

## 8TH WINTER SCHOOL OF QUANTUM AND MOLECULAR ACOUSTICS, AND SONOCHEMISTRY

USTROŃ - JASZOWIEC 1979

A successive Winter School of Quantum and Molecular Acoustics, and Sonochemistry took place in Ustroń-Jaszowiec on March 5-10, 1979. It was organized under the interdepartmental problem MR. I. 24 by the Higher Silesian Division of Polish Acoustical Society, Physics Institute of Silesian Technical University, Gliwice, and Institute of Fundamental Technological Research, Warsaw. The School was attended by 100 persons from 10 scientific centres.

Compared to previous years, both the number of the attendess of the School and that of contributed papers were considerably greater. Therefore, in addition to plenary papers and reports on authors own investigations, round-table sessions and poster form presentation of some papers, were introduced. Discussions took place in form of 6 sessions where 55 papers and communiqués devoted to the current state of investigations in the fields of quantum and molecular acoustics, acoustoelectronics and acoustooptics, sonochemistry and ultrasonic spectroscopy were presented.

Special attention should be paid to the increased interest in acoustooptics and integrated optics, whose expression were round-table sessions devoted to these subjects. The school attendees were given printed materials from the last year's School, which enabled them to see more thoroughly the progress in the investigations being carried out.

On the 4th day of School the IIIth plenary session of the section of Molecular and Quantum Acoustics of Polish Acoustical Society was held, chaired by prof. dr Z. JAGODZIŃSKI, vice-chairman of Executive Board of Polish Acoustical Society. The president of the Executive Board of the section, prof. dr A. OPILSKI reported on the activities of the section, and the performance of the Executive Board was unanimously accepted by vote. Subsequently, prof. dr Z. Jagodziński in warm words thanked the outgoing Executive board and its Chairman, in particular, for the large contribution they had made to the organization of work of the section and the School.

In the election, a new Executive Board was established including: chairman — prof. dr hab. A. ŚLIWIŃSKI (Physics Institute, Gdańsk University), vice-chairman — prof. dr hab. A. OPILSKI (Physics Institute, Silesian Technical University, Gliwice), secretary — dr A. MARKIEWICZ (Physics Institute, Gdańsk University), members — dr M. M. DOBRZAŃSKI (Institute of Fundamental Technological Research, of the Polish Academy of Sciences, Warszawa) and dr A. JUSZKIEWICZ (Chemistry Institute, Jagiellonian University).

During lively discussion, a number of problems concerning both the work plan and a future form of the School were considered, closer cooperation of the School with the Coordinator of the Interdepartmental Problem MR.I.24 and, in particular, in the elaboration of a draft for the next five-year plan, were postulated. The need for production of a shorf series of ultrasonic spectrographic apparatus was pointed out. Most speeches concerning the School centred on the possibilities of inviting outstanding foreign experts and expanding the scope of native lecturers. Round-table discussion and poster form presentation were appreciated as a valuable introduction.

The papers chosen by the Scientific Committee from papers delivered, will be published in a book, as last year.

The informal evaluation of the organization of the School, interpersonal contacts and coordination of research, was presented in couplets, at the general get-together meeting. Discussion in the lobby permitted the exchange of views between the representatives of narrow fields of interest, for one should not forget the interdisciplinary character of acoustics which often caused the temperature of discussion to rise (problems related to quantum bio-acoustics, spectroscopy and T. Jefferson effect can be mentioned as examples).

Although the weather was not very good, but the atmosphere of warm and understanding created by the Organizational Committee made discussions nice and contributed to closer intellectual contacts between representatives of different research centres, for which acknowledgement is due to the organizers: prof. dr hab. A. OPILSKI — director of Physics Institute, Silesian Technical University, Gliwice; dr Z. KLESZCZEWSKI — president of High-Silesian Division of Polish Acoustical Society, the ever-smiling Mrs B. KOCHOWSKA — organization secretary of the School, and dr J. BERDOWSKI.

