem.* **184**, No. 8, 1727-1740 (1983) (Eng).
36. Bickel, A., Shaw, M. T., and Samulski, E. T., Rheological properties of a thermotropic liquid crystal polyesters, *J. Rheology* **28**, No. 5, 647-652 (1984) (Eng).
37. Billard, J., Blumstein, A., and Vilasager, S., Cholesteric and nematic thermotropic liquid crystal polymers, *Mol. Cryst. Liq. Cryst. Lett.* **72**, Nos. 5-6, 163-170 (1981) (Eng).
38. Birshtein, T. M., and Kolegov, B. I., Liquid-crystalline state of polymers with rigid and flexible fragments alternating along the chain, *Vysokomol. Soedin. Ser. A* **25**, No. 12, 2519-2525 (1983) (Russ).

39. Biswas, A. B., Deshpande, D. D., and Rao, A. V., Radiation polymerization of methyl methacrylate in the presence of liquid crystals, *Polymer* **21**, No. 5, 548–552 (1980) (Eng).
40. Blackwell, J., and Gutierrez, G. A., The structure of liquid crystal copolyester fibres prepared from p-hydroxy-benzoic acid, 2,6 -dihydroxy naphthalene and terephthalic acid, *Polymer* **23**, No. 5, 671–675 (1982) (Eng).
41. Blackwell, J., Lieser, G., and Gutierrez, G. A., Structure of p-hydroxy benzoate/ethylene terephthalate copolyester fibres, *Macromolecules* **16**, No. 9, 1418–1421 (1983) (Eng).
42. Blackwell, J., Gutierrez, G. A., Chivers, R. A., and Ruland, W., X-ray diffraction by liquid crystal copolymers: a one-dimensional paracrystalline model, *J. Polym. Sci., Polym. Phys. Ed.* **22**, No. 7, 1343–1348 (1984) (Eng).
43. Blackwell, J., Gutierrez, G. A., and Chivers, R. A., Diffraction by aperiodic polymer chains: the structure of liquid crystal copolyesters, *Macromolecules* **17**, No. 6, 1219–1224 (1984) (Eng).
44. Blumstein, A., Mesomorphic order in polymers with side groups containing elements of mesogenic structure, *Macromolecules* **10**, No. 4, 872–873 (1977) (Eng).
45. Blumstein, A., Polymerization of thermotropic mesophases and formation of organized polymers, in "Polymerization of organized polymers," Midland macromolecular monographs vol. 3, Ed. H. G. Elias, Gordon and Breach (New York), 133–148 (1977) (Eng).
46. Blumstein, A., Osada, Y., Clough, S. B., Hsu, E. C., and Blumstein, R. B., Liquid-crystalline order in polymers and copolymers with cholesteric side groups, in "Mesomorphic order in polymers and polymerization in liquid crystalline media," Ed. A. Blumstein, American Chemical Society (Washington), 56–70 (1978) (Eng).
47. Blumstein, A., and Hsu, E. C., Liquid-crystalline order in polymers with mesogenic side groups, in "Liquid crystalline order in polymers," Ed. A. Blumstein, Academic Press (New York), 105–140 (1978) (Eng).
48. Blumstein, A., Sivaramakrishnan, K. N., Clough, S. B., and Blumstein, R. B., Polymeric thermotropic liquid crystals: polymers with mesogenic elements and flexible spacers in the main chain, *Mol. Cryst. Liq. Cryst. Lett.* **49**, No. 8, 255–258 (1979) (Eng).
49. Blumstein, A., Liquid crystal order in polymer containing elements in mesogenic structures, in "Contemporary topics in Polymer science," vol. 3, Ed. M. Shen, Plenum Press (New York), 79–102 (1979) (Eng).
50. Blumstein, A., and Vilasager, S., Nematic and cholesteric thermotropic azoxy polyesters with moderately low transition temperatures, *Mol. Cryst. Liq. Cryst. Lett.* **72**, No. 1, 1–8 (1981) (Eng).
51. Blumstein, A., Maret, G., and Vilasagar, S., Conformation of polymers with mesogenic groups and flexible spacers in the main chain in dilute solution and in the isotropic melt, *Macromolecules* **14**, No. 5, 1543–1545 (1981) (Eng).
52. Blumstein, R., and Thomas, O., Odd-even effect in thermotropic liquid crystal 4,4'-dihydroxy-2,2'-dimethylazoxybenzene-alkanedioic acid polymers, *Macromolecules* **15**, No. 5, 1264–1267 (1982) (Eng).
53. Blumstein, A., Vilasagar, S., Ponrathamn, S., Clough, J. B., Blumstein, R. B., and Maret, G., Nematic and cholesteric thermotropic polyesters with azoxybenzene mesogenic units and flexible spacers in the main chain, *J. Polym. Sci., Polym. Phys. Ed.* **20**, No. 5, 877–892 (1982) (Eng).
54. Blumstein, A., Sivarama-Krishnan, K. N., Blumstein, R. B., and Clough, S. B., Synthesis and properties of some polyesters with mesogenic groups and flexible spacers in the main chain, *Polymer* **23**, No. 1, 47–53 (1982) (Eng).
55. Blumstein, A., Blumstein, R. B., Gauthier, M. M., Thomas, O., and Asrar, J., The existence of two distinct levels of order in thermotropic nematic polyesters, *Mol. Cryst. Liq. Cryst. Lett.* **92**, No. 3, 87–97 (1983) (Eng).

56. Blumstein, A., Asrar, J., and Blumstein, R. B., Thermotropic liquid-crystalline polymers with mesogenic groups and flexible spacers in the main chain, in "Liquid Crystals and Ordered Fluids" vol. 4, Eds. A. C. Griffin and J. F. Johnson, Plenum Press (New York), 311-345 (1984) (Eng).
57. Blumstein, A., Schmidt, H. W., Thomas, O., Kharas, G. B., Blumstein, R. B., and Ringsdorf, H., Electric effects and miscibility in cybotactic micellar nematic and ordinary nematic polyesters, *Mol. Cryst. Liq. Cryst. Lett.* **92**, Nos. 9-10, 277-280 (1984) (Eng).
58. Blumstein, A., Thomas, O., Asrar, J., Markis, P., Clough, S. B., and Blumstein, R. B., Order in linear thermotropic nematic polyesters: the existence of two distinct molecular arrangements within polymeric nematic mesophases, *J. Polym. Sci., Polym. Lett. Ed.* **22**, No. 1, 13-19 (1984) (Eng).
59. Blumstein, R. B., Stickles, E. M., and Blumstein, A., Influence of molecular weight on phase transition entropies of a thermotropic nematic polyester, *Mol. Cryst. Liq. Cryst. Lett.* **82**, No. 6, 205-213 (1982) (Eng).
60. Blumstein, R. B., and Stickles, E. M., Synthesis of model compounds of the nematic polyester poly (2,2'-dimethyl-4,4'-dioxiazoxy-benzenedodecanedioyl), *Mol. Cryst. Liq. Cryst. Lett.* **82**, No. 5, 151-160 (1982) (Eng).
61. Blumstein, R. B., Stickles, E. M., Gauthier, M. M., Blumstein, A., and Volino, F., Influence of molecular weight on phase transition and alignment of a thermotropic nematic polyester, *Macromolecules* **17**, No. 2, 177-182 (1984) (Eng).
62. Boeffel, C. B., Hisgen, U., Pschorn, H., and Ringsdorf, H. W., Structure and dynamics of liquid crystal polymers from deuterium NMR, *Isr. J. Chem.* **23**, No. 3, 388-394 (1983) (Eng).
63. Bolotnikova, L. S., Bilibin, A. Y., Yevseev, A. K., Panov, Y. N., Skorokhodov, S. S., and Frenkel, S. Y., Rheological behaviour of melts of thermotropic mesomorphic polyester, *Vysokomol. Soedin. Ser. A* **25**, No. 10, 2114-2120 (1983) (Russ).
64. Borisova, T. I., Burshtein, L. L., Stepanova, T. P., Shibaev, V. P., and Platé, N. A., Study of the dielectric polarization of the gels of some comb-like polymers, *Vysokomol. Soedin. Ser. A* **19**, No. 2, 286-290 (1977) (Russ).
65. Borisova, T. I., Burshtein, L. L., Stepanova, T. P., Freidzon, Y. S., and Shibaev, V. P., Intramolecular ordering of cholesterol-containing copolymers, *Vysokomol. Soedin. Ser. A* **20**, No. 6, 1380-1384 (1978) (Russ).
66. Borisova, T. I., Burshtein, L. L., Stepanova, T. P., and Shibaev, V. P., Two types of intramolecular structure in comb-like polymers with amide groups in side chain, *Vysokomol. Soedin. Ser. B* **20**, No. 12, 910-913 (1978) (Russ).
67. Borisova, T. I., Burshtein, L. L., Stepanova, T. P., and Shibaev, V. P., On conformational transitions in the solutions of comb-like polymers, *Vysokomol. Soedin. Ser. B* **21**, No. 3, 186-190 (1979) (Russ).
68. Borisova, T. I., Burshtein, L. L., Malinovskaya, V. P., Krasner, L. V., Konstantinov, I. I., and Amerik, Y. B., Molecular mobility in polymers with aromatic mesogenic groups in side chains, *Vysokomol. Soedin. Ser. A* **26**, No. 10, 2122-2127 (1984) (Russ).
69. Borisova, T. I., Burshtein, L. L., Nikonorova, N. A., Freidzon, Y. S., Shibaev, V. P., and Platé, N. A., Molecular motion and interphase transitions in comb-like cholesterol-containing polymers, *Vysokomol. Soedin. Ser. A* **26**, No. 7, 1506-1512 (1984) (Russ).
70. Bosio, L., Fayolle, B., Friedrich, C., Lauprêtre, F., Meurisse, P., Noel, C., and Virlet, J., DSC, miscibility and X-ray studies of the thermotropic liquid-crystalline polyesters with aromatic moieties and flexible spacers in the main chain, in "Liquid Crystals and Ordered Fluids," vol. 4, Eds. A. C. Griffin and J. F. Johnson, Plenum Press (New York) 401-427 (1984) (Eng).
71. Bresci, B., Frosini, V., Lupinacci, D., and Magagnini, P. L., Order in polymers with biphenyl residues in the side-groups, *Makromol. Chem. Rapid Commun.* **1**, No. 3, 183-186 (1980) (Eng).

72. Borchard, F., Viscosities of dilute polymer solutions in nematic liquids *J. Polym. Sci., Polym. Phys. Ed.* **17**, No. 8, 1367–1374 (1979) (Eng).
73. Brochard, F., Theory of polymer gels with liquid crystal solvents, *J. Phys. (Paris)* **40**, No. 11, 1049–1054 (1979) (Eng).
74. Brochard, F., Flexible polymers in nematic solvents, *C. R. Acad. Sci. (Paris)* **B289**, No. 13, 229– (1979) (Fr).
75. Brochard, F., Polymères flexible en solution dans un nématique: la limite des perturbations fortes, *C. R. Acad. Sci. (Paris)* **B290**, No. 22, 485–488 (1980) (Fr).
76. Brochard, F., and De Gennes, P. G., Dynamics of compatible polymer mixtures, *Physica* **118 A**, No. 4, 289–299 (1983) (Eng).
77. Brochard, F., Jouffroy, J., and Levinson, P., Phase diagrams of mesomorphic mixtures, *J. Phys. (Paris)* **45**, No. 7, 1125–1136 (1984) (Eng).
78. Burshtein, L. L., and Shibaev, V. P., Intramolecular structurization in solutions of comb-like polymers (Review), *Vysokomol. Soedin. Ser. A* **24**, No. 1, 3–19 (1982) (Russ).
79. Casagrande, C., Veyssie, M., and Finkelmann, H., Phase separations in the mixtures of a mesomorphic polymer with a low molecular mass liquid crystal, *J. Phys. (Paris) Lett.* **43**, No. 18, L 671–L 675 (1982) (Eng).
80. Casagrande, C., Veyssie, M., Weill, C., and Finkelmann, H., Dynamics of a Frederiks transition in side chain nematic polymers: determination of the viscoelastic coefficients K_1 and γ_1 , *Mol. Cryst. Liq. Cryst. Lett.* **92**, No. 2, 49–56 (1983) (Eng).
81. Chen, G., and Lenz, R. W., Liquid crystal polymers. XVIII Comparisons of the properties of aromatic polyesters with different mesogenic unit and a common flexible spacer, *J. Polym. Sci., Polym. Chem. Ed.* **22**, No. 11, 3189–3202 (1984) (Eng).
82. Chiellini, E., Lenz, R. W., and Ober, C., Multicomponent polyester systems with mesogenic units, in "Polymer Blends: processing, morphology and properties," Eds. E. Martsuscelei, R. Palumbo, and M. Kryszewski, Plenum Press (New York), 373–382 (1980) (Eng).
83. Chiellini, E., Galli, G., Malanga, C., and Spassky, N., Chiral liquid crystal polymers. 3. Structurally ordered thermotropic polyesters of optically active propyleneglycol ethers, *Polymer Bull.* **9**, Nos. 6–7, 336–343 (1983) (Eng).
84. Chiellini, E., and Galli, G., Chiral liquid crystal polymers. 4. Chiroptical properties of thermotropic polyester in dilute solution, *Makromol. Chem., Rapid Commun.* **4**, No. 5, 285–289 (1983) (Eng).
85. Chupov, V. V., Shibaev, V. P., and Platé, N. A., Structure and physicochemical properties of comb-like polypeptides based on poly-L-lysine, *Vysokomol. Soedin. Ser. A* **21**, No. 1, 218–228 (1979) (Russ).
86. Ciferri, A., Rigid and semirigid chain polymeric mesogens, in "Polymer Liquid Crystals," Material Science and Technology Series, Eds. A. Ciferri, W. Krigbaum and R. Meyer, Academic Press (New York), 63–102 (1982) (Eng).
87. Clough, S. B., Blumstein, A., and De Vries, A., X-ray diffraction studies on mesomorphic order in polymers with mesomorphic order, in "Mesomorphic Order in Polymers and Polymerization in Liquid Crystalline Media," Ed. A. Blumstein, American Chemical Society (Washington), 1–11 (1978) (Eng).
88. Coles, H. J., and Simon, R., Investigations of smectic polysiloxanes. II. Field-induced director reorientation, *Mol. Cryst. Liq. Cryst. Lett.* **102**, No. 3, 75–80 (1984) (Eng).
89. Corradini, P., and Vocatello, M., A simple statistical thermodynamical model for liquid crystal polymers with repeating units comprising a rigid and a flexible part, *Mol. Cryst. Liq. Cryst.* **97**, Nos. 1–4, 119–129 (1983) (Eng).
90. Corazza, P., Satirana, M. L., and Valenti, B., Electric-field induced instability in nematic and cholesteric polyesters, *Makromol. Chem.* **183**, No. 11, 2847–2855 (1982) (Eng).

91. Cser, F., Nyitrai, K., Seyfried, E., and Hardy, G., Polymerization in liquid crystals. III. Studies on the structures of some polymeric azoxy acrylates, *European Polym. J.* **13**, No. 8, 679–682 (1977) (Eng).
92. Cser, F., Nyitrai, K., and Hardy, G., State conditions of polymer and monomer with liquid crystalline phases, *J. Polym. Sci., Polym. Symp.* (Pt. C) No. 61, 9–16 (1977) (Eng).
93. Cser, F., Nyitrai, K., Seyfried, E., and Hardy, G., Polymerizations in liquid crystals. II. Copolymerization of p-methyl-p-acryloyloxy-azoxybenzene and cholesteryl vinyl succinate in the mesophase, *European Polym. J.* **13**, No. 8, 673–678 (1977) (Eng).
94. Cser, F., Nyitrai, K., and Hardy, G., Polymerization in liquid-crystalline state monomer-polymer interactions, in “Mesomorphic Order in Polymers and Polymerization in Liquid Crystalline Media,” Ed. A. Blumstein, American Chemical Society (Washington), 95–107 (1978) (Eng).
95. Cser, F., Nematic polymers and related structures, *J. Phys. Colloq.* (Paris) **C3 40**, No. 4, C3-459–C3-470 (1979) (Eng).
96. Cser, F., Nyitrai, K., and Hardy, G., Mesomorphic polymers, *Acta Chimica Acad. Sci. Hung.* **100**, Nos. 1–4, 463–479 (1979) (Eng).
97. Cser, F., Nyitrai, K., and Hardy, G., Nematic polymeric structures, in “Advances in Liquid Crystal Research and Applications,” Ed. L. Bata, Pergamon Press, Akadémiai Kiadó, 845–867 (1981) (Eng).
98. Cser, F., Nyitrai, K., Hardy, G., Menczel, J., and Varga, J., Mixing enthalpies of polymers with mesomorphic properties and mesogenic plasticizers, *J. Polym. Sci., Polym. Symp.* (Pt. C) No. 69, 91– (1981) (Eng).
99. Cser, F., Mesomorphic polymers as three component systems, in “Liquid Crystals and Ordered Fluids” vol. 4, Eds. A. C. Griffin and J. F. Johnson, Plenum Press (New York), 945–969 (1984) (Eng).
100. Cser, F., Nyitrai, K., Solti, A., Forgács, P., Hedvig, P., Horváth, J., and Hardy, G., Studies on the mesomorphic structure of poly-p-methoxyphenyl p-methacryloyloxyethoxy-benzoate, *Acta Chimica Acad. Sci. Hung.* **115**, No. 1, 71–88 (1984) (Eng).
101. Dablonsky, S. V., Blinov, L. M., Kostromin, S. G., and Shibaev, V. P., The investigation of anisotropic properties of comb-like polymeric liquid crystal, *Kristallografiya* **29**, No. 5, 984–989 (1984) (Russ).
102. Daoudi, S., and Brochard, F., Flows of flexible polymer solutions in pores, *Macromolecules* **11**, No. 4, 751–758 (1978) (Eng).
103. De Gennes, P. G., Polymeric liquid crystals: Frank elasticity and light scattering, *Mol. Cryst. Liq. Cryst. Lett.* **34**, No. 8, 177–182 (1977) (Eng).
104. De Gennes, P. G., One long chain among shorter chains, *J. Polym. Sci., Polym. Symp.* (Pt. C) No. 61, 313–316 (1977) (Eng).
105. De Gennes, P. G., Macromolecules and liquid crystals—reflections on certain lines of research, in “Liquid Crystals, Solid State Physics, Advances in Research and Applications,” Suppl. vol. 14, Ed. L. Liébert, Academic Press (New York), 1–18 (1978) (Eng).
106. De Gennes, P. G., Weak nematic gels, in “Liquid Crystals of One and Two-Dimensional Order,” Springer series in chemical physics, vol. 11, Eds. W. Helfrich, and G. Heppke, Springer-Verlag (Berlin), 231–237 (1980) (Eng).
107. De Gennes, P. G., Mechanical properties of nematic polymers, in “Polymer Liquid Crystals,” Materials Science and Technology Series, Eds. A. Ciferri, W. Krigbaum, and R. Meyer, Academic Press (New York), 115–131 (1982) (Eng).
108. De Gennes, P. G., Flexible nematic polymers: stiffening near the clearing point, *Mol. Cryst. Liq. Cryst. Lett.* **102**, No. 4, 95–104 (1984) (Eng).
109. Demartino, R. N., Improved processing of thermotropic liquid crystal polyesters, *J. Appl. Polym. Sci.* **28**, No. 5, 1805–1810 (1983) (Eng).
110. Deshpande, D. D., and Rao, A. V., Spontaneous polymerization studies on

- methyl methacrylate and vinyl acetate in the presence of a cholesteric liquid crystal cholesteryl 2-(ethoxy ethoxy) ethyl carbonate, *Polymer Bull.* **2**, No. 7, 485–490 (1980) (Eng).
111. Desper, C. R., Schneider, N. S., and Higginbotham, E., Mesomorphic structure in poly(organophosphazenes), *J. Polym. Sci., Polym. Lett. Ed.* **15**, No. 8, 457–462 (1977) (Eng).
 112. Dicke, H. R., and Lenz, R. W., Liquid crystal polymers. 14. Synthesis and properties of thermotropic poly(1,4-alkylphenylene) terephthalate, *J. Polym. Sci., Polym. Chem. Ed.* **21**, No. 8, 249–258 (1983) (Eng).
 113. Dobb, M. G., and McIntyre, J. E., Properties and applications of liquid-crystalline main-chain polymers, in "Liquid Crystal Polymers II/III," *Advances in Polymer Science* vol. 60/61, Eds. M. Gordon and N. A. Platé, Springer-Verlag (Berlin), 61–98 (1984) (Eng).
 114. Donald, A. M., Viney, C., and Windle, A. H., Banded structures in oriented thermotropic polymers, *Polymer* **24**, No. 2, 155–159 (1983) (Eng).
 115. Donald, A. M., Microdiffraction applied to thermotropic liquid-crystalline polymers, *Phil. Mag.* **47**, No. 5, L-13–L-18 (1983) (Eng).
 116. Donald, A. M., and Windle, A. H., An electron diffraction analysis of banded structures in thermotropic polymers, *Colloid Polym. Sci.* **261**, No. 10, 793–799 (1983) (Eng).
 117. Donald, A. M., and Windle, A. H., Electron microscopy of banded structures in oriented thermotropic polymers, *J. Mater. Sci.* **18**, No. 4, 1143–1150 (1983) (Eng).
 118. Donald, A. M., and Windle, A. H., Walls in liquid-crystalline polymers: an electron microscopy study, *Polymer* **25**, No. 9, 1235–1246 (1984) (Eng).
 119. Donald, A. M., Evidence for homeotropy in thermotropic polymers from electron microscopy, *J. Mater. Sci. Lett.* **3**, No. 1, 44–46 (1984) (Eng).
 120. Donald, A. M., and Windle, A. H., Transformation of banded structures on annealing thin films of thermotropic liquid-crystalline polymers, *J. Mater. Sci.* **19**, No. 7, 2085–2097 (1984) (Eng).
 121. Dubault, A., Casagrande, C., and Veyssie, M., Solubilization of a polymer chain in a nematic phase: effect on the twist viscosity, *Mol. Cryst. Liq. Cryst. Lett.* **41**, No. 9, 239–244 (1978) (Eng).
 122. Dubault, A., Casagrande, C., and Veyssie, M., Pseudo-clearing temperature in binary polymer-nematic solutions, *Phys. Rev. Lett.* **45**, No. 20, 1645–1648 (1980) (Eng).
 123. Dubault, A., Casagrande, C., and Veyssie, M., Flexible polymers in nematic solvent: a pure reentrant diagrams in dilute regime, *Mol. Cryst. Liq. Cryst. Lett.* **72**, Nos. 7–8, 189–194 (1982) (Eng).
 124. Dubois, J. C., Lavenue, J. C., and Zann, A., New series of mesomorphic monomers-bulk polymerization of 4-cyano-4'-biphenyl (N + α)-alka-noates, in "Mesomorphic Order in Polymers and Polymerization in Liquid-Crystalline Media," Ed. A. Blumstein, American Chemical Society (Washington), 86–94 (1978) (Eng).
 125. East, A. J., and Benicewicz, B. C., New liquid crystals, polymeric and monomeric derived from binaphthyl, in "Liquid Crystals and Ordered Fluids," vol. 4, Eds. A. C. Griffin and J. F. Johnson, Plenum Press (New York), 687–695 (1984) (Eng).
 126. Economy, J., Volksen, W., and Geiss, R. H., Ordering in aromatic polyesters, *Mol. Cryst. Liq. Cryst.* **105**, Nos. 1–4, 289–303 (1984) (Eng).
 127. Economy, J., High temperature polymers for electronic devices, in "Contemporary topics in polymer science" vol. 5, Ed. E. J. Vandenberg, Plenum Publishing Corp. (New York), 351–374 (1984) (Eng).
 128. Ericksen, J. L., A thermodynamic view of order parameter for liquid crystals, in "Orienting Polymers," Lecture notes in mathematics, vol. 1063, Ed. J. L. Ericksen, Springer-Verlag (Berlin), 27–36 (1984) (Eng).

