This article was downloaded by: [University of California, San Diego]

On: 16 August 2012, At: 02:55 Publisher: Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH,

UK



Molecular Crystals and Liquid Crystals Science and Technology. Section A. Molecular Crystals and Liquid Crystals

Publication details, including instructions for authors and subscription information: http://www.tandfonline.com/loi/gmcl19

To the Memory of Prof. Edgar A. Silinsh

Prof. Hiroo Inokuchi

Version of record first published: 24 Sep 2006

To cite this article: Prof. Hiroo Inokuchi (2001): To the Memory of Prof. Edgar A. Silinsh, Molecular Crystals and Liquid Crystals Science and Technology. Section A. Molecular Crystals and Liquid Crystals, 355:1, 9-12

To link to this article: http://dx.doi.org/10.1080/10587250108023650

PLEASE SCROLL DOWN FOR ARTICLE

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

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

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

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

To the Memory of Prof. Edgar A. Silinsh

The sad news of my friend Prof. Edgar Silinsh's death came to me from Dr. Inta Muzikante via Prof. Naoki Sato's e-mail. Edgar and I first met at Nikko Station in September 1975, when he arrived to participate in the Seventh Molecular Crystal Symposium. It was how our 24 years' friendship and cooperation started.

The research in molecular crystals had developed in Japan during twenty years after the war. In the 1970s there were a number of scientists working in this field and remarkable results had been produced. The situation encouraged the idea of holding an international conference in Japan, which was materialized as the aforementioned Seventh Molecular Crystal Symposium. It was held on 8 to 12 September 1975 at the Kanaya Hotel in Nikko, a beautiful and cool mountain resort, with about 150 participants from 12 countries.

It was still the period of the cold war and the interchange between the East and the West was not easy. Since it took time to get an entry visa from the USSR to Japan, Edgar and Prof. A.S. Davydov were obliged to arrive at Nikko one day later on the second day of the Symposium. I remember vividly the friendly eyes of Edgar when I went to meet him at Nikko Station 24 years ago. Our friendship continued ever since mainly by airmail, which was the primary means of communication in those days. He was a diligent writer and his letters kept coming traveling through the distance of 10,000 kilometers.

The Institute for Molecular Science was founded in Okazaki in 1975 for the specific purpose of research into molecular sciences. The Institute proceeded to be better organized year by year and in 1985 we were ready to invite Edgar as a visiting scholar supported by the research funds from the Japan Society for the Promotion of Science. Although the matter of a visa had not been improved at all, we succeeded to have him at Okazaki in autumn 1985.

His three months stay with us was very fruitful both in academic and in cultural exchanges, for Edgar and I had a good time in exploring and appreciating the traditional Japanese culture. He was interested in the old Japanese aesthetic concepts such as "tranquillity" and "wabi" (taste for the simple and quiet), and we discussed the beauty of "Tanka" (a verse of thirty-one syllables).

While carrying out joint researches in molecular science, Edgar also made a linguistic contribution to Japanese science revising the index in Russian scientific terms at the end of the Dictionary of Physics and Chemistry published by Iwanami Shoten. The Russian index had needed revision due to the drastic change in English scientific terms after the war. The current edition of the dictionary contains the index completed by Edgar.

I am afraid the climate was too hot and humid here for him when he arrived in early autumn and he had rather an uncomfortable experience. I told him I was brought up in Hiroshima, a seaside town, and used to swim in the sea of 25-26(C. He said that people would swim in the Baltic Sea if the water temperature rose to 18(C. I remember he took part in a colloquium at the Institute one winter day in a summer shirt with half-length sleeves. I suppose he was accustomed to cold but not to heat.

My wife and I were able to realize our many years' desire to visit Riga in 1987, after attending the conference on Electrical and Related Processes in Organic Solids held in Poland. We were to change trains at Leningrad on the way. Since Edgar wanted us to arrive at Riga as soon as possible in order to make our stay in Latvia longer, we spent only thirty minutes in Leningrad to see the town with Mrs D. Silinsh.

I visited Edgar's well-organized laboratory at the Institute of Physical Energetics of Latvian Academy of Sciences, and participated in seminars with his collaborators whom I had known only by their papers. Prof. Martin Pope of New York University happened to be in Riga and joined us.

Edgar took us to the People's Park of Latvia and to the park constructed in memory of disastrous sufferings during the Second World War. The parks seemed to me filled with a similar kind of tranquillity that we find in ancient towns of Japan like Nara and Asuka.

Our relationship with Edgar developed further and his visits to Japan totaled seven including the attendance at the Oji Seminar in 1988, which commemorated the 40th year of the study on organic semiconductors.

The thawing of the political conflicts between the East and the West had made a new kind of joint research possible and we started a two year project in 1996 sponsored by the Japan Society for the Promotion of Science. It was a new community connected by Internet for the study of organic solids. The project had been carried out under Edgar's thoughtful leadership and I hope it will still be going on successfully.

I have finished writing this with Edgar's photo on the frontispiece of the bibliography of his works placed in front of me. May his soul be at rest.