#### Plenary papers

1. J. FINAK, H. JEROMINEK, *Selected methods for investigation of properties of planar fibscopes used in integrated acoustics.*
2. Z. KLESZCZEWSKI, *Practical application of interaction of laser light and bulk acoustic waves.*
3. W. PAJEWSKI, *Generation, propagation, and detection of BG transverse surface waves.*
4. B. PASZKOWSKI, *New technologies in microelectronics. Integrated optics.*

#### Reports on individual research

5. M. ALEKSIEJUK, *Parameters of tunnel junctions used to generate and detect hypersonic vibrations.*
6. Z. BARTYNOWSKA, A. JUSZKIEWICZ: *Physical and chemical characteristics of rotation transitions occurring in esters from measurements of damping and velocity of ultrasonic waves.*
7. J. BERDOWSKI, M. STROZIK, *Heterodyne and diffraction methods for detection and visualization of surface acoustic waves.*
8. M. BŁACHUT, *Damping of surface waves in dielectrics at high temperatures.*
9. A. BYSZEWSKI, *Changes in optical properties of a crystal, caused by a surface acoustic waves.*
10. Z. CEROWSKI, J. KAPRYAN, *Measurements of the acoustoelectrical effect in a piezoelectric — semiconductor layer system.*
11. M. M. DOBRZAŃSKI, *Relation between de Broglie's theory and quantum representation of hypersonic wave.*
12. A. DROBNIK, *Generation of mechanical waves by laser light beams*
13. A. DRZEWIECKA, *Visualization of mechanical waves using the stroboscopic method.*
14. A. FILIPCZYŃSKA, *Propagation of an acoustic wave along a hollow cylinder immersed in a liquid.*
15. J. FILIPIAK, *Surface acoustic waves spectrum analyser.*
16. J. FRYDRYCHOWICZ, *On a new possibility in the field of X-ray analysis of crystal lattice dynamics.*
17. J. GMYREK, K. WANAT, *Determination of thermodynamic constants of a liquid by the acoustic method.*
18. A. GRZEGORCZYK, A. JUSZKIEWICZ, *Investigation of relaxation processes in the isotropic phase of p-alcoxybenzoic acids by ultrasonic methods.*
19. Z. JAKUBCZYK, A. KRZESIŃSKI, *Measurement of propagation parameters of surface acoustic waves in the ZnO-glass layer system.*

20. Z. KACZKOWSKI, *The effect of magnetic polarization on ultrasound velocity in alfer 33 kHz band transducers.*
21. Z. KLESZCZEWSKI, A. MLECZKO, *Interaction of acoustic waves and high intensity laser light.*
22. Z. KOZŁOWSKI, A. JUSZKIEWICZ, J. KOPYŁOWICZ, *Measurements of some anomalies in ultrasonation waves propagation in water.*
23. J. KRZAK, F. KUCZERA, *On a common mistake made in evaluation of intermolecular interaction in liquids.*
24. P. KWIEK, *Optical impulse holography used to investigate ultrasonic fields.*
25. P. KWIEK, P. CZYŻ, A. MARKIEWICZ, *Investigation of ultrasonic field distribution from reproduced time averaged holograms of the field.*
26. P. KWIEK, A. ŚLIWIŃSKI, *The optical hologram of a travelling ultrasonic wave.*
27. H. LASOTA, *Problems in radiation of acoustic sources in infinite baffles.*
28. Cz. LEWA, *Criteria for evaluation of the existence of rotation phase transitions in liquids.*
29. P. LORANC, *X-ray investigation of piezoelectric monocrystal LiIO<sub>3</sub> transducers.*
30. M. ŁABOWSKI, *Experimental determination of mean relaxation time for concentration fluctuation in selected critical mixtures.*
31. P. MIECZNIK, *Investigation of structure stability in water solutions of hexamethylphosphorotriamide by the acoustic method.*
32. A. OPILSKI, M. URBAŃCZYK, *Acoustic impedance of an isotropic medium for a surface wave.*
33. J. OSTROWSKI, *Lithography methods in the planar technology of optoacoustic elements.*
34. R. PŁOWIEC, *Representation of viscoelastic relaxation range in some electrolytes by the Lamb liquid model.*
35. R. RESPONDOWSKI, F. KUCZERA, *On some molecular and thermodynamic problems in propagation of acoustic waves in liquids under high pressure.*
36. H. RYLL-NARDZEWSKA, J. RANACHOWSKI, K. KUNERT, *Ultrasonic investigation of cross-linked polyethylene.*
37. B. SIKORA, *Methods of measurement by a focussed ultrasonic beam in a solid.*
38. W. SZACHNOWSKI, *Damping measurements in oil-solid type mixtures.*
39. M. SZALEWSKI, *Investigation of properties of thin-layer surface acoustic wave waveguides.*
40. J. TABIN, *Measurements of grain composition in crystal suspension by the echo method.*
41. Z. TYLCZYŃSKI, *Determination of piezoelectric and elastic properties of ferro-electric plane of TGS crystals.*
42. B. WIŚLICKI, *Viscoelastic properties of oils at kHz frequencies.*
43. B. ZAPIÓR, *The survey of accomplishments of the Sonochemistry Unit of Jagiellonian University.*
44. J. ZIENIUK, *Optically addressed ultrasonic transducers.*