129. Farinha-Martins, A., Ferreira, J. B., Volino, F., Blumstein, A., and Blumstein, R. B., NMR study of some thermotropic nematic polyesters with mesogenic elements and flexible spacers in the main chain, *Macromolecules* **16**, No. 2, 279–286 (1983) (Eng).
130. Fayolle, B., Noel, C., and Billard, J., Investigation of polymer mesophase by optical microscopy, *J. Phys. Colloq. (Paris)* **C3 40**, No. 4, 485–489 (1979) (Eng).
131. Finkelmann, H., Ringsdorf, H., Siol, W., and Wendorff, J. H., Synthesis of cholesteric liquid-crystalline polymers—polyreactions in ordered systems. 15. *Makromol. Chem.* **179**, No. 3, 829–832 (1978) (Eng).
132. Finkelmann, H., Happ, M., Portugal, M., and Ringsdorf, H., Liquid-crystalline polymers with biphenyl-moieties as mesogenic group, *Makromol. Chem.* **179**, No. 10, 2541–2544 (1978) (Eng).
133. Finkelmann, H., Ringsdorf, H., and Wendorff, J. H., Model considerations and examples of enantiotropic liquid-crystalline polymers—polyreactions in ordered systems. 14. *Makromol. Chem.* **179**, No. 1, 273–277 (1978) (Eng).
134. Finkelmann, H., Ringsdorf, H., Siol, W., and Wendorff, J. H., Enantiotropic (liquid-crystalline) polymers—synthesis and models, in “Mesomorphic Order in Polymers and Polymerization in Liquid-Crystalline Media,” Ed. A. Blumstein, American Chemical Society (Washington), 22–31 (1978) (Eng).
135. Finkelmann, H., Koldehoff, J., and Ringsdorf, H., Synthesis and characterization of liquid crystal polymers with cholesteric phase, *Angew. Chemie, Int. Ed. Engl.* **17**, No. 12, 935–936 (1978) (Eng).
136. Finkelmann, H., Naegele, D., and Ringsdorf, H., Orientation of nematic liquid-crystalline polymers in the electric field, *Makromol. Chem.* **180**, No. 3, 803–808 (1979) (Eng).
137. Finkelmann, H., and Day, D., Structure of mesomorphic polymer phases, *Makromol. Chem.* **180**, No. 9, 2269–2274 (1979) (Eng).
138. Finkelmann, H., and Rehage, G., Investigations on liquid-crystalline polysiloxanes 1. Synthesis and characterization of linear polymers, *Makromol. Chem., Rapid Commun.* **1**, No. 1, 31–34 (1980) (Eng).
139. Finkelmann, H., Thermotropic liquid-crystalline polymers, in “Liquid Crystals of One and Two-Dimensional Order,” Springer series in chemical physics, vol. 11, Eds. W. Helfrich and G. Heppke, Springer-Verlag (Berlin), 238–252 (1980) (Eng).
140. Finkelmann, H., and Rehage, G., Investigations on liquid-crystalline polysiloxanes. 2. Optical properties of cholesteric phases and influence of the flexible spacer on the mobility of the mesogenic groups, *Makromol. Chem., Rapid Commun.* **1**, No. 12, 733–740 (1980) (Eng).
141. Finkelmann, H., Kock, H. J., and Rehage, G., Investigations on liquid-crystalline polysiloxanes. 3. Liquid crystal elastomer—a new type of liquid crystal material, *Makromol. Chem., Rapid Commun.* **2**, No. 4, 317–322 (1981) (Eng).
142. Finkelmann, H., Synthesis, structure and properties of liquid-crystalline side-chain polymers, in “Polymer Liquid Crystals,” Materials Science and Technology Series, Eds. A. Ciferri, W. Krigbaum, and R. Meyer, Academic Press (New York), 35–62 (1982) (Eng).
143. Finkelmann, H., Kook, H. J., and Rehage, G., Phase studies of liquid-crystalline side-chain polymers mixed with low molar mass liquid crystals of similar structure, *Mol. Cryst. Liq. Cryst.* **89**, Nos. 1–4, 23–36 (1982) (Eng).
144. Finkelmann, H., and Rehage, G., Investigations on liquid-crystalline polysiloxanes. 4. Cholesteric homopolymers—synthesis and optical characterization, *Makromol. Chem., Rapid Commun.* **3**, No. 12, 859–864 (1982) (Eng).
145. Finkelmann, H., Liquid-crystalline side-chain polymers, *Phil. Trans. R. Soc. Lond. A* **309**, No. 1, 105–114 (1983) (Eng).
146. Finkelmann, H., Benthack, H., and Rehage, G., The degree of order in liquid-crystalline side-chain polymers, *J. Chim. Phys.* **80**, No. 1, 163–171 (1983) (Eng).
147. Finkelmann, H., Kiechle, U., and Rehage, G., Behavior of liquid-crystalline

- side-chain polymers in an electric field, *Mol. Cryst. Liq. Cryst.* **94**, Nos. 3–4, 343–358 (1983) (Eng).
148. Finkelmann, H., Lühman, B., Rehage, G., and Stevens, H., Liquid-crystalline polymers with amphiphilic and non-amphiphilic side chains—effect of the main chain on the phase behavior, in "Liquid Crystals and Ordered Fluids," vol. 4, Eds. A. C. Griffin, and J. F. Johnson, Plenum Press (New York), 715–726 (1984) (Eng).
 149. Finkelmann, H., and Rehage, G., Liquid-crystalline side-chain polymers, in "Liquid Crystal Polymers," Advances in Polymer Science vol. 60/61, Eds. M. Gordon, and N. A. Platé, Springer-Verlag (Berlin), 99–172 (1984) (Eng).
 150. Finkelmann, H., Kock, H. J., Gleim, W., and Rehage, G., Investigations on liquid-crystalline polysiloxanes. 5. Orientation of liquid crystal elastomers by mechanical forces, *Makromol. Chem., Rapid Commun.* **5**, No. 5, 287–294 (1984) (Eng).
 151. Flory, P. J., and Ronca, G., Theory of systems of rodlike particles. I. Athermal systems, *Mol. Cryst. Liq. Cryst.* **54**, Nos. 3–4, 289–310 (1979) (Eng).
 152. Flory, P. J., and Ronca, G., Theory of systems of rodlike particles: II. Thermotropic systems with orientation-dependent interactions, *Mol. Cryst. Liq. Cryst.* **54**, Nos. 3–4, 311–330 (1979) (Eng).
 153. Flory, P. J., Crystalline and mesomorphic phases in polymers, *Ferroelectrics* **30**, Nos. 1–4, 1–2 (1980) (Eng).
 154. Flory, P. J., Treatment of disordered and ordered systems of polymer chains by lattice methods, *Proc. Nat. Acad. Sci. USA (Phys. Sci.)* **79**, No. 14, 4510–4514 (1982) (Eng).
 155. Flory, P. J., Molecular theories of liquid crystals, in "Polymer Liquid Crystals," Materials Science and Technology Series, Eds. A. Ciferri, W. Krigbaum, and R. Meyer, Academic Press (New York), 103–114 (1982) (Eng).
 156. Flory, P. J., Molecular theory of liquid crystals, in "Liquid Crystal Polymers I," Advances in Polymer Science, vol. 59, Eds. M. Gordon and N. A. Platé, 1–36 (1984) (Eng).
 157. Freidzon, Y. S., Shibaev, V. P., Agranovich, I. M., Pautov, V. D., Anufrieva, E. V., and Platé, N. A., Structuring in cholesterol-containing liquid-crystalline polymers, *Vysokomol. Soedin. Ser. A* **20**, No. 11, 2601–2607 (1978) (Russ).
 158. Freidzon, Y. S., Shibaev, V. P., Kustova, N. N., and Platé, N. A., The comparative study of liquid-crystalline cholesterol-containing acrylic and methacrylic polymers, *Vysokomol. Soedin. Ser. A* **22**, No. 5, 1083–1089 (1980) (Russ).
 159. Freidzon, Y. S., Shibaev, V. P., Kharitonov, A. V., and Platé, N. A., Conditions of formation of liquid-crystalline state in cholesterol-containing polymers in "Advances in Liquid Crystal Research and Applications," Ed. L. Bata, Pergamon Press, Akadémiai Kiadó, 899–914 (1981) (Eng).
 160. Freidzon, Y. S., Shibaev, V. P., Pautov, V. D., Bronich, T. K., Shelukhina, G. D., Kasdikin, V. A., and Platé, N. E., Intramolecular conformational transfer of the coil-globule type in macromolecules of liquid-crystalline polymers, *Dokl. Akad. Nauk SSSR* **256**, No. 6, 1435–1438 (1981) (Russ).
 161. Freidzon, Y. S., Kharitonov, A. V., Shibaev, V. P., and Platé, N. A., Liquid-crystalline state of cholesterol-containing monomers, *Mol. Cryst. Liq. Cryst.* **88**, Nos. 1–4, 87–98 (1982) (Eng).
 162. Freidzon, Y. S., I. All-Union Symposium "Liquid-crystalline polymers," *Vysokomol. Soedin. Ser. A* **25**, No. 7, 1560–1562 (1983) (Russ).
 163. Frenzel, J., and Rehage, G., PVT measurements on liquid-crystalline polymers, *Makromol. Chem., Rapid Commun.* **1**, No. 2, 129–134 (1980) (Eng).
 164. Frenzel, J., and Rehage, G., Phase behavior of liquid-crystalline side-chain polymers, *Makromol. Chem.* **184**, No. 8, 1685–1703 (1983) (Eng).
 165. Frosini, V., Levita, G., Landis, J., and Woodward, A. E., Broad-line NMR and dynamic mechanical behavior of some aromatic polyesters, *J. Polym. Sci., Polym. Phys. Ed.* **15**, No. 2, 239–246 (1977) (Eng).

166. Frosini, V., Levita, G., Lupinacci, D., and Magagnini, P., Mesophase formation in polymers with anisomeric side groups in relation to their chemical and stereochemical structure, *Mol. Cryst. Liq. Cryst.* **66**, Nos. 1-2, 21-36 (1981) (Eng).
167. Frosini, V., Low temperature phase transition in some thermotropic polyesters quenched from the liquid-crystalline state, *Makromol. Chem., Rapid Commun.* **3**, No. 11, 795-802 (1982) (Eng).
168. Frosini, V., De Petris, S., Chiellini, E., Galli, G., and Lenz, R. W., Transitions and relaxations in mesophase polymers: thermotropic liquid-crystalline polymers with mesogenic groups in the main chain, *Mol. Cryst. Liq. Cryst.* **98**, Nos. 1-4, 223-242 (1983) (Eng).
169. Galli, G., Chiellini, E., Ober, C. K., and Lenz, R. W., Liquid crystal polymers. 8. Structurally ordered thermotropic polyesters of glycol ethers, *Makromol. Chem.* **183**, No. 11, 2693-2700 (1982) (Eng).
170. Galli, G., Lans, M., Angeloni, A. S., Ferruti, P., and Chiellini, E., Thermotropic poly (β -aminoester)s containing azoxy groups, *Makromol. Chem., Rapid Commun.* **4**, 681-686 (1983) (Eng).
171. Geib, H., Hisgen, B., Pschorn, H., Ringsdorf, H., and Spiess, H. W., Deuteron NMR study of molecular order and motion in a liquid-crystalline polymer, *J. Am. Chem. Soc.* **104**, No. 3, 917-919 (1982) (Eng).
172. George, E. R., Porter, R. S., and Griffin, A. C., On thermotropic liquid crystalline polymers combined with low molecular weight mesogens, *Mol. Cryst. Liq. Cryst.* **110**, Nos. 1-4, 27-40 (1984) (Eng).
173. Gillbert, R. D., and Patton, P. A., Liquid-crystalline formation in cellulose and cellulose derivatives, *Prog. Polym. Sci.* **9**, Nos. 2-3, 115-131 (1983) (Eng).
174. Gilli, J. M., Schmidt, H. W., Pinton, J. F., Sixou, P., Thomas, O., Kharas, G. B., and Blumstein, A., Electro-hydrodynamic instabilities in main-chain thermotropic liquid crystalline polyesters, *Mol. Cryst. Liq. Cryst. Lett.* **102**, No. 2, 49-58 (1984) (Eng).
175. Gilli, J. M., Ten Bosch, A., Blumstein, A., and Blumstein, R. B., Optical properties of mesomorphic polymers with and without electric fields, *Mol. Cryst. Liq. Cryst.* **105**, Nos. 1-4, 375-386 (1984) (Eng).
176. Gounder, R. N., Applications of thermotropic mesophase reactions, in "Mesomorphic Order in Polymers and Polymerization in Liquid Crystalline Media," Ed. A. Blumstein, American Chemical Society (Washington), 108-126, (1978) (Eng).
177. Graziano, D. J., Mackley, M. R., and Wissbrun, K. F., Stress relaxation after oscillatory shear in a thermotropic liquid crystalline polymer, *J. Non-Newton Fl. Mech.* **13**, No. 3, 243-257 (1983) (Eng).
178. Graziano, D. J., and Mackley, M. R., Shear-induced optical textures and their relaxation behavior in thermotropic liquid-crystalline polymers, *Mol. Cryst. Liq. Cryst.* **106**, Nos. 1-2, 73-93 (1984) (Eng).
179. Grebneva, Y. S., and Khodzhaeva, V. L., Shishkina, M. V., Sitnov, A. A., Amerik, Y. B., and Konstantinov, I. I., Liquid crystal behavior of polymers on the basis of p-buthyloxy-phenyl p-hydroxybenzoate depending on the nature of the polymer main chain and length of the spacer group, in "Advances in Liquid Crystal Research and Applications," Ed. L. Bata, Pergamon Press, Akadémiai Kiadó, 959-969 (1981) (Eng).
180. Griffin, A. C., and Havens, S. J., Polymeric liquid crystals structurally related to 4-alkoxyphenyl-4'-alkoxybenzoates, *Mol. Cryst. Liq. Cryst. Lett.* **49**, No. 8, 239-246 (1976) (Eng).
181. Griffin, A. C., and Havens, S. J., Phase studies of polymer/small molecule liquid crystal mixtures by different scanning calorimetry, *J. Polym. Sci., Polym. Lett. Ed.*, No. 4, 259-263 (1980) (Eng).
182. Griffin, A. C., and Britt, T. R., Effect of molecular structure on mesomorphism. 12. Flexible-center siamese-twin liquid-crystalline diesters—a "propolymer" model, *J. Am. Chem. Soc.* **103**, No. 16, 4957-4958 (1981) (Eng).

183. Griffin, A. C., and Havens, S. J., Mesogenic polymers. III. Thermal properties and synthesis of three homologous series of thermotropic liquid crystalline "backbone" polyesters, *J. Polym. Sci., Polym. Phys. Ed.* **19**, No. 6, 951-969 (1981) (Eng).
184. Griffin, A. C., Britt, T. R., and Cambell, G. A., Mesogenic polymers. 5' Thermotropic polyamide liquid crystals and analogous small molecule diamides, *Mol. Cryst. Liq. Cryst. Lett.* **82**, No. 4, 145-150 (1982) (Eng).
185. Griffin, A. C., and Britt, T. R., Effect of molecular structure of mesomorphism. 16' Nematic-isotropic thermodynamics for oligomer models of liquid crystalline polymers, *Mol. Cryst. Liq. Cryst. Lett.* **92**, No. 4-5, 149-155 (1983) (Eng).
186. Griffin, A. C., Britt, T. R., Huang, R. S. L., and Steele, M. L., Mesogenic polymers. V. Two series of isomeric polyazomethines, *Mol. Cryst. Liq. Cryst.* **105**, Nos. 1-4, 305-314 (1984) (Eng).
187. Grigoriyev, A. I., Andreeva, N. A., Bilibin, A. Y., Skorokhodov, S. S., and Eskin, V. Y., The study of morphological structure properties of a polymer with mesogenic groups within main chain, *Vysokomol. Soedin. Ser. B* **22**, No. 12, 891-894 (1980) (Russ).
188. Grigoriyev, A. I., Andreeva, N. A., Bilibin, A. Y., Skorokhodov, S. S., and Eskin, V. Y., Molecular properties and phase states of the polymer with mesogenic groups in the main chain, *Vysokomol. Soedin. Ser. A* **25**, No. 5, 1082-1085 (1983) (Russ).
189. Grigoriyev, A. I., Andreeva, N. A., Bilibin, A. Y., Skorokhodov, S. S., and Eskin, V. Y., Mesomorphic properties of polyterephthaloyl-bis-(4-oxybenzoates) containing methylene and oxyethylene flexible fragments in the main chain, *Vysokomol. Soedin. Ser. B* **26**, No. 8, 584-586 (1984) (Russ).
190. Grosberg, A. Y., Phase diagram of polymeric macromolecule containing mesogroups, *Vysokomol. Soedin. Ser. A* **22**, No. 1, 100-104 (1980) (Russ).
191. Grosberg, A. Y., The theory of adsorption of the simple model of the comb-like macromolecules, *Vysokomol. Soedin. Ser. B* **24**, No. 2, 146-149 (1982) (Russ).
192. Gudkov, V. A., and Chistyakov, I. G., X-ray structural investigations of some liquid-crystal cholesterol-containing polymers, *Kristallografiya* **27**, No. 1, 160-164 (1982) (Russ).
193. Gudkov, V. A., Chistyakov, I. G., Shibaev, V. P., and Vainshtein, B. K., The structure of some liquid-crystal comb-like polymers, *Kristallografiya* **27**, No. 3, 537-543 (1982) (Russ).
194. Gudkov, V. A., Chistyakov, I. G., Chumakova, S. P., Balagina, Y. G., and Sidorovich, A. V., Investigation of the mesomorphic structure of some aromatic polyimides, *Kristallografiya* **28**, No. 4, 752-757 (1983) (Russ).
195. Gudkov, V. A., Investigation of the molecular and supermolecular structure of some liquid-crystalline cholesterolene-containing polymers, *Kristallografiya* **29**, No. 6, 1122-1132 (1984) (Russ).
196. Gudkov, V. A., The structure of a liquid-crystal polymer of poly-p-n-hexiloxymethyl-p-oxyphenyl-N-metacryloyl- ω -aminolaurate, *Kristallografiya* **29**, No. 3, 529-536 (1984) (Russ).
197. Guillon, D., and Skoulios, A., Mesophase smectiques thermotropes de polybases de Schiff, *Mol. Cryst. Liq. Cryst. Lett.* **49**, No. 4, 119-124 (1978) (Fr).
198. Gutierrez, G., Chivers, R., Blackwell, J., and Stamatoff, J., The structure of liquid-crystalline aromatic copolyesters prepared from 4-hydroxybenzoic acid and 2-hydroxy-6-naphthoic acid, *Polymer* **24**, No. 8, 937-942 (1983) (Eng).
199. Hahn, B., Wendorff, J. H., Portugal, M., and Ringsdorf, H., Structure and phase transition of a liquid-crystalline polymer, *Colloid Polym. Sci.* **259**, No. 9, 875-884 (1981) (Eng).
200. Hardouin, F., Achard, M. F., Gasparoux, H., Liébert, L., and Strzelecki, L., Magnetic effects and viscosity in the nematic phase of a polymer series, *J. Polym. Sci., Polym. Phys. Ed.* **20**, No. 6, 975-980 (1984) (Eng).