Prof. Hiroo Inokuchi

Most Substantial Scientific Works

MONOGRAPHS

- O.J. Neilands, J.P. Stradins, E.A. Silinsh, D.R. Balode, N.P. Valtere, V.P. Kadips, S.V. Kalninsh, V.E. Kampars, I.B. Mazheika and L.F. Taure, Structure and Tautomerism of β-dicarbonyl Compounds, (Zinatne, Riga, 1978) p. 448 (in Russian)
- E.A. Silinsh, Electronic States in Organic Molecular Crystals, (Zinatne, Riga, 1978) p. 344 (in Russian)
- E.A. Silinsh, Organic Molecular Crystals: Their Electronic States, Springer Series in Solid
 -State Sciences (Springer, Berlin, Heidelberg, New York, 1980) p. 389
- E.A. Silinsh, M.V. Kurik, V. Cápek, Electronic Processes in Organic Molecular Crystals. Localization and Polarization Phenomena (Zinatne, Riga, 1988) p. 329 (in Russian)
- A.A. Andreyev, M.V. Kurik, S. Nešpurek, E.A. Silinsh, V.J. Sugakov, L.F. Taure, E.L. Frankevich, V. Cápek, Electronic processes in Molecular Crystals. Transport, Trapping, Spin Effects (Zinatne, Riga, 1992) p. 363 (in Russian)
- E.A. Silinsh, V. Čápek, Organic Molecular Crystals. Interaction, Localization, and Transport Phenomena, (AIP Press, New York, 1994) p. 402
- E.A. Silinsh, Search for the Great Truths (Essays on the history of ideas and paradigms from ancient Chinese Tao and Zen Buddhist philosophy till modern quantum physics, synenergetics, chaos theory and fractal geometry), (Jumava, Riga, 1999) p. 510 (in Latvian)

PAPERS

- E.A. Silinsh, On the physical nature of traps in molecular crystals, *Phys. Stat. Sol.* (A), 3, 817 (1970).
- A.J. Jurgis and E.A. Silinsh, On the interaction of electrons and holes in molecular crystals, *Phys. Stat. Sol. (B)*, 53, 735 (1972).
- I.S. Kaulatch and E.A. Silinsh, On the mechanisms of Magnetic Field Influence on Electroconductivity in Molecular Crystals (Zinatne, Riga, 1973) p. 48 (in Russian)
- S. Nešpurek and E.A. Silinsh, Space-charge-limited current theory for molecular crystals with Gaussian distribution of local trapping states, *Phys. Stat. Sol. (A)*, 34, 747 (1976).
- 5. E.A. Silinsh and L.F. Taure, Organic Semiconductors (Ziatne, Riga, 1988) p. 329 (in Russian)
- E.A. Silinsh, Electronic Structure of Ionized States in Organic Molecular Crystals, Khimija Visokih Energii, 14, 211 (1980)
- E.A. Silinsh, Local Electronic States of Structural Origin in Organic Molecular Crystals in: Defects in Insulating Crystals, V.M. Tuchkevich, K.K. Shvarts (eds), (Zinatne, Riga, Springer-Verlag, Berlin; Heidelberg, New York, 1981) pp. 107-134.
- 8. E.A. Silinsh, V.A. Kolesnikov, I.J. Muzikante and D.R. Balode, On charge carrier photogeneration mechanisms in organic molecular crystals, *Phys. Stat. Sol.* (B), 113, 379 (1982).
- E.A. Silinsh, I.J. Muzikante, A.J. Rampans and L.F. Taure, Quadrupolar Traps for Charge Carriers in the Vicinity of Lattice Vacancies in Pentacene Crystals, *Chem. Phys. Lett.*, 105, 617 (1984).
- E.A. Silinsh and A.J. Jurgis, Photogenerated Geminate Charge Pair Separation Mechanisms in Pentacene Crystals, Chem. Phys., 94, 77 (1985).
- E.A. Silinsh, A.J. Jurgis and G.A. Shlihta, Charge Carrier Transport Phenomena in Polyacene Crystals: Molecular Polaron Approach, J. Mol. Electron., 3, 123 (1987).
- N. Sato, H. Inokuchi and E.A. Silinsh, Reevaluation of Electronic Polarization Energies in Organic Molecular Crystals, Chem. Phys., 115, 269 (1987).
- E.A. Silinsh, G.A. Shlihta and A.J. Jurgis, On Charge Carrier Transport Mechanisms in Organic Molecular Crystals. Polyacenes, Chem. Phys., 138, 347 (1989).
- E.A. Silinsh, Local Trapping States of Structural Origin in Organic Semiconductors: Nature, Distribution Characteristics, Methods of Control in: *Defect control in semiconductors*, K. Sumino (ed.) (Amsterdam etc.: North-Holland, 1990) pp. 1679-1689.