#### Poster form papers

45. S. ERNST, R. PŁOWIEC, M. WACIŃSKI, *Investigation of viscoelastic properties of electrolytes in polyhydric alcohols.*
46. J. GLIŃSKI, *Sound velocity in some water-amine mixtures.*
47. A. GRZEGORCZYK, *Investigation of relaxation processes in selected liquid crystal substances near the nematic-isotropic liquid phase transition, using acoustic methods.*
48. A. KIDAWA, M. NOWAK, *Investigation of polycrystalline SbS<sub>2</sub>.*
49. M. KRZESIŃSKA, A. KRZESIŃSKI, A. KWAŚNIEWSKA, *Investigation of hypersonic wave propagation in solids.*
50. W. LARECKI, *The influence of statistical deformation on the nonlinear effect accompanying propagation of finite amplitude acoustic wave.*

- 51. R. LEĆ, Cz. GONZALES, Z. KOZŁOWSKI, *Measurement of velocity and damping of ultrasonic waves in water saccharose solutions.*
- 52. M. ZWIERNIK, *An acoustic steam-supplied flow generator.*
- 53. K. WANAT, *Thermodynamic properties of stiff balls liquid model.*
- 54. M. WOJTKOWIAK, *Measurements of ultrasonic field in stell, using an electrodynamic probe.*

**Round-table discussion**

Achievements, development prospects and industrial application of acousto-optics.

M. M. Dobrzański (Warszawa)

- 55. H. LABOTA, Problems in radiation of acoustic waves in liquid bodies.
- 56. G. LAWA, Criteria for evaluation of the existence of velocity phase transitions in liquids.
- 57. P. LORANC, X-ray investigation of ultrasonic monochromal LHO transducers.
- 58. M. LAROWSKI, Experimental determination of mean relaxation time for concentration fluctuations in stretched nematic mixtures.
- 59. P. MIĘCZNIK, Investigation of structure damping in water solutions of thermotropic liquid crystals by the acoustic method.
- 60. A. OPTYSKI, M. URSZĄTEK, Acoustic impedance of an isotropic medium for a surface wave.
- 61. J. OSTROWSKI, Acoustography applied to the study of technology of optoelectronic elements.
- 62. R. PIWONICZ, Representation of viscoelastic relaxation curves in some electrolytes by the Lamb liquid model.
- 63. R. RASPODOWSKI, F. RUCZKA, On some molecular and thermodynamic problems in propagation of acoustic waves in liquid under high pressure.
- 64. H. RYLIK-WARBERG, J. RAKACHOWSKI, K. KURBAT, Ultrasonic investigation of cross-linked polyisoprenes.
- 65. R. SZKOLA, Methods of measurement of a localized ultrasonic beam in a solid.
- 66. W. SZACHOWSKI, Damping measurements in oil-solid type mixtures.
- 67. M. SZLAWSKI, Investigation of properties of thin layer surface acoustic wave resonators.
- 68. J. TABIKI, Measurement of fluid composition in a liquid suspension by the echo method.
- 69. A. TYCZYSKI, Determination of piezoelectric and elastic properties of ferroelectric plates of TiB crystals.
- 70. B. WISNIOŁ, Viscoelastic properties of oils in MHz frequencies.
- 71. B. WATDOR, The theory of acousto-optic elements of the acousto-optic Unit of Jagiellonian University.
- 72. J. ZEMBIK, Optically addressed ultrasonic transducers.
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- 80. W. ZEMBIK, The influence of statistical fluctuations on the resonance effect during propagating propagation of finite amplitude acoustic waves.
- 81. A. GREGORCZYK, Investigation of relaxation processes in selected liquid crystals.
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