201. Hardy, G., Cser, F., Fedorova, N., and Bátky, M., Polymerizations in liquid crystals. I. Vinyl oleate, *Acta Chimica Acad. Sci. Hung.* **94**, No. 3, 275-283 (1977) (Eng).
202. Hardy, G., Cser, F., Nyitrai, K., Samay, G., and Kalló, A., Investigation of the mesomorphic structure of p-alkoxy-phenyl-p-alkoxy-benzoate polymers, *J. Cryst. Growth* **48**, No. 2, 191-201 (1980) (Eng).
203. Hardy, G., Cser, F., Nyitrai, K., and Kiss, K., Identification of the structure of mesomorphic polymers by means of their miscibility, in "Liquid Crystals and Ordered Fluids," vol. 4, Eds. A. C. Griffin, and J. F. Johnson, Plenum Press (New York), 1061-1075 (1984) (Eng).
204. Hoppner, D., and Wendorff, J. H., Characterization of the orientational order in liquid-crystalline polymers, *Angew. Makromol. Chem.* **125**, No. 2046, 37-52 (1984) (Eng).
205. Horváth, J., Nyitrai, K., Cser, F., and Hardy, G., Polymerization of liquid crystals. 17. Effect of the substituents on the mesogenic side chain on the properties of mesogenic polymers, *Magyar Kémiai Folyóir. Hung. J. Chem.* **90**, No. 6, 270-279 (1984) (Hung).
206. Hoshino, H., Jin, J. I., and Lenz, R. W., Liquid crystalline behavior of polymeric glycols terminated with aromatic diester and diacid mesogenic groups, *J. Appl. Polym. Sci.* **29**, No. 2, 547-554 (1984) (Eng).
207. Hsu, E. C., and Blumstein, A., Polymerization of a nematic monomer: N-(p-cyanobenzylidene)-p-aminostyrene, *J. Polym. Sci., Polym. Lett. Ed.* **15**, No. 3, 129-136 (1977) (Eng).
208. Hsu, E. C., Clough, S. B., and Blumstein, A., Liquid crystalline order in polymers with cholesteric side groups, *J. Polym. Sci., Polym. Lett. Ed.* **15**, No. 9, 545-550 (1977) (Eng).
209. Iannelli, P., Roviello, A., and Sirigu, A., Liquid-crystalline behavior of linear copolymers II, *European Polym. J.* **18**, No. 9, 753-758 (1982) (Eng).
210. Iannelli, P., Roviello, A., and Sirigu, A., Liquid-crystalline behavior of linear copolymers I, *European Polym. J.* **18**, No. 9, 745-751 (1982) (Eng).
211. Iannelli, P., Roviello, A., and Sirigu, A., Molar melting enthalpy in an homologous series of mesophatic polymers, *European Polym. J.* **18**, No. 9, 759-762 (1982) (Eng).
212. Ide, Y., and Ophir, Z., Orientation development in thermotropic liquid-crystalline polymers, *Polym. Eng. and Sci.* **23**, No. 5, 261-265 (1983) (Eng).
213. Iimura, K., Koide, N., Tanabe, H., and Takeda, M., The synthesis and thermal properties of mesomorphic polymers. I. Polyurethanes with flexible segment, *Rep. Progr. Polym. Phys. Jpn.* **23**, 271-275 (1980) (Eng).
214. Iimura, K., Koide, N., Tanabe, H., and Takeda, M., Synthesis of thermotropic liquid-crystalline polymers: 1. Azoxy and azo type polyesters, *Makromol. Chem.* **182**, No. 10, 2563-2568 (1981) (Eng).
215. Iimura, K., Koide, N., Tanabe, H., and Takeda, M., Synthesis of thermotropic liquid-crystalline polymers: 2. Polyurethanes, *Makromol. Chem.* **182**, No. 10, 2569-2582 (1981) (Eng).
216. Il'ina, M. N., Zhdanov, A. A., and Slonimskii, G. L., Formation of mesomorphic structure of poly-m-toluenylsilsequioxane during the polymerization, *Vysokomol. Soedin. Ser. A* **22**, No. 1, 117-122 (1980) (Russ).
217. Ivanov, S. A., Yakovlev, I. A., Vetrov, V. J., Kostromin, S. G., and Shibaev, V. A., Influence of a laser light on the optical properties of a liquid-crystalline polymer around the phase transition, *Pis'ma Zh. Tekh. Fiz.* **9**, No. 22, 1349-1353 (1983) (Russ).
218. Jackson, W. J., Jr., Liquid-crystalline polymers. IV. Liquid-crystalline aromatic polyesters, *British Polym. J.* **12**, No. 4, 154-162 (1980) (Eng).
219. Jackson, W. J., Jr., and Kuhfuss, H. F., Liquid crystal polymers. III. Preparation and properties of poly (ester amides) from p-aminobenzoic acid and poly (ethylene terephthalate), *J. Appl. Polym. Sci.* **25**, No. 8, 1685-1694 (1980) (Eng).

220. Jackson, W. J., Jr., Liquid crystal polymers. 5. Liquid crystalline polyesters containing naphthalene rings, *Macromolecules* **16**, No. 7, 1027–1033 (1983) (Eng).
221. Jackson, W. J., Jr., Liquid crystal polymers. 6. Liquid-crystalline polyesters of substituted hydroquinones, in "Contemporary Topics in Polymer Science," vol. 5, Ed. E. J. Vandenberg, Plenum Publishing Corp. (New York), 177–208 (1984) (Eng).
222. Jerman, R. E., and Baird, D. G., Rheological properties of copolyester liquid-crystalline melts. I. Capillary rheometry, *J. Rheology* **25**, No. 2, 275–292 (1981) (Eng).
223. Jo, B. W., Lenz, R. W., and Jin, J. T., Liquid-crystalline polymers. 4. Thermotropic polyesters with main chain phenyl-1,4-phenylene, 4,4'-biphenylene and 1,1'-binaphthyl-4,4'-ylene units, *Makromol. Chem., Rapid Commun.* **3**, No. 1, 23–28 (1982) (Eng).
224. Jo, B. W., Jin, J. T., and Lenz, R. W., Liquid-crystalline polymers. IV. Synthesis and properties of main chain thermotropic polyester with disiloxane spacers, *European Polym. J.* **18**, No. 3, 233–240 (1982) (Eng).
225. Kasuya, S., Sasaki, S., Watanabe, J., Fukuda, Y., and Uematsu, I., Thermotropic cholesteric mesophases in copoly (-gamma-n-alkyl-L-glutamate)s, *Polymer Bull.* **7**, Nos. 5–6, 231–248 (1982) (Eng).
226. Khodzhaeva, V. L., Shishkina, M. V., Grebneva, V. S., and Konstantinov, I. I., Study of orientational properties of thermotropic liquid-crystalline polymer with side mesogenic groups by IR-spectroscopy method, *Vysokomol. Soedin. Ser. A* **25**, No. 3, 612–616 (1983) (Russ).
227. Kimura, M., and Porter, R. S., Compatibility of poly(buthylene terephthalate) with a liquid crystal copolyester, *J. Polym. Sci., Polym. Phys. Ed.* **22**, No. 9, 1697–1699 (1984) (Eng).
228. Kléman, M., Liébert, L., and Strzelecki, L., Preliminary observations of defects in a polymeric nematic phase, *Polymer* **21**, No. 3, 295–299 (1983) (Eng).
229. Konstantinov, I. I., Sitnov, A. A., Grebneva, V. S., and Amerik, Y. B., The effect of chemical constitution of mesogenic monomers unit on liquid crystal properties of polymers, *European Polym. J.* **19**, No. 4, 327–332 (1983) (Eng).
230. Konstantinov, I. I., Plotnikova, Y. P., Grebneva, V. S., Dreval', V. Y., and Amerik, Y. B., Study of temperature transitions in comb-like polymers with mesogenic substituents by linear dilatometry method, *Vysokomol. Soedin. Ser. B* **26**, No. 3, 201–204 (1984) (Russ).
231. Konstantinov, I. I., Amerik, Y. B., and Sitnov, A. A., Effect of shape of mesogenic group on the formation of liquid-crystalline phase in polymers, *European Polym. J.* **20**, No. 11, 1127– (1984) (Eng).
232. Konstantinov, I. I., Amerik, Y. B., Alexandrov, A. I., and Pashkova, T., Structure of polymers with phenyl benzoate side groups by X-ray evidence, *Mol. Cryst. Liq. Cryst.* **110**, Nos. 1–4, 121–133 (1984) (Eng).
233. Kostromin, S. G., Sinitzyn, V. V., Tal'roze, R. V., Shibaev, V. P., and Platé, N. A., Thermotropic liquid-crystalline polymers. 10. Influence of molar mass of liquid crystal polymer on mesophase properties, *Makromol. Chem., Rapid Commun.* **3**, No. 11, 803–808 (1982) (Eng).
234. Kostromin, S. G., Sinitzyn, V. V., Tal'roze, R. V., Shibaev, V. P., and Platé, N. A., Thermotropic liquid-crystalline polymers. 11. Smectic "C" phase in liquid-crystalline polyacrylates with CN containing mesogenic groups, *Makromol. Chem., Rapid Commun.* **3**, No. 11, 809–814 (1982) (Eng).
235. Kostromin, S. G., Sinitzyn, V. V., Tal'roze, R. V., and Shibaev, V. P., The structure of thermotropic liquid-crystalline polymers with cyan-containing mesogenic groups, *Vysokomol. Soedin. Ser. A* **26**, No. 2, 335–344 (1984) (Russ).
236. Krentsel, B. A., Polymerization in mesophases, in "Polymerization of Organized Systems," Midland macromolecular monographs, vol. 3, Ed. H. G. Elias, Gordon and Breach (New York), 177–192 (1977) (Eng).
237. Kresse, H., and Tal'roze, R. V., Dielectric investigations on a comb-like polymer

- with a liquid-crystalline phase, *Makromol. Chem., Rapid Commun.* **2**, Nos. 6–7, 369–374 (1981) (Eng).
238. Kresse, H., Kostromin, S., and Shibaev, V. P., Thermotropic liquid-crystalline polymers. 10. Comparative dielectric investigations of smectic and nematic polymers, *Makromol. Chem., Rapid Commun.* **3**, No. 7, 509–513 (1982) (Eng).
 239. Kresse, H., and Shibaev, V. P., Thermotropic liquid-crystalline polymers. 13. Dielectric studies on part oriented liquid-crystalline polymers with a comb-like structure, *Zeit. Phys. Chem.* **264**, No. 1, 161–164 (1983) (Eng).
 240. Kreuder, W., and Ringsdorf, H., Liquid-crystalline polymers with disc-like mesogens, *Makromol. Chem., Rapid Commun.* **4**, No. 12, 807–815 (1983) (Eng).
 241. Krigbaum, W. R., and Lader, H. J., Electric field-induced flow instabilities in low molecular weight and polymeric nematics, *Mol. Cryst. Liq. Cryst.* **62**, Nos. 1–2, 87–102 (1980) (Eng).
 242. Krigbaum, W. R., Lader, H. J., and Ciferri, A., Electrohydrodynamic instabilities in thermotropic nematic polymers, *Macromolecules* **13**, No. 3, 554–559 (1980) (Eng).
 243. Krigbaum, W. R., Ciferri, A., Asrar, J., Toriumi, H., and Preston, J., A polyester forming a thermotropic cholesteric phase, *Mol. Cryst. Liq. Cryst.* **76**, Nos. 1–2, 79–92 (1981) (Eng).
 244. Krigbaum, W. R., Grantham, C. E., and Toriumi, H., Electrohydrodynamic instability in the nematic phase of a homopolyester from 4,4'-dihydroxy α -methylstilbene, *Macromolecules* **15**, No. 2, 592–596 (1982) (Eng).
 245. Krigbaum, W. R., The effects of external fields on polymeric nematic and cholesteric mesophases, in "Polymer Liquid Crystals," Materials Science and Technology series, Eds. A. Ciferri, W. Krigbaum, and R. Meyer, Academic Press (New York) 275–308 (1982) (Eng).
 246. Krigbaum, W. R., Asrar, J., Toriumi, H., Ciferri, A., and Preston, J., Aromatic polyesters forming thermotropic smectic mesophases, *J. Polym. Sci., Polym. Lett. Ed.* **20**, No. 2, 109–115 (1982) (Eng).
 247. Krigbaum, W. R., Ishikawa, I., Watanabe, J., Horiumi, H., Kubota, K., and Preston, J., Thermotropic homopolyesters. III. Preparation and properties of polymers based on 4'-hydroxy-phenyl-4'-hydroxy-cinnamate, *J. Polym. Sci., Polym. Phys. Ed.* **21**, No. 9, 1851–1872 (1983) (Eng).
 248. Krigbaum, W. R., and Watanabe, J., Thermotropic homopolyesters. Investigation of the smectic phase of polyesters based on p,p'-bi-benzoic acid, *Polymer* **24**, No. 10, 1299–1307 (1983) (Eng).
 249. Kronberg, B., Bassignana, I., and Patterson, D., Phase diagrams of liquid crystal + polymer systems, *J. Phys. Chem.* **82**, No. 15, 1714–1719 (1978) (Eng).
 250. Kronberg, B., and Patterson, D., Polymer molecular weight determination using liquid crystals, *Macromolecules* **12**, No. 5, 916–919 (1979) (Eng).
 251. Kuzma, M. R., Mean field study of effects of longitudinal flow on nematic polymer solutions, *Mol. Cryst. Liq. Cryst.*, **101**, Nos. 3–4, 351–366 (1983).
 252. Kuznetsov, N. A., Moiseenko, V. M., Roganova, Z. A., Smolyanskii, A. L., and Shibaev, V. P., Influence of the hydrogen bond on the stabilization of the intermolecular structure of comb-like polymers with amide groups in the side chain, *Vysokomol. Soedin. Ser. A* **19**, No. 2, 399–408 (1977) (Russ).
 253. Kuznetsov, D. V., and Khokhlov, A. R., Thermodynamic conditions of the formation of smectic mesophase in melts of comb-like polymers with rigid residues in side chains, *Vysokomol. Soedin. Ser. B* **24**, No. 6, 418–420 (1982) (Russ).
 254. Kyotani, M., and Kanetsuna, H., Phase transitions and structural properties of a thermotropic polyester, *J. Polym. Sci., Polym. Phys. Ed.* **21**, No. 3, 379–387 (1983) (Eng).
 255. Lader, H. J., and Krigbaum, W. R., Thermal behavior of co(ethylene terephthalate)-p-oxybenzoate, *J. Polym. Sci., Polym. Phys. Ed.* **17**, No. 10, 1661–1674 (1979) (Eng).
 256. Lans, M., Angeloni, A. S., Ferruti, P., Galli, G., and Chiellini, E., Thermotropic

- liquid-crystalline poly(β -thioesters), *J. Polym. Sci., Polym. Lett. Ed.* **22**, No. 11, 587–593 (1984) (Eng).
257. Lenz, R. W., and Jin, J. I., Liquid crystal polymers. 3. Thermotropic rigid aromatic copolyesters with bisphenol spacers, *Macromolecules* **14**, No. 5, 1405–1410 (1981) (Eng).
 258. Lenz, R. W., Jin, J. I., and Freichtinger, K. A., Crystallization-induced reactions of copolymers: 6. Reorganization of polyesters in the liquid crystal state, *Polymer* **24**, No. 3, 327–334 (1983) (Eng).
 259. Lenz, R. W., and Grune, G. L., The synthesis and characterization of thermotropic liquid crystal model compounds, *Mol. Cryst. Liq. Cryst.* **106**, Nos. 3–4, 383–399 (1984) (Eng).
 260. Lenz, R. W., and Jin, J. I., Effect of mesogenic unit and spacer structures on the thermotropic properties of main chain liquid crystal polyester, in "Liquid Crystals and Ordered Fluids," vol. 4, Eds. A. C. Griffin and J. F. Johnson, Plenum Press (New York), 347–362 (1984) (Eng).
 261. Liébert, L., Strezelecki, L., Van Luyen, D., and Levelut, A. M., Etude structurale aux rayons X d'un polyester nematique thermotrope, *European Polym. J.* **17**, No. 1, 71–76 (1981) (Fr).
 262. Lipatov, Y. S., Tsukruk, V. V., Shilov, V. V., Grebneva, V. S., Konstantinov, I. I., and Amerik, Y. B., Liquid crystalline ordering in the range of comb-like polymers based on phenylbenzoates with alkoxyl substituted of various length, *Vysokomol. Soedin. Ser. B* **23**, No. 11, 818–825 (1981) (Russ).
 263. Lipatov, Y. S., Tsukruk, V. V., Shilov, V. V., Konstantinov, I. I., and Amerik, Y. B., X-ray study of polymer liquid crystals on the basis of p-oxy-p'-n-amylox-yazobenzene, *Vysokomol. Soedin. Ser. A* **23**, No. 7, 1533–1539 (1981) (Russ).
 264. Lipatov, Y. S., Tsukruk, V. V., Shilov, V. V., Amerik, Y. B., and Konstantinov, I. I., Structural features of liquid crystalline state of poly-p-(meth)-acryloxy-p-n-pentyloxy azobenzenes in terms of X-ray evidence and Fourier analysis of intensity curves, in "Advances in Liquid Crystal Research and Applications," Ed. L. Bata, Pergamon Press, Akadémiai Kiadó, 943–957 (1981) (Eng).
 265. Laptov, Y. S., Tsukruk, V. V., Shilov, V. V., Grebneva, V. S., Konstantinov, I. I., and Amerik, Y. B., Liquid-crystalline ordering in the range of comb-like polymers on the basis of phenylbenzoates with alkoxyl substituent of various length, *Vysokomol. Soedin. Ser. B* **23**, No. 11, 818–824 (1981) (Russ).
 266. Lipatov, Y. S., Tsukruk, V. V., Shilov, V. V., Konstantinov, I. I., and Amerik, Y. B., X-ray study of polymer liquid crystals on the basis of p-oxy-p'-n-amyloxy-azobenzene, *Vysokomol. Soedin. Ser. A* **23**, No. 7, 1533–1539 (1981) (Russ).
 267. Lipatov, Y. S., Tsukruk, V. V., Shilov, V. V., Amerik, Y. B., and Konstantinov, I. I., Structural features of liquid-crystalline state of azobenzene monomers and azo-benzene based polymers, *Ukr. Fiz. Zh.* **27**, No. 2, 209–214 (1982) (Russ).
 268. Lipatov, Y. S., Tsukruk, V. V., and Shilov, V. V., An analysis of small-angle X-ray scattering by smectic polymers, *Ukr. Fiz. Zh.* **28**, No. 4, 543–548 (1983) (Russ).
 269. Lipatov, Y. S., Tsukruk, V. V., and Shilov, V. V., On the possibility of micro-phase separation in liquid-crystalline polymers, *Polymer Commun.* **24**, No. 3, 75–76 (1983) (Eng).
 270. Lipatov, Y. S., Tsukruk, V. V., Shilov, V. V., Konstantinov, I. I., and Amerik, Y. B., On the character of disposition of main chains in liquid-crystalline polymers, *Vysokomol. Soedin. Ser. B* **25**, No. 10, 726–727 (1983) (Russ).
 271. Lipatov, Y. S., Tsukruk, V. V., and Shilov, V. V., Recent successes in structural studies of thermotropic liquid crystal polymers, *J. Makromol. Sci., Rev. in Makromol. Chem. and Phys.* **C24**, No. 2, 173–238 (1984) (Eng).
 272. Lupinacci, D., Frosini, V., and Magagnini, P. L., Mesomorphic structure of a homopolymer of n-(4-biphenyl)acrylamide and of copolymers with 4-biphenyl acrylate, *Makromol. Chem., Rapid Commun.* **1**, No. 11, 671–676 (1980) (Eng).