- E.A. Silinsh, G.A. Shlihta and A.J. Jurgis, A Model Description of Charge Carrier Transport Phenomena in Organic Molecular Crystals. II. Perylene, Chem. Phys., 155, 389 (1991).
- E.A. Silinsh, I.J. Muzikante, L.F. Taure and G.A. Shlihta, Electronic States and Charge Transport Mechanisms in Langmuir-Blodgett Films of Vanadyl Phthalocyanine, *J. Mol. Electron.*, 7, 127 (1991).
- A.D. Durandin, M.A. Rutkis and E.A. Silinsh, Inelastic Electron Tunnelling Spectroscopy of Vanadyl phthalocyanine Langmuir-Blodgett Monolayers, J. Mol. Electron., 7, 179 (1991).
- E.A. Silinsh and H. Inokuchi, On Charge Carrier Photogeneration Mechanisms in Organic Molecular Crystals. Polyacenes, Chem. Phys., 149, 373 (1991).
- M.A. Rutkis, S.E. Lindquist, E. Wistus, M. Almgrem, A. Klimkâns, S. Larsson and E.A. Silinsh, Langmuir-Blodgett Films of Indandione-1.3 Pyridinium Betaine. II: Molecular Structure and Properties of Monolayers; Simulation and Optical Absorption Data, *Advanced Materials* for Optics and Electronics, 4, 27 (1994).
- E.A. Silinsh, M. Bouvet and J. Simon, Determination of Energy Gap Values in Molecular Crystals. I Optical and Photoelectric Methods, Mol. Mat., 5, 1 (1995).
- M. Bouvet, E.A. Silinsh and J. Simon, Determination of Energy gap Values in Organic Molecular Crystals. II. Intrinsic Dark Conductivity and Electrochemical Methods, *Mol. Mat.*, 5, 255 (1995).
- V. Čapek and E.A. Silinsh, Dynamics of Electronic Polarization in Molecular Crystals, Chem. Phys., 200, 309 (1995)
- I. Muzikante and E.A. Silinsh, Investigation of Local Trapping States in Organic Molecular Crystals by Method of Thermally Modulated Space-Charge Limited Current, *Acta Phys. Polonica*. (A)., 88, 389 (1995).
- E.A. Silinsh, A. Klimkans, S. Larsson and V. Čapek, Molecular Polaron States in Polyacence Crystals: Formation and Transfer Processes, *Chem. Phys.*, 198, 311 (1995).
- E.A. Silinsh and S. Nešpurek, On the Nature of Charge Carriers in Low Mobility Organic Solids, Chemické Listy, 90, 43 (1996).
- E.A. Silinsh, Photoactive Molecular Multilayer Langmuir-Blodgett (LB) Films of Oriented Dipolar Betaine Type Organic Molecules in: *Photoactive organic materials: Science and appli*cations, F. Kajzar and V.M. Agranovich (eds.), (Kluwer Acad. Publ., Dordrecht, Boston, London, 1996)
- M.A. Rutkis, E. Wistus, S.E. Lindquist, E. Mukhtar, G. Liberts, V.A. Zauls, A.B. Klimkans and E.A. Silinsh, Langmuir-Blodgett Films of Indandione-1,3 Pyridinium Betaine. III: Linear Dichroism and Nonlinear Optical Properties, Advanced Materials for Optics and Electronics, 6, 39 (1996).
- I. Muzikante, E. Fonavs and E. Silinsh, Charge Carrier Trapping States in Evaporated and Langmuir-Blodgett Organic Films, Advanced Materials for Optics and Electronics, 6, 283 (1996).
- E. Silinsh, Charge Carrier as Electronic and Molecular Polarons in Organic Solids. Formation and Transfer Processes in: *Electrical and Related Properties of Organic Solid*, R.W. Munn, A. Miniewicz, B. Kuchta (eds.), (Kluwer Acad. Publ., Dordrecht, Boston, London, 1997).
- E.A. Silinsh, Nature of Charge Carriers in Low Mobility Organic Solids in: Polymers and Organic Solids, L. Shi and D. Zhu (eds.) (Science Press, Beijing, China, 1997).
- 31. E. Silinsh, Organic Molecular Materials for Non-linear Optics, Proc. SPIE, 2968, 2 (1997).
- I. Muzikante, E. Fonavs, E.A. Silinsh, C. Fretigny, M. Bouvet, J. Simon and D. Soriot, Charge Carrier Transport Properties of Thin Films of an Intrinsic Molecular Semiconductor: Lutetium Bisphthalocyanine, Mol. Materials, 9, 301 (1998).
- I. Muzikante, E.A. Silinsh, L. Taure and O. Neilands, Physical Properties of Thin Evaporated Films of N-(Indan-1,3-dion-2-yl) Pyridinium Betaine and its Derivatives, Latv. J. Phys. Techn. Sciences, 4, 10 (1998)
- S. Jursenas, A. Gruodis, G. Kodis, M. Chachisvillis, V. Gulbinas, E.A. Silinsh, and L. Valkunas, Free and Self-Trapped Charger-Transfer Excitons in Crystals of Dipolar Molecules of N,N-Dimethylaminobenzylidene 1,3-Indandione, J. Phys. Chem. B, 102, 1086 (1998).
- N. Sato, I. Kawamoto, T. Sakuma, E.A. Silinsh, A. Jurgis, A Molecular Design towards a Highly Amphoteric and Polar Molecule (HAPM) to Assemble Novel Organic Solid-State Structures, Mol. Cryst. Liq. Cryst., 333, 243 (1999).