C H R O N I C L E

7-TH WINTER SCHOOL ON MOLECULAR AND QUANTUM ACOUSTICS AND SONOCHEMISTRY

Ustronie — Brzegi, February 1978

The seventh Winter School on Molecular and Quantum Acoustics and Sonochemistry, organized by the Institute of Physics of Silesian Technical University in Gliwice and the Molecular and Quantum Physics Section of the Polish Acoustical Society with the participation of the coordinator of the interdisciplinary problem MR.I.24, was held on February 21-26, 1978, at Ustronie-Brzegi. Dr. Stanisław Szyma (Institute of Physics, Silesian Technical University in Gliwice) was the chairman of the Organizing Committee.

The School was attended by some 60 participants, i.e. twice as many as last year. They came from over 10 national scientific centres, sponsored by the Polish Academy of Sciences, the Ministry of Higher Education and Technology and by other ministries. Six sessions were held at which 37 lectures and reports were delivered giving a general description of investigations carried out in Poland in the field of quantum acoustics, acoustoelectronics and acoustooptics, ultrasound spectroscopy and sonochemistry and providing the information on the current trends in the world science. In comparison with the last year there could be observed a growing interest in the problems of acoustooptics and quantum acoustics.

List of lectures

Session 1 (Chairman prof. A. Śliwiński, Institute of Physics, Gdańsk University)

B. Zapiór — Molecular acoustics and modern sonochemistry.

A. Juszkiewicz — Investigations of the hydration of electrolytes and nonelectrolytes with the aid of the "sing around" method of the measurement of the velocity of ultrasound.

R. Płowiec — Comparison of rheological properties of mineral and synthetic oils by acoustical methods.

Z. Kaczkowski — Influence of the magnetic polarization on the piezomagnetic impedance of the water loaded alfer transducers.

Z. Toczyski — Measurements of acoustic velocities in ultrasonic wave-guides.

Session 2(Chairman prof. J. Ranachowski, Institute of Fundamental Technological Research, Polish Academy of Sciences)

L. Opilska, A. Opilski — The determination of the energy gaps in semiconductors by acoustic method.

J. Finak, A. Krzemiński — Technology of thin-film ZnO based transducers at gigahertz frequencies.

M. Szalewski — Excitation of surface waves with the aid of diffusion transducers and investigations of convolution using LiNb 03 and Li J 03 crystals.

P. Kiermasz — The technology and properties of SbSY ceramics.

W. Pajewski — Properties of transverse surface waves.

T. Pustelny – Technology of the preparation of the semiconductor-piezoelectric system and investigations of electron – phonon interaction.

P. Kwiek, A. Śliwiński, J. Wojciechowski – Use of the holographic interferometry for the investigation of the characteristics of transducer radiation.

M. Aleksiejuk, M. M. Dobrzański – Electron – phonon interaction at gigahertz frequencies.

G. Gackowska – Measurements of the distribution of the field of surface waves on SiO_2 $LiNb\ O_3$ crystals using laser and electrostatic probe.

Session 3 (Chairman prof. W. Pajewski, Institute of Fundamental Technological Research, Polish Academy of Sciences)

M. Szustakowski – Acoustooptical devices in integrated optics.

A. Byszewski – Measurements of acoustic parameters of surface waves using optical methods.

M. Drzewiecka – The visualization of acoustic surface wave.

J. Frydrychowicz – The application of X-ray methods to the diagnostics of acoustic field.

J. Merta – Acoustooptical light modulator for the synchronous modulation of the quality factor of laser resonator.

R. Leć – The elastooptical effect in $Li\ J\ O_3$ crystals.

J. Filipiak – Analysis of the interdigital transducer of acoustic surface waves.

J. Ostrowski – The surface wave resonator.

Session 4 (Chairman prof. B. Zapiór, Institute of Chemistry, Jagellonian University)

Z. Kleszczewski – Application of acoustooptical interaction for the investigation of the elasticity of non-linear crystals.

J. Berdowski, M. Strozik – The analysis of the field of acoustic surface wave using the method of the point deflection of light.

Z. Cerowski, A. Opilski – The effect of transverse drift field on the propagation of a surface wave in the piezoelectric semiconductor system.

Z. Kubik, J. Kapryan, M. Burek – Investigations of the acoustoelectric effect in the piezoelectric semiconductor system.

M. Urbańczyk – The acoustic resonator of the Raleigh surface wave.

M. Błahut – The application of Green's function theory to the investigation of the crystal lattice of thin films.

R. Bukowski – The effect of point defects on the propagation of ultrasonic waves.

Z. Jagodziński – Side sonar-properties and investigation of a model.

Session 5 (Chairman dr R. Plowiec, Institute of Fundamental Technological Research, Polish Academy of Sciences)

A. Śliwiński – Some investigations carried out in the Institute of Physics, Gdańsk University, in the field of molecular acoustics.

P. Kwiek – Experimental corroboration of Leroy's theory of light diffraction on two parallel ultrasonic beams in liquid.

C. Lewa – Rotational phase transitions in liquids.

J. Krzak – Röntgenograms of liquids, the interaction potential in the light of new trends.

R. Respondowski – On the so-called nonlinear factor in the theory of liquids.

W. Szachnowski – Standardization of measurement ressels operating in the "sing around" systems.

S. Szyma – On the possibility of increasing the accuracy of results of the analysis of acoustic sedimentation curve.

Session 6 (Chairman prof. A. Opilski, Institute of Physics, Silesian Technical University, Gliwice)

A. Filipczyńska – Wave propagation along the surface of a solid and liquid.

J. Łoziński – Investigations of the dynamic distribution of thermal emission in polycarbonate during ultrasonic welding.

P. Miecznik – Ultrasonic and hypersonic investigation of the oscillating relaxation in liquid thiophene.

K. Kunert – Ultrasonic investigations of the cross-linked polyethylene.

According to the postulate advanced during the session held in 1977, a seminar acceptance of papers presented under the subject "Quantum acoustics and acoustoelectronics" for the interdisciplinary problem MR.I.24 took place on the second day of the School to evaluate the subject matter of papers.

On the fourth day the 2-nd general meeting of the Molecular and Quantum Acoustics, Section of the Polish Acoustical Society, took place under the chairmanship of its president prof. A. Opilski (Institute of Physics, Silesium Technical University, Gliwice). At this meeting the growing importance of the Winter School was stressed and problems arising from this discussed. A twofold increase of the number of participants, as well as a substantial increase of the number of papers submitted (64% more than last year) set before the Organizing Committee a new and difficult task. A demand was put forward to increase the number of lectures to be delivered by outstanding specialists (including also those from abroad) at the expense of the number and duration of the reports

Also the proposal was presented of the coordinator of the problem MR.I.24 concerning the publication in print of more interesting and already complete materials, especially those which are the result of works realized in the frames of this problem. On the same day the participants made an excursion to Gliwice, where they acquainted themselves with the scientific and research activities of the Institute of Physics of the Silesian Technical University.

According to the opinion of the participants, the 7-th Winter School was at a good scientific level. The possibility of stimulating direct discussion and consultations in the couloirs was of great value. The Organizing Committee managed to ensure a friendly and even cordial climate which contributed to the establishment of close intellectual contacts and the exchange of views. As the seminar activities were held in the afternoon, this enabled the participants of the School to enjoy sun-bath and skiing while the daily portion of inoffensive, but apt epigrams reviewed in the shortest way the afternoon lectures.

Dr. M. M. Dobrzański