273. Mackley, M., Pinaud, F., and Sickman, G., Observation of disclinations and optical anisotropy in a mesomorphic copolyester, *Polymer* **22**, No. 4, 437-446 (1981) (Eng).
274. Magagnini, P. L., Andruzzi, F., and Benetti, G. F., Studies of comb-like polymers. 1. poly(octadecylethylene), *Macromolecules* **13**, No. 1, 12-14 (1980) (Eng).
275. Magagnini, P. L., Lupinacci, D., Cotrozzi, F., and Anduzzi, F., Studies on comb-like polymers. 4. Calorimetric study of stereoregular and poly(1-alkylethylene oxide)s, *Makromol. Chem., Rapid Commun.* **1**, No. 9, 557-562 (1980) (Eng).
276. Magagnini, P. L., Structure and properties of polymers with strongly anisomeric side groups, *Makromol. Chem., Suppl.* **4**, 223-240 (1981) (Eng).
277. Magagnini, P. L., Frosini, V., Lupinacci, D., and Bresci, B., Polymer mesophases studies on the smectic-isotropic transition of poly-p-biphenyl acrylate, in "Advances in Liquid Crystal Research and Applications," Ed. L. Bata, Pergamon Press, Akadémiai Kiadó, 925-942 (1981) (Eng).
278. Maissa, P., Ten Bosch, A., and Sixou, P., Phase transition of nematic polymers in elongational flow, *J. Polym. Sci., Polym. Lett. Ed.* **21**, No. 9, 757-765 (1983) (Eng).
279. Maissa, P., Ten Bosch, A., and Sixou, P., Asymptotic behavior of the mean field theory for semirigid polymers: the liquid-crystalline case, *J. Chem. Phys.* **81**, No. 6, 2858-2860 (1984) (Eng).
280. Majnusz, J., Catala, J. M., and Lenz, R. W., Liquid-crystalline polymers—structure-property relationships in a series of thermotropic poly-(2-n-alkyl-1,4-phenylene) Terephthalates, *European Polym. J.* **19**, Nos. 10-11, 1043-1046 (1983) (Eng).
281. Makaruk, L., and Polanska, H., Effect of molecular structure of rigid flexible polyesters on their thermotropic liquid-crystalline properties, in "Liquid Crystals and Ordered Fluids," vol. 4, Eds. A. C. Griffin, and J. F. Johnson, Plenum Press (New York), 155-174 (1984) (Eng).
282. Mark, H. F., Polymers for extreme service conditions, Review, *Macromolecules* **10**, No. 5, 881-888 (1977) (Eng).
283. Malanga, C., Spassky, N., Menicagli, R., and Chiellini, E., Chiral liquid-crystalline polymers. 2. Synthesis of optically active oligoethers of (s) 1,2 propanediol, *Polymer Bull.* **9**, Nos. 6-7, 336-343 (1983) (Eng).
284. Maret, G., and Blumstein, A., Orientation of thermotropic liquid-crystalline polyesters in high magnetic fields, *Mol. Cryst. Liq. Cryst.* **88**, Nos. 1-4, 295-310 (1982) (Eng).
285. Marrucci, G., Prediction of Leslie coefficients for rodlike polymer nematics, *Mol. Cryst. Liq. Cryst. Lett.* **72**, Nos. 5-6, 153-162 (1981) (Eng).
286. Martinoty, P., Dubault, A., Casagrande, C., and Veyssie, M., Flexible polymers in a nematic medium—ultrasonic measurements, *J. Phys. Lett. (Paris)* **44**, No. 23, L 935-L 945 (1983) (Eng).
287. Martins, A. F., Ferreira, J. B., Volino, F., Blumstein, A., and Blumstein, R., NMR study of some thermotropic nematic polyesters with mesogenic elements and flexible spacers in the main chain, *Macromolecules* **16**, No. 2, 279-286 (1983) (Eng).
288. McFarlane, F. E., Nicely, V. A., and Davis, T. G., Liquid crystal polymers. 2. Preparation and properties of polyesters exhibiting liquid-crystalline melts, in "Contemporary Topics in Polymer Science," vol. 2, Eds. E. M. Pearce, and J. R. Schaefgen, Plenum Press (New York), 109-142 (1977) (Eng).
289. McIntyre, J. E., and Mibburn, A. H., Thermotropic liquid-crystalline polyesters and polyesteramides, *British Polym. J.* **13**, No. 1, 5-10 (1981) (Eng).
290. Menczel, J., and Wunderlich, B., Phase transitions in mesophase monomolecules: the transitions of poly(p-acryloyloxy-benzoic acid), *Polymer* **22**, No. 6, 778-782 (1981) (Eng).
291. Merienne, C., Liébert, L., and Strzelecki, L., Etude structurale et essai de

- détermination des poids moléculaires de polyesters mésomorphes par RNM de haute résolution a haut champ, *European Polym. J.* **18**, No. 2, 137–140 (1982) (Fr).
292. Meurisse, P., Friedrich, C., Dvolaizky, M., Lauprêtre, F., Noel, C., and Monnerie, L., ESR investigation of molecular motion in thermotropic liquid-crystalline polyesters containing nitroxide spin probes, *Macromolecules* **17**, No. 1, 72–83 (1984) (Eng).
 293. Meurisse, P., Noel, C., and Monnerie, L., Polymers with mesogenic elements and flexible spacers in the main chain: aromatic-aliphatic polyesters, *British Polym. J.* **13**, No. 2, 55–63 (1981) (Eng).
 294. Meurisse, P., Lauprêtre, F., and Noel, C., Polyesters with mesogenic elements and flexible spacers in the main chain: a further investigation by conformational energy calculations, *Mol. Cryst. Liq. Cryst.* **110**, 41–58 (1984) (Eng).
 295. Meyer, R., Macroscopic phenomena in nematic polymers, in "Polymer Liquid Crystals," Materials Science and Technology series, Eds. A. Ciferri, W. Krigbaum, and R. Meyer, Academic Press (New York), 133–164 (1982) (Eng).
 296. Millaud, B., Thierry, A. et Skoulios, A., Role de la masse moleculaire dans l'apparition des phase nématique thermotropes, *Mol. Cryst. Liq. Cryst. Lett.* **41**, No. 10, 263–268 (1978) (Fr).
 297. Millaud, B., Thierry, A., Strazielle, C., and Skoulios, A., Mesophases thermotropes de poly(azométhines) a chaînes "souples," *Mol. Cryst. Liq. Cryst. Lett.* **49**, No. 10, 299–306 (1979) (Fr).
 298. Mitchell, G. R., and Windle, A. H., Structural analysis of an oriented liquid-crystalline copolyester, *Polymer* **23**, No. 9, 1269–1272 (1982) (Eng).
 299. Mitchell, G. R., and Windle, A. H., Conformational analysis of oriented non-crystalline polymers using wide-angle X-ray scattering, *Colloid and Polym. Sci.* **260**, No. 8, 754–761 (1982) (Eng).
 300. Mitchell, G. R., and Windle, A. H., Measurement of molecular orientation in thermotropic liquid-crystalline polymers, *Polymer* **24**, No. 12, 1513–1520 (1983) (Eng).
 301. Morgan, P. W., Synthesis and properties of aromatic and extended chain polyamides, *Macromolecules* **10**, No. 6, 1381–1389 (1977) (Eng).
 302. Mousa, A. M., Freidzon, Y., Shibaev, V., and Platé, N., Thermotropic liquid-crystalline polymers. 8. Optical and structural properties of new nematic and cholesteric polymorphism, *Polymer Bull.* **6**, Nos. 8–9, 485–492 (1982) (Eng).
 303. Mueller, K., Wassmer, K. H., Lenz, R. W., and Kothe, G., Spin probe study of molecular order in a liquid-crystalline polymer, *J. Polym. Sci., Polym. Lett. Ed.* **21**, No. 10, 785–789 (1983) (Eng).
 304. Nesterov, V. V., Turkova, L. D., Shepelevskii, A. A., and Beleu'kii, B., Study of thermotropic polymeric liquid crystals with the aid of reversed gas chromatography, *Vysokomol. Soedin. Ser. B* **25**, No. 9, 630–635 (1983) (Russ).
 305. Newman, B. A., Frosini, V., and Magagnini, P. L., Influence of mesomorphic order on physical properties of poly(para-biphenyl acrylate) and related polymers, in "Mesomorphic Order in Polymers and Polymerization in Liquid Crystal Media", Ed. A. Blumstein, American Chemical Society (Washington), 71–85 (1978) (Eng).
 306. Noel, C., and Billard, J., Identification de la mesophase d'une copolyazométhine par isomorphisme, *Mol. Cryst. Liq. Cryst. Lett.* **41**, No. 10, 269–274 (1978) (Fr).
 307. Noel, C., Monnerie, L., Achard, M., Hardouin, F., Sigaud, G., and Gasparoux, H., Orientation of nematic liquid-crystalline polymer in a magnetic field. Evaluation of magnetic susceptibility, *Polymer* **22**, No. 5, 578–580 (1981) (Eng).
 308. Noel, C., Fridrich, C., and Bosio, L., Thermotropic liquid-crystalline polyesters with terphenyl moieties and flexible "either" spacers in the main chain, *Polymer* **25**, No. 9, 1281–1290 (1984) (Eng).
 309. Noel, C., Friedrich, C., Lauprêtre, F., Billard, J., Bosio, L., and Strazielle, C.,

- Polymers with mesogenic elements in the main chain: a nematic aromatic copolyester, *Polymer* **25**, No. 2, 263–273 (1984) (Eng).
310. Noel, C., Lauprêtre, F., Fridrich, C., Fayollé, B., and Bosio, L., Synthesis and mesomorphic properties of a new thermotropic liquid-crystalline “backbone” copolyester, *Polymer* **25**, No. 6, 808–814 (1984) (Eng).
 311. Nyitrai, K., Cser, F., Lengyel, M., Seyfried, E., and Hardy, G., Polymerization in liquid crystals. II. Copolymerization of p-methyl-p-acryloyloxy-azoxybenzene and cholesteryl vinyl succinate in the mesophase, *European Polym. J.* **13**, No. 8, 673–678 (1977) (Eng).
 312. Nyitrai, K., Cser, F., Csermely, G., Ngoc Bui Doc, Füzes, L., Samay, G., and Hardy, G., Polymerization in liquid crystals. IV. The polymerization of cholesteryl-vinyl-succinate, *European Polym. J.* **14**, No. 7, 467–474 (1978) (Eng).
 313. Nyitrai, K., Cser, F., and Hardy, G., Polymerization in liquid crystals. V. Synthesis of polymerizable compounds with a liquid crystalline state, *Acta Chimica Acad. Sci. Hung.* **102**, No. 4, 361–370 (1979) (Eng).
 314. Nyitrai, K., Cser, F., Parragh, L., and Hardy, G., Copolymerization of cholesterol based mesogenic monomers, *Acta Chimica Acad. Sci. Hung.* **114**, Nos. 3–4, 223–234 (1983) (Eng).
 315. Ober, C. K., Jin, J. I., and Lenz, R. W., Liquid crystalline polymers. 5. Thermotropic polyesters with either dyad or triad aromatic ester mesogenic units and flexible polymethylene spacers in the main chain, *Polymer J.* **14**, No. 1, 9–18 (1982) (Eng).
 316. Ober, C. K., Lenz, R. W., Galli, G., and Chiellini, E., Liquid crystal polymers. 12. Polyesters with either alternating or random orientation of mesogenic units, *Macromolecules* **16**, No. 7, 1034–1036 (1983) (Eng).
 317. Ober, C. K., Jin, J. I., and Lenz, R. W., Liquid crystal polymers. Pt. 13. A smectic aromatic polyesters with triad mesogenic groups and a polymethylene spacer in the main chain, *Makromol. Chem., Rapid Commun.* **4**, No. 2, 49–55 (1983) (Eng).
 318. Ober, C. K., Jin, J. I., and Lenz, R. W., Liquid crystal polymers with flexible spacers in the main chain, in “Liquid Crystal Polymers I, Advances in Polymer Science,” vol. 59, Eds. M. Gordon, and N. A. Platé, 103–146 (1984) (Eng).
 319. Onogi, S., and Asada, T., Rheology and rheo-optics of polymer liquid crystals, in “Rheology,” vol. 1, Principles, Eds. G. Astarita, G. Marrucci, and L. Nicolas, Plenum Press (New York), 127–147 (1980) (Eng).
 320. Ophir, Z., and Ide, Y., Injection molding of thermotropic liquid-crystalline polymers, *Polym. Eng. and Sci.* **23**, No. 14, 792–796 (1983) (Eng).
 321. Oppermann, W., Braatz, K., Finkelmann, H., Gleim, W., Kock, H. J., and Rehage, G., Viscoelastic properties of silicone polymers with liquid-crystalline behavior, *Rheol. Acta* **21**, Nos. 4–5, 423–426 (1982) (Eng).
 322. Osada, Y., and Blumstein, A., Liquid-crystalline order in copolymers of cholesteryl methacrylate with n-alkyl methacrylate, *J. Polym. Sci., Polym. Lett. Ed.* **15**, No. 12, 761–768 (1977) (Eng).
 323. Paleos, C. M., Filippakis, S. E., and Margomenou-Leonidopoulou, G., A novel method for the synthesis of liquid-crystalline polymers. Preparation by the interaction of poly acryloyl chloride with mesogenic compounds, *J. Polym. Sci., Polym. Chem. Ed.* **19**, No. 6, 1427–1435 (1981) (Eng).
 324. Paleos, C. M., Margomenou-Leonidopoulou, G., Filippakis, S. E., and Malliaris, A., Thermotropic liquid crystal polymers. II. Further examples of their synthesis by the interaction of poly(acryloyl chloride) with mesogenic compounds, *J. Polym. Sci. Polym. Chem. Ed.* **20**, No. 8, 2267–2275 (1982) (Eng).
 325. Perplies, E., Ringsdorf, H., and Wendorff, J. H., Investigations of monomeric and polymeric Schiff bases exhibiting mesophasic behavior, in “Polymerization of Organized Systems. Midland macromolecular monographs,” vol. 3, Ed. H. G. Elias, Gordon and Breach (New York), 149–164 (1977) (Eng).

326. Pincus, P., Dynamics of stretched polymer chains, *Macromolecules* **10**, No. 1, 210–212 (1977) (Eng).
327. Pincus, P., and De Gennes, P. G., Nematic polymers. Rigid chain polymers synthesis and properties, *J. Polym. Sci., Polym. Symp.* (Pt. C) No. 65, 85–90 (1978) (Eng).
328. Piskunov, M. V., Kostromin, S. G., Stroganov, L. B., Platé, N. A., and Shibaev, V. P., Thermotropic liquid-crystalline polymers. 9. Proton magnetic resonance study of orientation of liquid-crystalline comb-shaped polymers in a magnetic field, *Makromol. Chem., Rapid Commun.* **3**, No. 6, 443–448 (1982) (Eng).
329. Platé, N. A., and Shibaev, V. P., Thermotropic liquid-crystalline polymers, *J. Polym. Sci., Polym. Symp.* (Pt. C) No. 67, 1–16 (1980) (Eng).
330. Platé, N. A., Tal'roze, R. V., and Shibaev, V. P., Thermotropic liquid-crystalline polymers in electric and magnetic fields, *Pure Appl. Chem.* **56**, No. 3, 403–417 (1984) (Eng).
331. Platé, N. A., and Shibaev, V. P., Thermotropic liquid-crystalline polymers—problems and trends, in “Molecular and spermo-molecular order in polymers,” Eds. H. Staudinger, H. Hoecker, W. Kern-Huethig, and H. Wepf (1984) (Eng).
332. Poddubnyi, V. I., Baranov, V. G., Frenkel', S. Y., and Leosko, E. A., Thermotropic mesomorphic state of oriented-crystallized polyethylene, *Vysokomol. Soedin. Ser. B* **21**, No. 11, 818–819 (1979) (Russ).
333. Pogodina, N. V., and Tsvetkov, V. N., Electrooptical properties of comb-like polymers with mesogenic fragments situated in various distance from the main chain, *Vysokomol. Soedin. Ser. A* **24**, No. 11, 2275–2281 (1982) (Russ).
334. Portugal, M., Ringsdorf, H., and Zentel, R., Synthesis and phase behavior of liquid-crystalline polyacrylates, *Makromol. Chem.* **183**, No. 10, 2311–2321 (1982) (Eng).
335. Pranoto, H., and Haase, W., On the electrical switching properties of polymeric liquid crystals, *Mol. Cryst. Liq. Cryst.* **98**, Nos. 1–4, 299–308 (1983) (Eng).
336. Preston, J., Synthesis and properties of rodlike condensation polymers in “Liquid Crystalline Order in Polymers”, Ed. A. Blumstein, Academic Press (New York), 141–166 (1978) (Eng).
337. Rehage, G., Viscoelastic properties of silicone polymers with liquid crystalline behavior, *Rheol. Acta* **21**, Nos. 4–5, 423–426 (1982) (Eng).
338. Ringsdorf, H., and Schneller, A., Synthesis, structure and properties of liquid-crystalline polymers, *British Polym. J.* **13**, No. 2, 43–46, (1981) (Eng).
339. Ringsdorf, H., and Zentel, R., Liquid-crystalline side chain polymers and their behavior in the electric field, *Makromol. Chem.* **183**, No. 5, 1245–1256 (1982) (Eng).
340. Ringsdorf, H., Schmidt, H. W., and Schneller, A., Miscibility studies of polymeric and low molecular weight liquid crystals and their behavior in an electric field, *Makromol. Chem. Rapid Commun.* **3**, No. 10, 745–751 (1982) (Eng).
341. Ringsdorf, H., and Schneller, A., Liquid-crystalline side chain polymers with low glass transition temperatures, *Makromol. Chem., Rapid Commun.* **3**, No. 8, 557–562 (1982) (Eng).
342. Ringsdorf, H., and Schmidt, H. W., Electro-optical effects of azo dye containing liquid-crystalline copolymers, *Makromol. Chem.* **185**, No. 7, 1327–1334 (1984) (Eng).
343. Ronca, G., and Yoon, D. Y., Theory of nematic systems of semiflexible polymers. I. High molecular weight limit, *J. Chem. Phys.* **76**, No. 6, 3295–3299 (1982) (Eng).
344. Ronca, G., and Yoon, D. Y., Theory of nematic systems of semiflexible polymers. II. Chains of finite length in the bulk, *J. Chem. Phys.* **80**, No. 2, 925–929 (1984) (Eng).
345. Roviello, A., and Sirigu, A., Mesomorphic behavior of some aliphatic esters of 4,4'-dihydroxy- α -methylstilbene, *Gazz. Chim. Ital.* **107**, Nos. 5–6, 333–338 (1977) (Eng).

346. Roviello, A., and Sirigu, A., Poly(oxytetradecanedioxy)-1,4-phenylene-(2-methylvinylene)-1,4-phenylene-polymer showing monotropic mesomorphism, *Makromol. Chem.* **180**, No. 10, 2543 (1979) (Eng).
347. Roviello, A., and Sirigu, A., Mesomorphic polymers. Co-polyalkanoates of 4,4'-di-hydroxy d,d'-dimethylbenzalazine, *European Polym. J.* **15**, No. 1, 61-67 (1979) (Eng).
348. Roviello, A., and Sirigu, A., Mesophasic behavior of some polycarbonates of 4,4' dihydroxy-d-d'-dimethylbenzalazine, *European Polym. J.* **15**, No. 5, 423-430 (1979) (Eng).
349. Roviello, A., and Sirigu, A., Mesophasic polymers containing ($-\text{CH}_2-\text{CH}_2-\text{O}-$) groups in the flexible part of the chain, *Gazz. Chim. Ital.* **110**, No. 7-8, 403-412 (1980) (Eng).
350. Roviello, A., and Sirigu, A., A mesophasic polymer-poly(oxydodecano-dioxy-1,4-phenylene-2-methylvinylene-1,4-phenylene), *Makromol. Chem.* **181**, No. 9, 1799-1806 (1980) (Eng).
351. Roviello, A., and Sirigu, A., Polymorphic behavior of poly [oxyoctane-dioxy-1,4-phenylene-(1-methylvinylene)-1,4-phenylene] and poly[oxydecanedioxy-1,4-phenylene-(1-methylvinylene)-1,4-phenylene] *Makromol. Chem.* **182**, No. 2, 409-416 (1982) (Eng).
352. Roviello, A., and Sirigu, A., Odd-even effects in polymeric liquid crystals, *Makromol. Chem.* **183**, No. 4, 895-904 (1982) (Eng).
353. Roviello, A., Santagata, S., and Sirigu, A., Mesophasic properties of linear copolymers: Pt. 5. *Makromol. Chem., Rapid Commun.* **4**, No. 5, 281-284 (1983) (Eng).
354. Roviello, A., Santagata, S., and Sirigu, A., Linear copolymers with smectogenic properties, *Makromol. Chem., Rapid Commun.* **5**, No. 3, 41-43 (1984) (Eng).
355. Saeva, F. D., and Noopan, J., Investigations on liquid crystal polymers. Extrinsic circular dichroism in amorphous and liquid crystal phases in a cholesteric polymer, *Makromol. Chem., Rapid Commun.* **5**, No. 9, 529-534 (1984) (Eng).
356. Saeva, F. D., Photochemical and spectroscopic behavior of some liquid crystalline polymer systems, *Makromol. Chem., Suppl.* **5**, 58-69 (1981) (Eng).
357. Samulski, E. T., and Du Pre, D. B., Polymeric liquid crystals, in "Advances in Liquid Crystals," vol. 4, Ed. G. Brown, Academic Press (New York), 121-145 (1979) (Eng).
358. Samulski, E. T., Polymeric liquid crystals, *Phys. Today* **35**, No. 5, 40-47 (1982) (Eng).
359. Samulski, E. T., Gauthier, M. M., Blumstein, R. B., and Blumstein, A., Alkyl chain order in a linear polymeric liquid crystal, *Macromolecules* **17**, No. 3, 479-481 (1984) (Eng).
360. Schleier, G., Galli, G., and Chiellini, E., Chiral liquid-crystalline polymers. 1. Synthesis and properties of glycidyl ethers containing anisotropic groups, *Polymer Bull.* **6**, No. 10, 529-534 (1982) (Eng).
361. Sergot, P., Lauprêtre, F., Louis, C., and Virlet, J., Proton-decoupled ^{13}C solid state NMR: a lineshape study of molecular motion in a mesomorphic aryl-aliphatic polyesters, *Polymer* **22**, No. 9, 1150-1152 (1981) (Eng).
362. Seurin, M. J., Ten Bosch, A., and Sixou, P., Thermotropic behavior of polysocyanates, *Polymer Bull.* **10**, Nos. 9-10, 434-438 (1983) (Eng).
363. Seurin, M. J., Ten Bosch, A., and Sixou, P., Phase studies of liquid crystal polymers: hydroxypropyl cellulose, *Polymer Bull.* **9**, Nos. 8-9, 450-456 (1983) (Eng).
364. Seurin, M. J., Gilli, J. M., Ten Bosch, A., and Sixou, P., Mesomorphic transitions in a mixture of a flexible and a semi-rigid polymer, *Polymer* **25**, No. 8, 1073-1077 (1984) (Eng).
365. Shannon, P. J., Photopolymerization in cholesteric mesophases, *Mol. Cryst. Liq. Cryst.* **110**, Nos. 1-4, 135-144 (1984) (Eng).
366. Shibaev, V. P., Moiseenko, V. M., Lukin, N. I., and Platé, N. A., Phase trans-

- formations in liquid-crystal comb-like polymers, *Dokl. Akad. Nauk SSSR* **237**, No. 2, 401–404 (1977) (Russ).
367. Shibaev, V. P., Freidzon, Y. S., Agranovich, V. D., Pautov, V. D., Anufrieva, E. V., and Platé, N. A., The role of intramolecular structure formation in the realization of liquid-crystal state of cholesterol-containing polymers, *Dokl., Akad. Nauk SSSR* **232**, No. 2, 401–404 (1977) (Russ).
 368. Shibaev, V. P., Freidzon, Y. S., and Platé, N. A., Structure and properties of liquid-crystalline cholesterol-containing polymers, *Vysokomol. Soedin. Ser. A* **20**, No. 1, 82–92 (1978) (Russ).
 369. Shibaev, V. P., Platé, N. A., and Freidzon, Y. S., Thermotropic cholesterol-containing liquid-crystalline polymers, in "Mesomorphic Order in Polymers and Polymerization in Liquid Crystal Media," Ed. A. Blumstein, *American Chemical Society* (Washington), 33–54 (1978) (Eng).
 370. Shibaev, V. P., Moiseenko, V. M., Kukin, N. Y., Kuznetsov, N. A., Roganova, Z. A., Smolyansky, A. L., and Platé, N. A., Comb-like liquid-crystalline polymers with side groups modelling the type of liquid crystals, *Vysokomol. Soedin. Ser. A* **20**, No. 9, 2122–2135 (1978) (Russ).
 371. Shibaev, V. P., Platé, N. A., and Freidzon, Y. S., Thermotropic liquid crystal polymers. I. Cholesterol-containing polymers and copolymers, *J. Polym. Sci., Polym. Chem. Edn.* **17**, No. 6, 1655–1670 (1979) (Eng).
 372. Shibaev, V. P., Tal'roze, R. V., Karakhanova, F. I., and Platé, N. A., Thermotropic liquid-crystalline polymers. II. Polymers with amino acid fragments in the side chains, *J. Polym. Sci., Polym. Chem. Edn.* **17**, No. 6, 1671–1684 (1979) (Eng).
 373. Shibaev, V. P., Kharitonov, A. V., Freidzon, Y. S., and Platé, N. A., The synthesis and study of the structure of polymers and copolymers of cholesterol ester of methacryloyl- ω -oxypentadecanoic acid, *Vysokomol. Soedin. Ser. A* **21**, No. 8, 1849–1854 (1979) (Russ).
 374. Shibaev, V. P., Platé, N. A., Smolyansky, A. L., and Voloskov, A. Y., Thermotropic liquid crystal polymers. 4. Study of crystalline and liquid crystal comb-like polymers with mesogenic side groups by IR spectroscopy, *Makromol. Chem.* **181**, No. 7, 1393–1403 (1980) (Eng).
 375. Shibaev, V. P., Moiseenko, V. M., Freidzon, Y. S., and Platé, N. A., Specific features of liquid-crystalline comb-like polymers with mesogenic groups, *European Polym. J.* **16**, No. 3, 277–282 (1980) (Eng).
 376. Shibaev, V. P., Moiseenko, V. M., and Platé, N. A., Thermotropic liquid crystalline polymers. 3. Comb-like polymers with side chains simulating the smectic type of liquid crystals, *Makromol. Chem.* **181**, No. 7, 1381–1392 (1980) (Eng).
 377. Shibaev, V. P., Kostromin, S. G., Tal'roze, R. V., and Platé, N. A., Orientational effects in thermotropic liquid-crystalline polymers, *Dokl. Akad. Nauk SSSR* **259**, No. 5, 1147–1151 (1981) (Eng).
 378. Shibaev, V. P., Finkelmann, H., Kharitonov, A. V., Portugal, M., Platé, N. A., and Ringsdorf, H., Liquid crystal copolymers of cholesteric type, *Vysokomol. Soedin. Ser. A* **23**, No. 4, 919–924 (1981) (Russ).
 379. Shibaev, V. P., Structure of thermotropic smectic polymers, in "Advances in Liquid Crystal Research and Applications," Ed. L. Bata, Pergamon Press, *Akadémiai Kiadó*, 869–897 (1981) (Eng).
 380. Shibaev, V. P., Moiseenko, V. M., Smolyanskii, A. L., and Platé, N. A., Crystalline and liquid-crystalline structure of polymers with biphenyl fragments in side branchings, *Vysokomol. Soedin. Ser. A* **23**, No. 9, 1969–1977 (1981) (Russ).
 381. Shibaev, V. P., Kulichikhin, V. G., Kostromin, S. G., Vasilieva, V. V., Braverman, L. P., and Platé, N. A., Peculiarities of the rheological properties of thermotropic liquid-crystalline polymers, *Dokl. Akad. Nauk SSSR* **263**, No. 1, 152–155 (1982) (Russ).
 382. Shibaev, V. P., Kostromin, S. G., and Platé, N. A., Thermotropic liquid crystal

- polymers. VI. Comb-like liquid crystal polymers of the smectic and nematic types with cyanobiphenyl groups in the side chains, *European Polym. J.* **18**, No. 8, 651-659 (1982) (Eng).
383. Shibaev, V. P., and Platé, N. A., Thermotropic polymers—modern state and perspectives, *Zh. Vses. Khim. Obst. Mendeleeva* **28**, No. 2, 165-175 (1983) (Russ).
 384. Shibaev, V. P., Kostromin, S. G., Platé, N. A., Ivanov, S. A., Vetrov, V. J., and Yakovlev, I. A., Thermotropic liquid crystal polymers. 14. Thermorecording on liquid crystal polymers with the aid of a laser beam, *Polymer* **24**, No. 12, 364-365 (1983) (Eng).
 385. Shibaev, V. P., and Platé, N. A., Thermotropic liquid crystal polymers with mesogenic side groups, in "Advances in Polymer Science," vol. 60/61, Liquid Crystal Polymers II/III, Eds. M. Gordon and N. A. Platé, Springer-Verlag (Berlin) 173- (1984) (Eng).
 386. Shibaev, V. P., Kozlovsky, M. V., Beresnev, L. A., Blinov, L. M., and Platé, N. A., Thermotropic liquid-crystalline polymers. 16. Chiral smectic "C" with spontaneous polarization, *Polymer Bull.* **12**, No. 4, 299-302 (1984) (Eng).
 387. Shilov, V. V., Taukrak, V. V., Bliznyk, V. N., and Lipatov, Y. S., Microheterogeneous structure of liquid crystal polymers, *Polymer* **23**, No. 4, 484-486 (1982) (Eng).
 388. Shilov, V. V., Tsukruk, V. V., and Lipatov, Y. S., Thermal effects on liquid crystalline order in polymers with mesogenic side groups, *J. Polym. Sci., Polym. Phys. Ed.* **22**, No. 1, 41-48 (1984) (Eng).
 389. Shimamura, K., White, J. L., and Fellers, J. F., Hydroxypropylcellulose, a thermotropic liquid crystal: characteristics and structure development in continuous extrusion and melt spinning, *J. Appl. Polym. Sci.* **26**, No. 7, 2165-2180 (1981) (Eng).
 390. Shtennikova, I. N., Peker, T. V., Kolbina, G. F., Petrov, V. R., Grebneva, V. S., Konstantinov, I. I., and Amerik, Y. B., Conformation and optical anisotropy of comb-like macromolecules with mesogenic side groups, *Vysokomol. Soedin. Ser. A* **24**, No. 10, 2047-2052 (1982) (Russ).
 391. Shuto, Y., Yamamoto, F., and Yamakawa, S., Fibre strain-induced during heat cycle in liquid crystal polyester jacket optical fibre, *El. Lett.* **20**, No. 20, 1-2 (1984) (Eng).
 392. Sigaud, G., Yoon, D. Y., and Griffin, A. C., Order in nematic phase of semi-flexible polymers, *Macromolecules* **16**, No. 6, 875-880 (1983) (Eng).
 393. Simoff, D. A., and Porter, R. G., Rheology and properties of thermotropic liquid crystalline poly(bisphenole isophthalate-co-naphthalate), *Mol. Cryst. Liq. Cryst.* **110**, Nos. 1-4, 1-26 (1984) (Eng).
 394. Simon, R., and Coles, H. J., Investigations of smectic polysiloxanes—Electric field induced turbulence, *Mol. Cryst. Liq. Cryst. Lett.* **102**, No. 2, 43-48 (1984) (Eng).
 395. Smolyanskii, A. L., and Shibaev, V. P., Effect of hydrogen bond on intramolecular structure of comb-like polymers with functional groups in side chains, *Vysokomol. Soedin. Ser. A* **21**, No. 10, 2221-2228 (1979) (Russ).
 396. Solensky, P. J., and Casassa, E. F., Perturbation theory of dimensions of comb-like polymer chains with branches randomly spaced along the backbone, *Macromolecules* **13**, No. 3, 500-505 (1980) (Eng).
 397. Springer, J., and Weigelt, F. W., Properties of liquid-crystalline polymers in solution. 1. Determination of the molecular weight of polymethacrylates with mesogenic sidegroups, *Makromol. Chem.* **184**, No. 7, 1489-1496 (1983) (Eng).
 398. Stamatoff, J. B., X-ray diffraction studies of liquid-crystalline polymers, *Mol. Cryst. Liq. Cryst.* **110**, Nos. 1-4, 75-91 (1984) (Eng).
 399. Stevens, H., Rehage, G., and Finkelmann, H., Phase transformations of liquid-crystalline side-chain oligomers, *Macromolecules* **17**, No. 4, 851-855 (1984) (Eng).

400. Strzelecki, L., and Van Luyen, D., Influence de la structure sur les propriétés mésomorphes des polyesters I, *European Polym. J.* **16**, No. 4, 299–302 (1980) (Fr).
401. Strzelecki, L., and Liébert, L., Influence de la structure sur les propriétés mésomorphes des polyesters III, *European Polym. J.* **17**, No. 12, 1271–1280 (1981) (Fr).
402. Sun, Zheng-Min, and Kléman, M., Measurement of the three elastic constants and the shear viscosity γ in a main-chain nematic polymer, *Mol. Cryst. Liq. Cryst.* **111**, Nos. 3–4, 321–328 (1984) (Eng).
403. Suto, S., White, J. L., and Fellers, J. F., A comparative study of the thermotropic mesomorphic tendencies and rheological characteristics of three cellulose derivatives—ethylene and propylene oxide ethers and an acetate butyrate ester, *Rheol. Acta* **21**, No. 1, 62–71 (1982) (Eng).
404. Takeuchi, Y., Yamamoto, F., and Yamakawa, S., Shear-induced orientation of a liquid crystal copolyester, *Polymer J.* **16**, No. 7, 579–582 (1984) (Eng).
405. Tal'roze, R. V., Karakhanova, F. I., Borisova, T. I., Burshtein, L. I., Nikonorova, N. A., Shibaev, V. P., and Platé, N. A., Liquid-crystalline polymers with aminoacidic fragments in side chains, *Vysokomol. Soedin. Ser. A* **20**, No. 8, 1835–1844 (1978) (Russ).
406. Tal'roze, R. V., Kostromin, S. G., Shibaev, V. P., Platé, N. A., Kresse, H., Sauer, K., and Demus, D., Thermotropic liquid crystal polymers. 5. Electro-optical phenomena in liquid-crystalline polymers, *Makromol. Chem., Rapid Commun.* **2**, No. 4, 305–309 (1981) (Eng).
407. Tal'roze, R. V., Sinitzyn, V. V., Shibaev, V. P., and Platé, N. A., Influence of the structure of mesogenic groups on the structure and dielectric properties of the comb-like liquid crystal azomethyne-containing polymers, in "Advances in Liquid Crystal Research and Applications," Ed. L. Bata, Pergamon Press, *Akadémiai Kiadó*, 915–924 (1981) (Eng).
408. Tal'roze, R. V., Synitzyn, V. V., Shibaev, V. P., and Platé, N. A., Thermotropic liquid crystal polymers. 7. New cooperative structure transition in liquid-crystalline polymers induced by an electric field, *Polymer Bull.* **6**, Nos. 5–6, 309–314 (1982) (Eng).
409. Tal'roze, R. V., Synitzyn, V. V., Shibaev, V. P., and Platé, N. A., Thermotropic liquid crystal polymers. V. Structure of liquid-crystalline polymeric azomethyenes, *Mol. Cryst. Liq. Cryst.* **80**, Nos. 1–4, 211–222 (1982) (Eng).
410. Tal'roze, R. V., Shibaev, V. P., and Platé, N. A., Thermotropic liquid-crystalline polymers in electric and magnetic fields (Review), *Vysokomol. Soedin. Ser. A* **25**, No. 12, 2467–2487 (1983) (Russ).
411. Tal'roze, R. V., Sinitzyn, V. V., Kroobeinikova, I. A., Shibaev, V. P., and Platé, N. A., Peculiarities of orientation of liquid-crystalline comb-like polymers in an electric field, *Dokl. Akad. Nauk SSSR* **274**, No. 5, 1149–1152 (1984) (Russ).
412. Ten Bosch, A., Maissa, P., and Sixou, P., A Landau-de Gennes theory of nematic polymers, *J. Phys. Lett. (Paris)* **44**, L-105–L-111 (1983) (Eng).
413. Ten Bosch, A., Maissa, P., and Sixou, P., Effect of the flexibility on the phase transition of polymeric liquid crystals, *Phys. Lett.* **94A**, Nos. 6–7, 298–300 (1983) (Eng).
414. Ten Bosch, A., Maissa, P., and Sixou, P., Molecular model for nematic polymer in liquid crystal solvents, *J. Chem. Phys.* **79**, No. 7, 3462–3466 (1983) (Eng).
415. Ten Bosch, A., Maissa, P., and Sixou, P., Mesomorphic polymer solutions, *Nuovo Cimento* **3D**, No. 1, 95–103 (1984) (Eng).
416. Terentiev, E. M., Pikin, S. A., On the possibility of ferroelectricity in liquid-crystalline polymers, *Ferroelectrics* **58**, Nos. 1–4, **59**, Nos. 1–2, 331–341 (1984) (Eng).
417. Thapar, H., and Bevis, M., The micromorphology of an injection moulded thermotropic liquid-crystalline polymer, *J. Mater. Sci. Lett.* **2**, No. 12, 737–740 (1983) (Eng).

418. Thapar, H., and Bevis, M., The micromorphology of an injected moulded thermotropic liquid-crystalline polymer, *J. Mater. Sci. Lett.* **2**, No. 12, 733–736 (1983) (Eng).
419. Thomas, O., and Asrar, J., The existence of two distinct levels of order in thermotropic nematic polyesters, *Mol. Cryst. Liq. Cryst. Lett.* **92**, No. 3, 87–97 (1983) (Eng).
420. Tsay, J., Volksen, W., and Economy, J., The role of sequence distribution on liquid-crystalline properties of aromatic copolyesters, in "Liquid Crystals and Ordered Fluids," vol. 4, Eds. A. C. Griffin and J. F. Johnson, Plenum Press (New York), 363–373 (1984) (Eng).
421. Tseng, So-Lan, Valente, A., and Gray, D. G., Cholesteric liquid crystal phase based on (atoxypropyl)cellulose, *Macromolecules* **14**, No. 3, 715–718 (1981) (Eng).
422. Tseng, So-Lan, Laivins, G. V., and Gray, D. G., Propanoate ester of (2-hydroxypropyl) cellulose: a thermotropic cholesteric polymer that reflects visible light at ambient temperatures, *Macromolecules* **15**, No. 5, 1262–1263 (1982) (Eng).
423. Tsukruk, V. V., Shilov, V. V., Lipatov, Y. S., Konstantinov, I. I., and Amerik, Y. B., The structure of p-n-alkoxy-benzoic acid esters in the liquid crystalline state, *Acta Polymerica* **33**, No. 1, 63–69 (1982) (Eng).
424. Tsukruk, V. V., Shilov, V. V., Konstantinov, I. I., Lipatov, Y. S., and Amerik, Y. B., X-ray diffraction studies on liquid-crystalline order in vinyl polymers with mesogenic side-groups, *European Polym. J.* **18**, No. 11, 1015–1020 (1982) (Eng).
425. Tsukruk, V. V., Shilov, V. V., and Lipatov, Y. S., Change of the structure of liquid crystal polymers with mesogenic side groups by temperature change, *Makromol. Chem.* **183**, No. 8, 2009–2019 (1982) (Eng).
426. Tsukruk, V. V., Shilov, V. V., Grebneva, V. S., Konstantinov, I. I., Lipatov, Y. S., and Amerik, Y. B., Thermal changes in polymers with liquid crystal order, *Mol. Cryst. Liq. Cryst. Lett.* **82**, No. 7, 215–220 (1982) (Eng).
427. Tsukruk, V. V., Shilov, V. V., Lipatov, Y. S., Grebneva, V. S., Konstantinov, I. I., and Amerik, Y. B., Influence of the length of the spacer group on the character of the liquid-crystalline ordering in polymers with phenylbenzoate side groups, *Vysokomol. Soedin. Ser. A* **25**, No. 4, 679–686 (1983) (Russ).
428. Tsukruk, V. V., Shilov, V. V., Lipatov, Y. S., Konstantinov, I. I., and Amerik, Y. B., Structural features of smectic ordering in polymers with acrylate and methacrylate main chain, *Vysokomol. Soedin. Ser. A* **25**, No. 3, 526–531 (1983) (Russ).
429. Tsukruk, V. V., Shilov, V. V., and Lipatov, Y. S., Studies on one-dimensional order in smectic polymers. Analysis of small-angle X-ray scattering and correlation functions, *European Polym. J.* **19**, No. 3, 199–204 (1983) (Eng).
430. Tsukruk, V. V., Shilov, V. V., and Lipatov, Y. S., Supermolecular structure of liquid crystal polymer with mesogenic side groups and brominated main chain, *Polymer Commun.* **24**, No. 9, 260–262 (1983) (Eng).
431. Tsukruk, V. V., Lokhonya, O. A., Shilov, V. V., Kuzmina, V. A., and Lipatov, Y. S., Changes of liquid-crystalline polymer structure with temperature. 3. Melting of the smectic B mesophase, *Makromol. Chem., Rapid Commun.* **4**, No. 9, 595–600 (1983) (Eng).
432. Tsukruk, V. V., Shilov, V. V., Lokhonya, O. A., and Lipatov, Y. S., Changes of liquid-crystalline polymer structure with temperature: 4. Kinetics of mesoplate formation from isotropic melt, *Polymer Bull.* **11**, No. 6, 561–567 (1984) (Eng).
433. Van Luyen, D., Liébert, L., and Strzelecki, L., Nouveaux types de polyesters chiraux, *European Polym. J.* **16**, No. 4, 307–308 (1980) (Fr).
434. Van Luyen, D., and Strzelecki, L., Influence de la structure sur les propriétés mésomorphes des polyesters II, *European Polym. J.* **16**, No. 4, 303–306 (1980) (Fr).
435. Vasilenko, S. V., and Shibaev, V. P., Thermotropic liquid crystal polymers. 13. Liquid-crystalline ordering of polymers with stiff and flexible fragments in the

- main chain, *Makromol. Chem., Rapid Commun.* **3**, No. 12, 917–921 (1982) (Eng).
436. Vasilenko, S. V., Khokhlov, A. R., and Shibaev, V. P., Liquid-crystalline ordering in melts of macromolecules with rigid and flexible fragments within the main chain, *Vysokomol. Soedin. Ser. A* **26**, No. 3, 606–614 (1984) (Russ).
437. Vasilenko, S. V., Khokhlov, A. R., and Shibaev, V. P., Theory of liquid-crystalline ordering in melts of macromolecules with stiff and flexible fragments in the main chain. 2. Effect of external orientational fields. *Macromolecules* **17**, No. 11, 2275–2280 (1984) (Eng).
438. Vasilenko, S. V., Khokhlov, A. R., and Shibaev, V. P., Theory of liquid crystalline ordering in melts of macromolecules with stiff and flexible fragments in the main chain, *Macromolecules* **17**, No. 11, 2270–2274 (1984) (Eng).
439. Vilasagar, S., and Blumstein, A., Cholesteric thermotropic polymers with mesogenic moieties and flexible spacers in the main chain, *Mol. Cryst. Liq. Cryst. Lett.* **56**, No. 8, 263–269 (1980) (Eng).
440. Viney, C., and Windle, A. H., Phase transformations in thermotropic liquid—crystalline polymers, *J. Mater. Sci.* **17**, No. 9, 2661–2670 (1982) (Eng).
441. Viney, C., Donald, A., and Windle, A. H., Optical microscopy of banded structures in oriented thermotropic polymers, *J. Mater. Sci.* **18**, No. 4, 1137–1142 (1983) (Eng).
442. Viney, C., Mitchell, G., and Windle, A. H., Optical microstructure of oriented liquid-crystalline polymers, *Polymer Commun.* **24**, No. 5, 145–146 (1983) (Eng).
443. Volchek, B. Z., Kholmuradov, N. S., Bilibin, A. Y., and Skorohodov, S., Specific features of the conformational state of polyesters with mesogenic groups and flexible spacers within the main chain, *Vysokomol. Soedin. Ser. A* **26**, No. 2, 328–334 (1984) (Russ).
444. Volksen, W., Lyerla, J. R., Jr., Economy, J., and Dawson, B., Liquid crystalline copolymers based on poly(p-oxybenzoate) and poly(p,p-biphenylene) terephthalate, *J. Polym. Sci., Polym. Chem. Ed.* **21**, No. 8, 2249–2259 (1983) (Eng).
445. Volino, F., Martins, A. F., Blumstein, R., and Blumstein, A., Evidence by proton NMR of the alignment of a thermotropic nematic polymer by a magnetic field of ~ 1 Tesla, *J. Phys. Lett. (Paris)* **42**, No. 13, L-305–L-307 (1981) (Eng).
446. Volino, F., Martins, A. F., Blumstein, R., and Blumstein, A., Evidence by proton NMR of the alignment of a thermotropic nematic polymer by a magnetic field of ~ 1 Tesla, *Compt. Rend. Acad. Sci. (Paris)* **292**, No. 11, 829–832 (1981) (Fr).
447. Volino, F., Allonneau, J. M., and Girond-Godquin, A. M., NMR study of segregation by molecular mass in a polydisperse nematic polymer, *Mol. Cryst. Liq. Cryst. Lett.* **102**, No. 1, 21–33 (1984) (Eng).
448. Vora, R. A., and Patel, R. G., Mesomorphic polymers—IV: Synthesis, characterization and evaluation of mesogenic and other physical properties of polyesters and polyamides obtained from 1,2-bis (4'-carboxy-phenoxy)ethane, *Mol. Cryst. Liq. Cryst.* **110**, Nos. 1–4, 109–120 (1984) (Eng).
449. Vora, R. A., Dixit, N., Karadakar, G. D., and Patel, R. G., Mesomorphic polymers. I. Thermotropic liquid-crystalline polymers from p-hydroxy-benzoic acid, *Mol. Cryst. Liq. Cryst.* **108**, Nos. 1–2, 187–197 (1984) (Eng).
450. Wang, C. S., and Yeh, G. S. Y., Effect of composition on molecular alignment in polyethylene terephthalate copolymers, *Polymer* **23**, No. 4, 505–508 (1982) (Eng).
451. Wassmer, K. H., Ohmes, E., Kothe, G., Portugal, M., and Ringsdorf, H., Structure and dynamics of liquid-crystalline side chain polymers—a spin probe study, *Makromol. Chem., Rapid Commun.* **3**, No. 5, 281–286 (1982) (Eng).
452. Watanabe, J., and Krigbaum, W. R., Crystalline and liquid crystal transitions of mesogenic polymer mixtures and random copolymers, *Macromolecules* **17**, No. 11, 2288–2295 (1984) (Eng).
453. Wendorff, J. H., and Finkelmann, H., Structure and morphology of liquid crystal polymers, *J. Polym. Sci., Polym. Symp. (Pt. C)* No. 63, 245–261 (1977).
454. Wendorff, J. H., Scattering in liquid-crystalline polymer systems, in "Liquid-

- crystalline Order in Polymers," Ed. A. Blumstein, Academic Press (New York), 1–42 (1978) (Eng).
455. Wendorff, J. H., Finkelmann, H., and Ringsdorf, H., X-ray diffraction studies of mesomorphic order in polymers, in "Mesomorphic Order in Polymers and Polymerization in Liquid Crystalline Media," Ed. A. Blumstein, American Chemical Society (Washington), 12–21 (1978) (Eng).
 456. Wendorff, J. H., Studies on the orientational order in polymeric liquid crystals by means of electric birefringence and small angle X-ray scattering, in "Molecular and Supermolecular Order in Polymers" Eds. H. Staudinger, H. Hoecker and W. Kern, Huethig und Wepf, Basel, 41–46 (1984) (Eng).
 457. Wang, C. S., and Yeh, G. S. Y., A DRDF study of liquid-crystalline poly(ethylene terephthalate) and p-hydroxybenzoic acid copolyesters, *Polymer* **18**, No. 10, 1085–1090 (1977) (Eng).
 458. Werbowyj, R. S., and Gray, D. G., Ordered phase formation in concentrated hydroxypropylcellulose solutions, *Macromolecules* **13**, No. 1, 69–73 (1980) (Eng).
 459. Wissbrun, K. F., Observations on the melt rheology of thermotropic aromatic polyesters, *British Polym J.* **12**, No. 4, 163–169 (1980) (Eng).
 460. Wissbrun, K. F., Rheology of soumit rod-like polymers in the liquid-crystalline state, *J. Rheol.* **25**, No. 6, 619–662 (1981) (Eng).
 461. Wissbrun, K. F., and Griffin, A. C., Rheology of a thermotropic polyester in the nematic and isotropic states, *J. Polym. Sci., Polym. Phys. Ed.* **20**, 1835–1845 (1982) (Eng).
 462. Wissbrun, K. F., Orientation development in liquid-crystalline polymers, in "Orienting polymers," Lecture Notes in Mathematics, Ed. J. L. Ericksen, Springer-Verlag (Berlin), 1–26 (1984) (Eng).
 463. Wittman, J. C., Lotz, B., Candau, F., and Kovacs, A., Liquid crystal textures in binary and ternary block copolymers-solvent systems, *J. Polym. Sci., Polym. Phys. Ed.* **20**, No. 8, 1341–1353 (1982) (Eng).
 464. Wunderlich, B., and Grebowicz, J., Thermotropic mesophases transitions in linear flexible macromolecules, in "Advances in Polymer Science" vol. 60/61, Liquid Crystal Polymers II/III, Eds. M. Gordon and N. A. Platé, Springer-Verlag (Berlin), 1–60 (1984) (Eng).
 465. Yablonski, S. V., Blinov, L. M., Kostromin, S. G., and Shibaev, V. P., Anisotropic properties of comb-like polymer liquid crystal, *Kristallografia* **29**, No. 5, 577–580 (1984) (Russ).
 466. Yamakawa, S., Shinto, Y., and Yamamoto, F., Transmission loss of thermotropic liquid-crystalline polyester-jacketed optical fibre at low temperature, *El. Lett.* **20**, No. 5, 199–201 (1984) (Eng).
 467. Zachariades, A. E., Navard, P., and Logan, J. A., Deformation studies of liquid-crystalline polymers, *Mol. Cryst. Liq. Cryst.* **110**, Nos. 1–4, 93–107 (1984) (Eng).
 468. Zentel, R., and Ringsdorf, H., Synthesis and phase behavior of liquid-crystalline polymers from chloroacrylates and methacrylates, *Macromol. Chem., Rapid Commun.* **5**, No. 7, 393–398 (1984) (Eng).
 469. Zharkova, G. M., Mamaev, V. P., Fokin, E. P., Khachatryan, V. M., and Shadrina, A. I., Optical properties of a polymer cholesteric liquid crystal pyrimidine system, *Izv. Sib. Otd. Nauk SSSR, Ser. Chim.* No. 3, 3–5 (1984) (Russ).
 470. Zhou, Q. F., and Lenz, R. W., Liquid crystal polymers.15. Synthesis and liquid-crystalline properties of alkyl substituted polyesters, *J. Polym. Sci., Polym. Chem. Ed.* **21**, No. 11, 3313–3320 (1983) (Eng).
 471. Zugenmaier, P., X-ray investigations on liquid-crystalline side-chain polymers, in "Molecular and Supermolecular Order in Polymers," Eds. H. Staudinger, H. Hoecker and W. Kern, Huethig und Wepf, Basel (Switzerland) (1984) (Eng).
 472. Zugenmaier, P., and Mügge, J., X-ray investigations on polymethyl-siloxanes with mesogenic side chains in the crystalline and smectic phase.1. poly (5-(4-(4-methoxy)phenoxy)carbonyl phenoxy) pentyl-methylsiloxane)), *Makromol. Chem., Rapid Commun.* **5**, No. 1, 11–20 (1984) (Eng).

2. RE-ENTRANT LIQUID CRYSTALS (at atmospheric pressure): PAPERS

473. Benguigui, L., and Hardouin, F., Reentrant nematic and smectic A phases: the dielectric approach, *J. Phys. Lett. (Paris)* **42**, No. 5, L-111—L-113 (1981) (Eng).
474. Berker, A. N., and Walker, J. S., Frustrated spin-gas model for doubly reentrant liquid crystals, *Phys. Rev. Lett.* **47**, No. 19, 1469–1472 (1981) (Eng).
475. Bhattacharya, S., and Letcher, S. V., Flow behavior of an oriented reentrant nematic liquid crystal, *Phys. Rev. Lett.* **44**, No. 6, 414–417 (1980) (Eng).
476. Billard, J., Torsion d'une mésophase cholesteric réentrante, *C. R. Acad. Sci. (Paris) Ser. 2* **292**, No. 12, 881–882 (1981) (Fr).
477. Bock, M., and Heppke, G., Some physical properties of re-entrant nematics, in "Advances in Liquid Crystal Research and Applications," Ed. L. Bata, Pergamon Press, *Akadémiai Kiadó*, 131–139 (1981) (Eng).
478. Bock, M., Göbl-Wünsch, A., and Heppke, G., Pre-transitional effects in the electrical conductivity of re-entrant nematogens, *Mol. Cryst. Liq. Cryst. Lett.* **72**, Nos. 9–10, 277–284 (1982) (Eng).
479. Bouchet, F. R., and Cladis, P. E., Density measurements of alloys exhibiting the re-entrant nematic phase, *Mol. Cryst. Liq. Cryst. Lett.* **64**, No. 3, 81–88 (1980) (Eng).
480. Chen, N. R., Hark, S. K., and Ho, J. T., Birefringence study of reentrant nematic liquid crystal mixtures, *Phys. Rev. A* **24**, No. 5, 2843–2846 (1981) (Eng).
481. Cladis, P. E., The re-entrant nematic enhanced smectic A phases and molecular composition, *Mol. Cryst. Liq. Cryst.* **67**, Nos. 1–2, 177–192 (1981) (Eng).
482. Cladis, P. E., Guillon, D., Bouchet, F. R., and Finn, P. L., Reentrant nematic transitions in cyano-octyloxy-biphenyl (80CB), *Phys. Rev. A* **23**, No. 5, 2594–2601 (1981) (Eng).
483. Coulon, C., and Prost, J., Simple example of fluctuation induced reentrant behavior, *J. Phys. Lett. (Paris)* **42**, No. 11, L-241–L-244 (1981) (Eng).
484. De Jeu, W. H., On the nematic, smectic and reentrant nematic phase of cyano-biphenylenes, *Sol. St. Commun.* **41**, No. 7, 529–532 (1982) (Eng).
485. Demus, D., Pelzl, G., Wiegeleben, A., and Weissflog, W., A new liquid crystalline substance exhibiting a reentrant nematic phase and two low-temperature smectic phases, *Mol. Cryst. Liq. Cryst. Lett.* **56**, No. 9, 289–294 (1980) (Eng).
486. Destrade, C., Foucher, P., Malthete, J., and Tinh, N. H., On a reentrant isotropic phase in disc-like liquid crystals, *Phys. Lett. A* **88**, No. 4, 187–190 (1982) (Eng).
487. Diele, S., Pelzl, G., Latif, I., and Demus, D., X-ray investigations of a reentrant nematic phase formed of terminal-nonpolar compounds, *Mol. Cryst. Liq. Cryst. Lett.* **92**, No. 1, 27–33 (1983) (Eng).
488. Dong, R. Y., Rotational viscosity in the smectic A phase of a reentrant nematic liquid crystal, *Mol. Cryst. Liq. Cryst. Lett.* **72**, Nos. 2–3, 59–64 (1981) (Eng).
489. Dong, R. Y., Proton spin relaxation in a reentrant nematic liquid crystal mixture, *Mol. Cryst. Liq. Cryst. Lett.* **64**, Nos. 7–8, 205–210 (1981) (Eng).
490. Dong, R. Y., NMR study of alloys exhibiting a reentrant nematic phase, *J. Chem. Phys.* **75**, No. 6, 2621–2625 (1981) (Eng).
491. Dong, R. Y., Frequency dependence study of the proton relaxation in the re-entrant nematic phase, *J. Chem. Phys.* **76**, No. 12, 5659–5661 (1982) (Eng).
492. Dong, R. Y., Molecular orientational order in reentrant nematic liquid crystals, *Mol. Cryst. Liq. Cryst. Lett.* **92**, Nos. 9–10, 251–256 (1984) (Eng).
493. Dowell, F., Ordered phases of rigid cores having semiflexible tails. II. Model for smectic A and reentrant nematic phases with hard repulsions, *Phys. Rev. A* **28**, No. 6, 3526–3535 (1983) (Eng).
494. Engelen, B., Heppke, G., Hopf, R., and Schneider, F., Renentrant nematic mixtures, *Mol. Cryst. Liq. Cryst. Lett.* **49**, No. 6, 193–197 (1979) (Eng).

495. Göbl-Wünsch, A., Heppke, G., and Hopf, R., Re-entrant nematic established for several homologous biaromatic liquid crystals by investigation of binary mixed systems, *Z. Naturforsch.* **36a**, No. 3, 213–221 (1981) (Eng).
496. Göbl-Wünsch, A., Heppke, G., and Hopf, R., Miscibility studies indicating low temperature smectic A phase in biaromatic liquid crystals with re-entrant behavior, *Z. Naturforsch.* **36a**, No. 11, 1201–1204 (1981) (Eng).
497. Goodby, J. W., Leslie, T. M., Cladis, P. E., and Finn, P. L., Characterization of two isomeric cyano-ester homologous series. I., in "Liquid Crystals and Ordered Fluids," Vol. 4, Eds. A. C. Griffin and J. F. Johnson, Plenum Press (New York), 89–110 (1984) (Eng).
498. Hardouin, F., and Levelut, A. M., X-ray study of the reentrant polymorphism $N-S_A-N-S_A$ in a pure liquid crystal compound, *J. Phys. (Paris)* **41**, No. 1, 41–46 (1980) (Eng).
499. Hardouin, F., Levelut, A. M., Achard, M. F., and Sigaud, G., Polymorphisme des substances mésogènes a molecules polaires. I. Physicochimie et structure, *J. Chim. Phys.* **80**, No. 1, 53–64 (1980) (Fr.).
500. Hardouin, F., Levelut, A. M., Tinh, N. H., and Sigaud, G., Polymorphism and X-ray diffraction of some cyano biphenyl-substituted benzoates exhibiting reentrant nematic phases, *Mol. Cryst. Liq. Cryst. Lett.* **56**, No. 2, 35–42 (1979) (Eng).
501. Hauser, A., Kresse, H., Pelzl, G., and Demus, D., Frequency dependence of the threshold voltage of the Frederiks effect in nematic and nematic reentrant phases, *Cryst. Res. Tech.* **16**, No. 9, 1055–1060 (1981) (Eng).
502. Heppke, G., Hopf, R., Kohn, B., and Praefcke, K., Homologous series of liquid crystals with re-entrant nematic and two smectic A phases, in "Advances in Liquid Crystal Research and Applications," Ed. L. Bata Pergamon Press, *Akadémiai Kiadó*, 141–146 (1981) (Eng).
503. Hida, K., A lattice model theory of reentrant nematic-smectic A transition, *J. Phys. Soc. Jpn.* **50**, No. 12, 3869–3875 (1981) (Eng).
504. Kondo, K., Takezoe, H., Fukuda, A., and Kuze, E., Reentrant distorted smectic C observed under electric field in ferroelectric smectic liquid crystals n OBAMBC, *Jpn. J. Appl. Phys.* **22**, No. 1, L-43–L-45 (1983) (Eng).
505. Kortan, A. R., Von Kanel, H., Birgeneaux, K., and Litster, J., High resolution X-ray scattering study of the nematic-smectic A -reentrant nematic transitions in 80CB/60CB mixtures, *Phys. Rev. Lett.* **47**, No. 17, 1209–1212 (1981) (Eng).
506. Kortan, A. R., Von Kanel, H., Birgeneau, R., and Litster, J. D., Nematic-smectic A -reentrant nematic transition in 80CB-60CB mixtures, *J. Phys. (Paris)* **45**, No. 3, 529–538 (1984) (Eng).
507. Legrand, C., Parneix, J. P., Chapoton, A., Tinh, N. H., and Destrade, C., Dielectric relaxation in liquid crystals exhibiting a reentrant phenomena, *J. Phys. Lett. (Paris)* **45**, No. 6, L-283–L-285 (1984) (Eng).
508. Longa, L., and De Jeu, W. H., Microscopic one-particle description of reentrant behavior in nematic liquid crystals, *Phys. Rev.* **A26**, No. 3, 1632–1647 (1982) (Eng).
509. Luckhurst, G. R., Smith, K. J., and Timimi, B. A., The orientational order of a re-entrant nematic phase: an electron resonance investigation, *Mol. Cryst. Liq. Cryst. Lett.* **56**, No. 10, 315–321 (1980) (Eng).
510. Luckhurst, G. R., and Timimi, B. A., A molecular theory of reentrant polymorphism in pure liquid crystals, *Mol. Cryst. Liq. Cryst. Lett.* **64**, Nos. 7–8, 253–259 (1981) (Eng).
511. Lushington, K. J., Kasting, G. B., and Garlan, C. W., Calorimetric investigation of a reentrant-nematic liquid crystal mixture, *Phys. Rev.* **B22**, No. 5, 2569–2572 (1980) (Eng).
512. Madhusudana, N. V., Sadashiva, B. K., and Moodithaya, K. P. L., Re-entrant nematic phase in pure compounds at atmospheric pressure, *Curr. Sci.* **48**, No. 14, 613–614 (1979) (Eng).

513. Miyajima, S., Akaba, K., and Chiba, T., Proton NMR study of pure liquid crystal exhibiting re-entrant phase transition, *Sol. St. Commun.* **49**, No. 6, 675–678 (1984) (Eng).
514. Pelzl, G., and Demus, D., Reentrant nematic and smectic C phases in binary systems of 4(beta-cyanethyl)phenyl 4-N-alkoxybenzoates, *Zeit. Chem.* **21**, No. 4, 151–152 (1981) (Eng).
515. Pelzl, G., Bottger, U., Kallweit, S., Demus, D., and Sackmann, H., Reentrant nematic phases in nitro compounds, *Cryst. Res. Technol.* **16**, No. 9, K 119–K 122 (1981) (Eng).
516. Pelzl, G., Diele, S., Wiegeleben, A., and Demus, D., Reentrant nematic and smectic C phases in binary systems of 4-(beta-cyanethyl)-phenyl-4-n-alkoxy-cinnamates, *Mol. Cryst. Liq. Cryst. Lett.* **64**, Nos. 5–6, 163–170 (1981) (Eng).
517. Pelzl, G., Bottger, U., and Demus, D., Reentrant nematic, smectic A and smectic C phases in binary mixtures, *Cryst. Res. Technol.* **16**, No. 5, K 67–K 71 (1981) (Eng).
518. Pelzl, G., Diele, S., Latif, I., Weissflog, W., and Demus, D., A reentrant nematic phase in the binary system of two terminal non-polar compounds, *Cryst. Res. Tech.* **17**, No. 7, K 78–K 82 (1982) (Eng).
519. Pelzl, G., Kalweit, S., Latif, I., and Weissflog, W., New two-ring compounds exhibiting reentrant nematic phases in binary mixtures, *Cryst. Res. Tech.* **17**, No. 9, K 95–K 99 (1982) (Eng).
520. Pelzl, G., Oertel, B., and Demus, D., Reentrant cholesteric phases in binary system, *Cryst. Res. Tech.* **18**, No. 1, K 18–K 20 (1983) (Eng).
521. Pershan, P. S., and Prost, J., Landau theory of the reentrant nematic-smectic A transition, *J. Phys. Lett. (Paris)* **40**, No. 1, L-27–L-30 (1979) (Eng).
522. Prost, J., Reflections on the reentrant nematic and S_A - S_a phase transition, in “Liquid Crystals of One and Two-Dimensional Order,” Eds. G. Heppke and W. Helfrich, Springer-Verlag (Berlin), 125–147 (1980) (Eng).
523. Ratna, B. R., Shashidhar, R., and Rao K. V., Experimental studies on the electrical conductivity of two re-entrant nematogens, *Mol. Cryst. Liq. Cryst.* **74**, Nos. 1–4 143–147 (1981) (Eng).
524. Ratna, B. R., Shashidhar, R., Bock, M. Göbl-Wünsch, A., and Heppke, G., Effect of smectic ordering on the dielectric properties of reentrant nematic mixtures, *Mol. Cryst. Liq. Cryst.* **99**, Nos. 1–4, 285–295 (1983) (Eng).
525. Sadachiva, B. K., Some comments on the effect of a lateral substituent on the reentrant nematic phase, *Mol. Cryst. Liq. Cryst.* **110**, Nos. 1–4, 309–314 (1984) (Eng).
526. Sakagami, S., Re-entrant liquid crystals as liquid-crystalline phases in gas-liquid chromatography, *J. Chromat.* **246**, No. 1, 121–125 (1982) (Eng).
527. Sigaud, G., Tinh, N. H., Hardouin, F., and Gasparoux, H., Occurrence of reentrant nematic and reentrant smectic A phases in mesogenic series, *Mol. Cryst. Liq. Cryst.* **69**, Nos. 1–2, 81–102 (1981) (Eng).
528. Sigaud, G., Guichard, Y., Hardouin, F., and Benguigui, L. G., Inverted reentrant nematic-smectic A—smectic C multicritical point, *Phys. Rev.* **A26**, No. 5, 3041–3043 (1982) (Eng).
529. Sigaud, G., Guichard, Y., Tinh, N. H., Hardouin, F., and Malthete, J., New topology for a nematic reentrant-smectic A—smectic C multicritical point, *Mol. Cryst. Liq. Cryst. Lett.* **92**, No. 8, 231–236 (1983) (Eng).
530. Suresh, K. A., Shashidhar, R., Heppke, G., and Hopf, R., Temperature variation of the layer spacing in the smectic A, reentrant nematic and reentrant smectic A phases of 9 OBCAB, *Mol. Cryst. Liq. Cryst.* **99**, Nos. 1–4, 249–253 (1983) (Eng).
531. Takase, A., and Sakagami, S., Infra-red spectroscopic study of reentrant liquid-crystalline N-(4-(4-octyloxy-benzoyloxy) benzylidene -4-cyanoaniline), *Jpn. J. Appl. Phys.* **23**, No. 11, 1532–1533 (1984) (Eng).

532. Takenaka, S., Nakai, H., and Kusabayashi, S., New liquid-crystalline material exhibiting a reentrant nematic phase, *Mol. Cryst. Liq. Cryst.* **100**, Nos. 3–4, 299–305 (1983) (Eng).
533. Tinh, N. H., and Gasparoux, H., New series exhibiting pure enantiotropic nematic reentrant compounds at atmospheric pressure, *Mol. Cryst. Liq. Cryst. Lett.* **49**, No. 9, 287–292 (1979) (Eng).
534. Tinh, N. H., Jousset-Dubien, M., and Destrade, C., Influence of the substituent on the reentrant phenomenon, *Mol. Cryst. Liq. Cryst. Lett.* **56**, No. 8, 257–262 (1980) (Eng).
535. Tinh, N. H., Zann, A., Dubois, J. C., and Billard J., Phase diagrams of new compounds with nematic reentrant mesophases, *Mol. Cryst. Liq. Cryst. Lett.* **56**, No. 10, 323–330 (1980) (Eng).
536. Tinh, N. H., Sigaud, G., Achard, M. F., Gasparoux, H., and Hardouin, F., Reentrant nematic and smectic A phases in the n-alkoxybenzoyloxy cyanostilbene series, in "Advances in Liquid Crystal Research and Applications," Ed. L. Bata, Pergamon Press, *Akadémiai Kiadó*, 147–155 (1981) (Eng).
537. Tinh, N. H., Malthete, J., and Destrade, C., Reentrant phenomena in disk-like liquid crystals, *Mol. Cryst. Liq. Cryst. Lett.* **64**, Nos. 9–10, 291–298 (1981) (Eng).
538. Tinh, N. H., and Destrade, C., Enantiotropic tetramorphism nematic-smectic A nematic—smectic A in the series of 4-cyano benzoyloxy-4'-alkyl (or alkoxy) -p-phenylene, *Nouv. J. Chim.* **5**, Nos. 5–6, 337–342 (1981) (Eng).
539. Tinh, N. H., Malthete, J., and Destrade, C., Reentrant nematic and columnar phases in disc-like liquid crystals at atmospheric pressure, *J. Phys. Lett. (Paris)* **42**, No. 18, L-417–L-419 (1981) (Eng).
540. Tinh, N. H., Destrade, C., Malthete, J., and Jacques, J., A pure reentrant cholesteric phase, *Mol. Cryst. Liq. Cryst. Lett.* **72**, Nos. 7–8, 195–200 (1982) (Eng).
541. Tinh, N. H., Destrade, C., and Gasparoux, H., Reentrant nematic phase with the new polymorphism $N-S_A-S_C-N_{re}-S_{A_{re}}$ in a mixture, *Mol. Cryst. Liq. Cryst. Lett.* **72**, Nos. 7–8, 247–253 (1982) (Eng).
542. Tinh, N. H., Hardouin, F., and Destrade, C., Three reentrant phenomena in a pure mesogen, *J. Phys. (Paris)* **43**, No. 7, 1127–1132 (1982) (Eng).
543. Tinh, N. H., Hardouin, F., Destrade, C., and Levelut, A. M., A reentrant polymorphism $N-S_A-S_C-N_{re}$, *J. Phys. Lett. (Paris)* **43**, No. 1, L-33–L-37 (1982) (Eng).
544. Tinh, N. H., Reentrant behavior and cyano-substituted aryl p-alkoxy-cinnamates, *Mol. Cryst. Liq. Cryst.* **91**, Nos. 3–4, 285–294 (1983) (Eng).
545. Tinh, N. H., Polymorphisme des substances mesogenes a molecules polaires III. Aspect moleculaire, *J. Chim. Phys.* **80**, No. 1, 83–98 (1983) (Fr).
546. Tinh, N. H. Foucher, P., Destrade, C., Levelut, A. M., and Malthete, J., Reentrant mesophase in disc-like liquid crystals, *Mol. Cryst. Liq. Cryst.* **111**, Nos. 3–4, 277–292 (1984) (Eng).
547. Urs, R. S. M., and Sadashiva, B. K., New compounds with reentrant nematic phases, *Mol. Cryst. Liq. Cryst. Lett.* **72**, Nos. 7–8, 227–232 (1982) (Eng).
548. Vani, G. W., The crystal and molecular structure of a reentrant nematogen 4-cyanophenyl-3-methyl-4'-(4"-n-undecyloxy cinnamoyloxy) benzoate, *Mol. Cryst. Liq. Cryst.* **98**, Nos. 1–4, 275–284 (1983) (Eng).
549. Vaz, N. A. P., Yaniv, Z., and Deane, J. W., New variant of reentrant polymorphism in liquid crystals, *Mol. Cryst. Liq. Cryst.* **101**, Nos. 1–2, 47–61 (1983) (Eng).
550. Vaz, N. A. P., Yaniv, Z., and Deane, J. W., Reentrant cholesteric phase, *Mol. Cryst. Liq. Cryst. Lett.* **92**, No. 3, 75–80 (1983) (Eng).
551. Vaz, N. A. P., and Deane, J. W., On the Landau description of the reentrant behavior in liquid crystals, *Mol. Cryst. Liq. Cryst.* **101**, Nos. 1–2, 35–45 (1983) (Eng).

552. Vaz, N. A. P., Yaniv, Z., and Deane, J. W., H NMR measurements of the molecular orientational ordering in reentrant liquid crystal mixtures, *Chem. Phys. Lett.* **98**, No. 4, 354–358 (1983) (Eng).
553. Vaz, N. A. P., Bacon, W. E., and Doane, J. W., Reentrant phases: a new potential for liquid crystal displays, OHMCON Proceedings, 14–3, 1 (1983) (Eng).
554. Weissflog, W., Sharma, N. K., Pelzl, G., and Demus, D., The re-entrant nematic phase of 4-n-octyloxybenzoyloxy-benzylidene-4'-cyanoaniline, *Krist. and Technol.* **15**, No. 1, K 35—K 38 (1980) (Eng).
555. Weissflog, W., Pelzl, G., Wiegeleben, A., and Demus, D., A new polymorphism variant nematic-smectic C—smectic A—nematic, *Mol. Cryst. Liq. Cryst. Lett.* **56**, No. 9, 295–301 (1980) (Eng).
556. Weissflog, W., Pelzl, G., and Demus, D., Chemical structure and reentrant behavior, *Mol. Cryst. Liq. Cryst.* **76**, Nos. 3–4, 261–268 (1981) (Eng).
557. Weissflog, W., Pelzl, G., and Demus, D., A new substance exhibiting a stable reentrant nematic phase, *Cryst. Res. Tech.* **16**, No. 5, K 79—K 81 (1981) (Eng).
558. Weissflog, W., and Pelzl, G., Para-cyano-substituted exibenzoates with 3 benzene rings—a new substance class with reentrant nematic phases, *Zeit. Chem.* **22**, No. 4, 142–143 (1982) (Eng).
559. Yamashita, M., and Kimura, H., Reentrant phase transition of chiral smectic C liquid crystal in electric field, *J. Phys. Soc. Jpn.* **52**, No. 5, 1509–1511 (1983) (Eng).
560. Zhong-Ying, C., and Deutch, J. M., Biaxial nematic phase, multiphase critical point and reentry transition in binary liquid crystal mixtures, *J. Chem. Phys.* **80**, No. 5, 2151–2162 (1984) (Eng).

3. Discotic liquid crystals: papers

561. Banville, M., Caille, A., and Albinet, G., Description of monolayers of discotic molecules at air-water interface with spin-one models including vacancies and vesting of pairs, *J. Phys. (Paris)* **46**, No. 1, 101–107 (1985) (Eng).
562. Baumann, C., Marcerou, J. P., Jouillon, J. C., and Prost, J., Pretransitional effects in isotropic phases close to N,N-discoid and columnar phases, *J. Phys. (Paris)* **45**, No. 3, 451–458 (1984) (Eng).
563. Béguin, A., Dubois, J. C., Le Barny, P., Billard, J., Bonamy, F., Buisine, J. M., and Cuvelier, P., Sources of thermodynamic data on mesogens, *Mol. Cryst. Liq. Cryst.* **115**, Nos. 1–4, 1–325 (1984) (Eng).
564. Billard, J., Dubois, J. C., Tinh, N. H., and Zann, A., Une mésophase disquotique nouveau, *J. de Chimie* **2**, No. 5, 535–540 (1978) (Fr).
565. Billard, J., and Sadashiva, B., Miscibility studies on disc-like molecules, *Pramana* **13**, No. 3, 309–318 (1979) (Eng).
566. Billard, J., Discotic mesophase, in “Liquid Crystals in One and Two-Dimensional Order,” Eds. G. Heppke, and W. Helfrich, Springer-Verlag (Berlin), 383–395 (1980) (Eng).
567. Billard, J., Dubois, J. C., Vauchier, C., and Levelut, A. M., Structure of the two discophases of rufigalleg hexa-n-octanoate, *Mol. Cryst. Liq. Cryst.* **66**, Nos. 1–2, 115–122 (1981) (Eng).
568. Billard, J., Discophase á la fois columnaire et lamellaire, *C. rend. Acad. Sci. (Paris)* Ser. 2, **299**, No. 14, 905–908 (1984) (Fr).
569. Bouligand, Y., Defects and textures of hexagonal discotics, *J. Phys. (Paris)* **44**, No. 11, 1307–1315 (1983) (Eng).
570. Brand, H., and Pleiner, H., Hydrodynamics of biaxial discotics, *Phys. Re.* **A24**, No. 5, 2777–2788 (1981) (Eng).

571. Brand, H., and Pleiner, H., Theory of flow alignment in biaxial nematics and nematic discotics, *J. Phys.* (Paris) **43**, No. 6, 853–858 (1982) (Eng).
572. Cagnen, M., Gharbia, M., and Durand, G., Column buckling instability in a discotic liquid crystal, *Phys. Rev. Lett.* **53**, No. 9, 938–940 (1984) (Eng).
573. Carlsson, T., The possibility of the existence of a positive Leslie viscosity α_2 prepared flow behavior of disk-like nematic liquid crystals, *Mol. Cryst. Liq. Cryst.* **89**, Nos. 1–4, 57–66 (1982) (Eng).
574. Carlsson, T., Remarks on the flow alignment of disclike nematics, *J. Phys.* (Paris) **44**, No. 8, 909–911 (1983) (Eng).
575. Chandrasekhar, S., Sadashiva, B., and Sureah, K., Liquid crystals of disc-like molecules, *Panama J. Phys.* **9**, No. 5, 471–480 (1977) (Eng).
576. Chandrasekhar, S., A new class of thermotropic liquid crystal materials, *Ind. J. Pure and Appl. Phys.* **19**, No. 9, 769–773 (1981) (Eng).
577. Chandrasekhar, S., New liquid-crystalline states, *Curr. Sci.* **50**, No. 2, 47–49 (1981) (Eng).
578. Chandrasekhar, S., Liquid crystals of disc-like molecules, *Mol. Cryst. Liq. Cryst.* **63**, Nos. 1–4, 171–180 (1981) (Eng).
579. Chandrasekhar, S., Liquid crystals of disc-like molecules, in “Advances in Liquid Crystals,” vol. 5, Ed. G. Brown, Academic Press (New York), 47–48 (1982) (Eng).
580. Chandrasekhar, S., Liquid crystals of disc-like molecules, *Phil. Trans. R. Soc. Lond.* **A309**, No. 1, 93–103 (1983) (Eng).
581. Chandrasekhar, S., Savithramma, K. L., and Madhusudana, N. V., Extension of McMillan's model to liquid crystals of disc-like molecules, in “Liquid Crystals and Ordered Fluids,” vol. 4, Eds., A. C. Griffin, and J. F. Johnson, Plenum Press (New York), 299–309 (1984) (Eng).
582. Cotrait, M., Marsan, P., Destrade, C., and Malthete, J., Crystalline arrangement of some disc-like compounds, *J. Phys. Lett.* (Paris) **40**, No. 18, L-519—L-522 (1979) (Eng).
583. Cotrait, M., Marsan, P., Pesquer, M., and Volpilhac, V., Molecular arrangement of mesogenic disc-like compounds: the hexa-n-alkoxy and hexa-n-alkanoyloxy triphenylenes, *J. Phys.* (Paris) **43**, No. 2, 355–359 (1982) (Eng).
584. De Gennes, P. G., “Pincement” de skoulios et structures incommensurables, *J. Phys. Lett.* (Paris) **44**, No. 16, L-657—L-664 (1983) (Fr).
585. Destrade, C., Mondon-Bernaud, M. C., and Tinh, N. H., Mesomorphic polymorphism in some disc-like compounds, *Mol. Cryst. Liq. Cryst. Lett.* **49**, No. 6, 169–174 (1979) (Eng).
586. Destrade, C., Tinh, N. H., Malthete, J., and Jacques, J., On a “cholesteric” phase in disc-like mesogens, *Phys. Lett.* **A79**, Nos. 2–3 (1980) (Eng).
587. Destrade, C., Malthete, J., Tinh, N. H., and Gasparoux, H., Truxene derivatives: temperature inverted N-columnar sequence in disc-like mesogens, *Phys. Lett.* **A78**, No. 1, 82–84 (1980) (Eng).
588. Destrade, C., Tinh, N. H., Gasparoux, H., Malthete, J., and Levelut, A., A disc-like mesogens: a classification, *Mol. Cryst. Liq. Cryst.* **71**, Nos. 1–2, 111–136 (1981) (Eng).
589. Destrade, C., Gasparoux, H., Babeau, A., Tinh, N. H., and Malthete, J., Truxene derivatives: a new family of disc-like liquid crystals with an inverted nematic-columnar sequence, *Mol. Cryst. Liq. Cryst.* **67**, Nos. 1–2, 37–48 (1981) (Eng).
590. Destrade, C., Tinh, N. H., Malthete, J., and Levelut, A. M., On the rectangular-hexagonal columnar phase transition in disc-like liquid crystals, *J. Phys.* (Paris) **44**, No. 5, 597–602 (1983) (Eng).
591. Destrade, C., Gasparoux, H., Foucher, P., Tinh, N. H., Maltete, J., and Jacques, J., Disc-like molecules and mesomorphic polymorphism, *J. Chim. Phys.* **80**, No. 1, 137–148 (1983) (Eng).
592. Destrade, C., Foucher, P., Gasparoux, H., and Tinh, N. H., Disc-like mesogen polymorphism, *Mol. Cryst. Liq. Cryst.* **106**, Nos. 1–2, 121–146 (1984) (Eng).

593. Dong, R. Y., Goldfarb, D., Moseley, M. E., and Luz, Z., Translational diffusion in discotic mesophases studied by the NMR pulsed gradient method, *J. Phys. Chem.* **88**, No. 14, 3148–3152 (1984) (Eng).
594. Dubois, J. C., Hareng, M., Le Berre, S., and Perbet, J. N., Dielectric and hydrodynamic instabilities in certain classes of discotic mesophases, *Appl. Phys. Lett.* **38**, No. 1, 11–13 (1981) (Eng).
595. Dubois, J. C., and Billard, J., Discotic mesophase: a complementary review, in "Liquid Crystals and Ordered Fluids," vol. 4, Eds. A. Griffin, and J. F. Johnson, Plenum Press (New York), 1043–1060 (1984) (Eng).
596. Dvolaitzky, M., and Billard, J., Elargissement de l'intervalle de température de stabilisation d'une phase discotique dans des mélanges binaires non idéaux, *Mol. Cryst. Liq. Cryst. Lett.* **64**, Nos. 7–8, 247–252 (1981) (Fr).
597. Feldkamp, G., Handschy, M., and Clark, N., Mean field theory of liquid crystalline phases of disc-shaped molecules, *Phys. Lett.* **A85**, Nos. 6–7, 359–362 (1981) (Eng).
598. Frank, F. C., and Chandrasekhar, S., Evidence of a tilted columnar structure for mesomorphic phases of benzene—hexa-n-alkaneates, *J. Phys. (Paris)* **41**, No. 11, 1285–1288 (1980) (Eng).
599. Frenkel, D., and Eppenga, R., Monte Carlo study of the isotropic-nematic transition in a fluid of thin hard disks, *Phys. Rev. Lett.* **49**, No. 15, 1089–1092 (1982) (Eng).
600. Foucher, P., Destrade, C., Tinh, N. H., Malthete, J., and Levelut, A. M., Hexaalkoxytruxene. A new series of disk-like mesogens, *Mol. Cryst. Liq. Cryst.* **108**, Nos. 3–4, 219–230 (1984) (Eng).
601. Fuguitte, R., Strezelecka, H., Zana, A., Dubois, J. C., and Billard, J., A discotic mesophase with binary or tetragonal symmetry, *J. Chem. Soc., Chem. Commun.* No. 6, 271–272 (1980) (Eng).
602. Gasparoux, H., Carbonaceous mesophase and disk-like molecules, in "Liquid Crystals in One and Two-Dimensional Order," Eds. G. Heppke, and W. Helfrich, Springer-Verlag (Berlin), 373–382 (1980) (Eng).
603. Gasparoux, H., Carbonaceous mesophase and disc-like nematic liquid crystals, *Mol. Cryst. Liq. Cryst.* **63**, Nos. 1–2, 231–248 (1981) (Eng).
604. Gasparoux, H., Achard, M. F., Hardouin, F., and Sigaud, G., Pressure-temperature phase diagrams of liquid crystals in disc-like material, *Compt. rend. Acad. Sci. (Paris) Ser. II*, **293**, No. 15, 1029–1032 (1981) (Fr).
605. Giannesi, C., Nematic-hexagonal discotic phase transition: pretransitional enhancement of elastic constants, *Phys. Rev.* **A28**, No. 1, 350–357 (1983) (Eng).
606. Godquin-Girond, A. M., and Billard, U., Un erganométrallique disquogène thermotrope, *Mol. Cryst. Liq. Cryst.* **66**, Nos. 1–2, 147–150 (1981) (Fr).
607. Godquin-Girond, A. M., and Billard, J., Thermotropic transition in discotic metal complexes and their smectogenic intermediates, *Mol. Cryst. Liq. Cryst.* **97**, Nos. 1–4, 287–295 (1983) (Eng).
608. Goldfarb, D., and Luz, Z., A deuterium NMR study of the discotic mesophase of hexahexyl-oxytriphenylene, *J. Phys. (Paris)* **42**, No. 9, 1303–1311 (1981) (Eng).
609. Goldfarb, D., Luz, Z., and Zimmermann, H., A deuterium NMR study of solute molecules dissolved in the discotic mesophase of p-n-hexahexyl-oxytriphenylene, *J. Phys. (Paris)* **43**, No. 2, 421–430 (1982) (Eng).
610. Goldfarb, D., Luz, Z., and Zimmermann, H., Solvation sites in mesophases of discotic liquid crystals, *J. Phys. (Paris)* **43**, No. 8, 1255–1258 (1982) (Eng).
611. Goldfarb, D., Poupke, R., and Luz, Z., Deuterium NMR of biaxial discotic liquid crystals, *J. Chem. Phys.* **79**, No. 8, 4035–4047 (1983) (Eng).
612. Goldfarb, D., Beisky, I., Luz, Z., and Zimmermann, H., Axial-biaxial phase transition in discotic liquid crystals studied by deuterium NMR, *J. Chem. Phys.* **79**, No. 12, 6203–6210 (1983) (Eng).
613. Goldfarb, D., Luz, Z., and Zimmermann, H., Deuterium NMR studies of discotic liquid crystals, *Isr. J. Chem.* **23**, No. 3, 341–352 (1983) (Eng).
614. Goodby, J. W., Robinson, P. S., Teo, B. K., and Cladis, P. E., The discotic

- phase of uro-porphyrin. I. Octa-n-dodecyl ester, *Mol. Cryst. Liq. Cryst. Lett.* **56**, No. 10, 303-309 (1980) (Eng).
615. Goozner, R. E., and Labes, M. M., Solute-solvent interactions in discotic mesophases, *Mol. Cryst. Liq. Cryst. Lett.* **56**, No. 3, 75-82 (1979) (Eng).
 616. Guillon, D., Skoulios, A., Piechocki, C., Simon, J., and Weber, P., Discotic mesophases of the metal-free derivative of octa(dodecyloxymethyl) phthalocyanine, *Mol. Cryst. Liq. Cryst.* **100**, Nos. 3-4, 275-284 (1983) (Eng).
 617. Hafiz, N., Vaz, N. A. P., Yaniv, Z., Allender, D., and Doane, J., ²D NMR observation of pairing in materials forming the reentrant nematic phase, *Phys. Lett.* **A91**, No. 8, 411-413 (1982) (Eng).
 618. Isaert, N., and Dubois, J. C., Orientation de la mesophase fluide d'un mésogènes discoïde par des lames de verre revêtus d'oxydes de calcium projetés sous incidence oblique, *J. Opt.* **14**, No. 5, 265-267 (1983) (Fr).
 619. Isaert, N., and Malthete, J., Optical properties of the twisted mesophase of a chiral disc-like compound, *J. Opt.* **14**, No. 6, 313-318 (1983) (Eng).
 620. Kamensky, V. G., and Kats, E. I., Longitudinal fluctuations of the order parameter in discotic liquid crystals, *Mol. Cryst. Liq. Cryst.* **84**, Nos. 1-4, 201-206 (1982) (Eng).
 621. Kamensky, V. G., Surface waves in discotic liquid crystals, *Mol. Cryst. Liq. Cryst.* **101**, Nos. 3-4, 275-282 (1983) (Eng).
 622. Kamensky, V. G., and Kats, E. I., Longitudinal fluctuations of the order parameter in discotic liquid crystals, *Mol. Cryst. Liq. Cryst.* **84**, Nos. 1-4, 201-206 (1984) (Eng).
 623. Kats, E. I., On one model of the liquid crystal, *Zh. Eksp. Teor. Fiz.* **75**, No. 11, 1819-1827 (1978) (Russ).
 624. Kats, E. I., and Monastyrsky, M. I., Phase transitions in discotic liquid crystals, *Priroda Zh. Eksp. Teor. Fiz.* **34**, No. 10, 543-546 (1981) (Russ).
 625. Kats, E. I., and Monastyrsky, M. I., Ordering in discotic liquid crystals, *J. Phys. (Paris)* **45**, No. 4, 709-714 (1984) (Eng).
 626. Kats, E. I., and Lebedev, V. V., Features of dynamics of discotics, *Zh. Eksp. Teor. Fiz.* **86**, No. 2, 558-569 (1984) (Russ).
 627. Kelker, H., and Wirzig, U. G., Another type of "discotic phases," *Mol. Cryst. Liq. Cryst. Lett.* **49**, No. 6, 175-178 (1979) (Eng).
 628. Kléman, M., Developable domains in hexagonal liquid crystals, *J. Phys. (Paris)* **41**, No. 7, 737-748 (1980) (Eng).
 629. Kléman, M., and Oswald, P., Columnar discotic mesophases: elasticity dislocations, instabilities, *J. Phys. (Paris)* **43**, No. 4, 655-662 (1982) (Eng).
 630. Kohn, B., and Braefcke, K., Liquid crystal compounds. 15. Hexa-o-alkanoylscyllo-inositois, the first alicyclic saturated discotic liquid crystals, *Angew. Chem., Int. Edn.* **23**, No. 1, 82-83 (1984) (Eng).
 631. Le Barny, P., Billard, J., and Dubois, J. C., Some new thermotropic discogens, in "Liquid Crystals and Ordered Fluids," vol. 4, Eds. A. C. Griffin, and J. F. Johnson, *Plenum Press* (New York), 57-74 (1984) (Eng).
 632. Le Jay, J., and Pesquer, M., A theoretical study of mesogenic disc-like compounds: the hexa-n-alkoxy and hexa-n-alkanoyloxy truxene series, *Mol. Cryst. Liq. Cryst.* **95**, Nos. 1-2, 31-43 (1983) (Eng).
 633. Levelut, A. M., Hardouin, F., Gasparoux, H., Destrade, C., and Tinh, N. H., X-ray investigations and magnetic field effect on a nematic phase of disc-like molecules, *J. Phys. (Paris)* **42**, No. 1, 147-152 (1981) (Eng).
 634. Levelut, A. M., Structure of mesophases of disc-like molecules, *J. Chim. Phys.* **80**, No. 1, 149-162 (1983) (Eng).
 635. Levelut, A. M., Oswald, P., Ghanees, A., and Malthete, J., Structure of two columnar phases of a chiral triphenylene ester, *J. Phys. (Paris)* **45**, No. 4, 745-754 (1984) (Eng).
 636. Locqueneux, R., A static model of the discotic mesophase, *Pramana* **16**, No. 3, 201-209 (1981) (Eng).
 637. Malthete, J., Destrade, C., Tinh, N. H., and Jacques, J., A pure disc-like mol-

- ecule with cholesteric properties, *Mol. Cryst. Liq. Cryst. Lett.* **64**, Nos. 7–8, 233–238 (1981) (Eng).
638. Malthete, J., Jacques, J., Tinh, N. H., and Destrade, C., Macroscopic evidence of molecular chirality in columnar mesophases, *Nature* **298**, No. 5869, 46–48 (1982) (Eng).
639. Mamlok, L., Malthete, J., Tinh, N. H., Destrade, C., and Levelut, A. M., Une nouvelle mesophase en colonnes, *J. Phys. Lett. (Paris)* **43**, No. 17 L-641–L-647 (1982) (Fr).
640. Martins, A. F., and Riberio, A. C., Nuclear spin-lattice relaxation in the columnar and isotropic phases of a discotic liquid crystal, *Port. Phys.* **11**, Nos. 3–4, 169–181 (1980) (Eng).
641. Mourey, B., Perbet, J. N., Hareng, M., and Le Berre, S., Physical parameters of a fluid discotic mesophase, *Mol. Cryst. Liq. Cryst.* **84**, Nos. 1–4, 193–200 (1982) (Eng).
642. Ohta, K., Ishii, A., Yamamoto, I., and Matsuzaki, K., Discotic liquid crystals of organocopper complexes: the substituted effects, *J. Chem. Soc., Chem. Commun.* No. 16, 1099–1100 (1984) (Eng).
643. Oswald, P., and Kléman, M., Défauts dans une mesophase hexagonale discotique: disclinations et parois, *J. Phys. (Paris)* **42**, No. 10, 1461–1472 (1981)(Fr).
644. Oswald, P., Observations in homeotropic anchoring of the $+\pi$ disclinations in a hexagonal discotic liquid crystal, *J. Phys. Lett. (Paris)* **42**, No. 8, L-171–L-173 (1981) (Eng).
645. Oswald, P., Observations in homeotropic anchoring of the $+\pi$ disclinations in a hexagonal discotic liquid crystal, *Compt. rend. Acad. Sci. (Paris) Ser 2*, **292**, 149–152 (Fr).
646. Paliere, J. F., and Durand, G., The Saint-Venant principle for columnar discotic liquid crystals, *J. Phys. Lett. (Paris)* **45**, No. 7, L-335–L-341 (1984) (Eng).
647. Piechocki, C., Simon, J., Skoulios, A., Guillon, D., and Weber, P., Discotic mesophases obtained from substituted metallophthalocyanines toward liquid crystal one dimensional conductor, *J. Amer. Chem. Soc.* **104**, No. 9, 5245–5246 (1982) (Eng).
648. Ranganath, G. S., and Chandrasekhar, S., X-ray scattering by columnar liquid crystals, *Current Sci.* **51**, No. 12, 605–606 (1982) (Eng).
649. Rondeléz, F., Koppel, D., and Sadashiva, B. K., Two-dimensional films of discotic molecules at an air-water interface, *J. Phys. (Paris)* **43**, No. 9, 1371–1378 (1982) (Eng).
650. Samulski, E., and Toriumi, H., Alkyl chain flexibility in discotic columnar mesophases, *J. Chem. Phys.* **79**, No. 10, 5194–5199 (1983) (Eng).
651. Santos, M. B. L., and Durand, G., Optical retardation and structure of developable domains in tubular discotic liquid crystals, *Opt. Commun.* **44**, No. 1, 43–47 (1982) (Eng).
652. Smith, T. H., and Van Hecke, G. R., Dilatometric studies on columnar mesogens; benzene hexa-n-alkanoates, *Mol. Cryst. Liq. Cryst.* **68**, 23–28 (1981) (Eng).
653. Sokalski, K., and Ruijgrok, T. W., Elastic constants for liquid crystals of disc-like molecules, *Physica* **113A**, No. 1, 126–132 (1982) (Eng).
654. Sorai, M., Tsuji, K., Suga, H., and Seki, S., Studies on disc-like molecules. I. Heat capacity of benzene-hexa-n-hexanoate from 13 to 393 K, *Mol. Cryst. Liq. Cryst.* **59**, Nos. 1–2, 33–58 (1980) (Eng).
655. Sorai, M., and Suga, H., Studies on mesogenic disc-like molecules. II. Heat capacity of benzene-hexa-n-heptanoate from 13 to 393 K, *Mol. Cryst. Liq. Cryst.* **73**, Nos 1–2, 47–70 (1981) (Eng).
656. Sorai, M., Yoshioka, H., and Suga, H., Studies on mesogenic disc-like molecules. III. Heat capacity of benzene hexa-n-octanoate from 13 to 393 K, *Mol. Cryst. Liq. Cryst.* **84**, Nos. 1–4, 39–54 (1982) (Eng).
657. Stroobants, A., and Lekkerkerker, H. N. W., Liquid crystal phase transitions in a solution of rodlike and disclike particles, *J. Phys. Chem.* **88**, No. 16, 3669–3673 (1984) (Eng).

658. Sun, Y., and Swift, J., Dynamic properties near the columnar-crystalline phase transition, *J. Phys. Lett. (Paris)* **45**, L-509-L-513 (1984) (Eng).
659. Sun, Y., and Swift, J., Effect of elastic degrees of freedom at columnar-crystalline phase transition, *J. Phys. (Paris)* **45**, No. 6, 1039-1048 (1984) (Eng).
660. Swift, J., and Andereck, B. S., Statics and dynamics near the nematic-columnar phase transition in the liquid crystals, *J. Phys. Lett. (Paris)* **43**, No. 12, L-437-L-440 (1982) (Eng).
661. Takenaka, S., Nishimura, K., and Kysabayashi, S., The discotic mesophases of 1,3,5-trisubstituted benzenes, *Mol. Cryst. Liq. Cryst.* **111**, Nos. 3-4, 227-236 (1984) (Eng).
662. Tinh, N. H., Destrade, C., and Gasparoux, H., Nematic disc-like liquid crystals, *Phys. Lett. A* **72**, No. 3, 251-254 (1979) (Eng).
663. Tinh, N. H., Malthete, J., and Destrade, C., Reentrant phenomenon in disc-like liquid crystals, *Mol. Cryst. Liq. Cryst. Lett.* **64**, Nos. 9-10, 291-298 (1980) (Eng).
664. Tinh, N. H., Gasparoux, H., and Destrade, C., An homologous series of disc-like mesogenic with nematic and columnar polymorphism, *Mol. Cryst. Liq. Cryst.* **68**, Nos. 1-2, 101-111 (1981) (Eng).
665. Tinh, N. H., Bernard, M. C., Sigaud, G., and Destrade, C., Dissymmetric hexasubstituted triphenylenes, *Mol. Cryst. Liq. Cryst.* **65**, Nos. 1-4, 307-316 (1981) (Eng).
666. Tinh, N. H., Malthete, J., Gasparoux, H., and Destrade, C., On thermotropic disc-like mesogens, in "Liquid Crystals and Ordered Fluids" vol. 4, Eds. A. C. Griffin and J. F. Johnson, Plenum Press (New York), 1123-1130 (1984) (Eng).
667. Tinh, N. H., Foucher, P., Destrade, C., Levelut, A. M., and Malthete, J., Reentrant mesophase in disc-like liquid crystals, *Mol. Cryst. Liq. Cryst.* **111**, Nos. 3-4, 277-292 (1984) (Eng).
668. Vauchier, C., Zann, A., Le Barny, P., Dubois, J. C., and Billard, J., Orientation of discotic mesophases, *Mol. Cryst. Liq. Cryst.* **66**, Nos. 1-2, 103-114 (1981) (Eng).
669. Veber, M., Fuguitto, R., and Strzelecka, H., Mesogenic dithiolates: new disc-like II acceptors, *Mol. Cryst. Liq. Cryst.* **96**, Nos. 1-4, 221-227 (1983) (Eng).
670. Wheeler, R. A., and Van Hecke, G. R., Application of regular solution theory to discotic mesophases: calculation of phase diagrams exhibiting minima, in "Liquid Crystals and Ordered Fluids" vol. 4, Eds. A. Griffin and J. F. Johnson, Plenum Press (New York), 283-297 (1984) (Eng).
671. Zumer, S., and Vilfan, M., Disc-like liquid crystals: molecular motions and nuclear magnetic relaxation, *Mol. Cryst. Liq. Cryst.* **70**, Nos. 1-2, 39-56 (1981) (Eng).

4. ADDITIONAL BIBLIOGRAPHY FOR THERMOTROPIC LIQUID-CRYSTALLINE POLYMERS RECEIVED BY PROF. G. HARDY (HUNGARY):

672. Cherneva, A., Adonyi, Z., Cser, F., and Hardy, G., Detection of existence of copolymers with mesomorphic structure using thermal analysis, *Proc. Second Europ. Symp. on Thermal Analysis*, Ed. D. Dollimore, Heyden, London, Philadelphia, Rheine, 272-276 (1981) (Eng).
673. Cherneva, A., Cser, F., Nyitrai, K., Kiss, K., and Hardy, G., Studies on copolymerization of hexadecyl acrylamide. Polymerization in liquid crystals, XVI., *Acta Chimica Acad. Sci. Hung.* **114**, 235-247 (1983) (Eng).
674. Cser, F., Nyitrai, K., Samay, G., Bodor, G., and Hardy, G., Structure investigations on mesomorphic copolymers, IUPAC Macro Mainz: 26th Int. Symp. *Macromol.*, Mainz, 1979, Preprints of Short Commun. vol. 2, 939-942 (Eng).

675. Cser, F., Nyitrai, K., Kocsis, I., and Hardy, G., Structural investigations of copolymers containing p-methyl-p'-acryloyloxy azoxybenzene and cholesteryl vinyl succinate. Polymerization in liquid crystals. IX., *European Polym. J.*, **17**, 865–870 (1981) (Eng).
676. Cser, F., Pócsik, I., Tompa, K., Nyitrai, K., and Hardy, G., Investigation of magnetic orientability of poly/phenyl-p-acryloyloxy benzoate. Polymerization in liquid crystals, XII, *Magyar Kémiai Folyóirat* **87**, 337–343 (1981) (Hung).
677. Cser, F., Nyitrai, K., Horváth, J., and Hardy, G., Copolymerization of monomers with mesogenic side chains, IUPAC MACRO '83, Bucharest, Romania, *Abstracts Sect. I*, 4–7 (1983) (Eng).
678. Cser, F., Nyitrai, K., Horváth, J., and Hardy, G., Polymerization in liquid crystal. XVIII. Effect of the polyethyleneoxide main chain on the properties of polymers containing mesogenic groups in the side chain, *European Polym. J.* **21**, 259–264 (1985) (Eng); *Magyar Kémiai Folyóirat* **90**, 490–496 (1984) (Hung).
679. Hardy, G., Cser, F., Nyitrai, K., and Fedorova, N., Investigation in the field of solid state polymerization, XXXVIII. Radiation-induced polymerization of vinyl monomers with long chain substituents, *Proc. Fourth Tihany Symp. on Radiation Chemistry, Akadémiai Kiadó*, Budapest, 365–376 (1977) (Eng).
680. Hardy, G., Nyitrai, K., and Cser, F., Copolymerization in liquid crystalline state, *Int. Symp. on Macromolecules*. Abstracts of short communications. Thaskent, 1978 Moscow, Nauka, 1978 vol. 2, 17 (Eng).
681. Hardy, G., Cser, F., and Nyitrai, K., Copolymerization in liquid crystalline media. Polymerization in liquid crystals. VIII. *Isr. J. Chem.* **18**, 233–239 (1979) (Eng).
682. Hardy, G., Cser, F., and Nyitrai, K., Identification of the structure of mesomorphic polymers by means of their miscibility, Abstracts of 4th Int. Liquid Crystal Conference of Socialist Countries, Tbilisi, vol. 1, p. 371 (1981) (Eng).
683. Hardy, G., Cser, F., Nyitrai, K., and Bartha, E., Copolymerization of mesogenic monomers. Polymerization in liquid crystals. XIII, *Ind. Eng. Chem., Product Res. and Dev.* **21**, 321–328 (1982) (Eng).
684. Hardy, G., Cser, F., and Nyitrai, K., Polymerization and copolymerization of liquid crystalline monomers having mesogenic groups in the side chain, *Proc. IUPAC MACRO '82*, Amherst, p. 82, July 1982 (Eng).
685. Hardy, G., Nyitrai, K., Cser, F., and Horváth, J., Copolymerization of monomers with mesogenic side chain, 24th Microsymposium on Copolymers: structure and solution properties, Prague, July 1983, p. 35–1 (Eng).
686. Nyitrai, K., Babaev, T. M., Cser, F., and Hardy, G., Copolymerization of N-acryloyl piperidine with cholesteryl acrylate and phenyl-p-acryloyloxy benzoate. Polymerization in liquid crystals. XI., *European Polym. J.* **17**, 871–876 (1981) (Eng).
687. Nyitrai, K., Cser, F., and Hardy, G., Investigations on the copolymerization of p-ethoxy-p'-acryloyloxy azobenzene with cholesteryl acrylate. Polymerization in liquid crystals. X., *Polymer J.* **13**, 1085–1092 (1981) (Eng).
688. Pavlov, G. M., Kornieeva, E. V., Garmonova, T. I., Hardy, G., and Nyitrai, K., Hydrodynamical and optical properties of some poly/acryloyloxy-benzene/ molecules, *Vysokomol. Soedin. Ser. A* **20**, 1634–1639 (1978) (Russ).

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