

C H R O N I C L E

6-th INTERNATIONAL SPRING SCHOOL ON ACOUSTO-OPTICS AND APPLICATIONS  
GDAŃSK—JURATA, 22—25 MAY 1995

At the same place as the 5-th School in 1992\* at Jurata situated on the Hel Peninsula 70 km from Gdańsk the 6th International Spring School on Acousto-optics was organized by the Institute of the Experimental Physics of the University of Gdańsk in cooperation with the Polish Acoustical Society, Committee of Acoustics of the Polish Academy of Sciences and co-sponsored by the Polish Committee for Scientific Research and by the Polish Chapter of SPIE (the International Society for Optical Engineering).

The Scientific Committee included: Prof. L. Adler, Ohio State University, USA; Prof. A. Alippi, Instituto di Acustica, ITALY; Prof. P. Banerjee, University of Alabama, USA; Dr. E. Blomme, V.H. Techn. Inform., Kortrijk, BELGIUM; Prof. M.A. Breazeale, University of Mississippi, USA; Dr R.C. Chivers, University of Surrey, U.K.; Prof. I. Gabrielli, University of Trieste, ITALY; Prof. H.W. Jones, University of Swansea, U.K.; Prof. Z. Kleszczewski, Silesian Techn. Univ., POLAND; Prof. A. Korpel, Dept. Electr. & Comp. Eng., USA; Prof. S.V. Kulakov, Inst. Aviat. Instr., St. Petersburg, RUSSIA; Prof. O. Leroy, Kath. Univ., Leuven—Kortrijk, BELGIUM; Prof. N.B. Lezhnev, Acad. of Sc. of Turkm., TURKMENISTAN; Prof. M. Łabowski, A. Mickiewicz University, POLAND; Prof. I. Malecki, Polish Acad. of Sc., POLAND; Prof. W. Mayer, Georgetown University, USA; Prof. R. Mertens, Roy. Belg. Acad. Sci., BELGIUM; Prof. A. Opilski, Silesian Techn. Univ., POLAND; Prof. V. Parygin, Moscow State University, RUSSIA; Prof. M. Pluta, President of the Polish Chapter of SPIE/PL; Prof. T.C. Poon, Polyt. Inst.

\* The international spring meetings on Acousto-optics and Applications are organized every three years since 1980. The previous took place:

- 1-st School, Gdańsk—Wieżyca, 1980, May 26—30 proceedings issued by the University of Gdańsk; a report published in Arch. Acoust., 6, 85 (1981) and in Ultrasonics, 19, 44 (1981).
- 2-nd School, Gdańsk—Wieżyca, 1983, May 24—29 proceedings issued by the University of Gdańsk; a report published in Arch. Acoust., 9, 381 (1984) and Ultrasonics 22, 15 (1984).
- 3-rd School, Gdańsk—Wieżyca, 1986, May 26—31 proceedings issued by the University of Gdańsk; a report published in Ultrasonics, 25, 182 (1987).
- 4-th School, Gdańsk—Sobieszewo, 1989, May 23—27 proceedings published by World Scientific, Singapore—New Jersey—London—Hong Kong, 1990.
- 5-th School, Gdańsk—Jurata, 1992, May 25—29 proceedings published by Proc. SPIE, Bellingham, USA, 1992.

State Univ., Virginia, USA; Prof. V. Proklov, Acad. Sci., Moscow, RUSSIA; Prof. J. Ranachowski, Polish Acad. of Sc., POLAND; Prof. R. Reibold, Phys. Tech. Bund., Braunschweig, GERMANY; Prof. J. Sapiel, Centr. Nat. d'Etudes Tel., Paris, FRANCE; Prof. M. Szustakowski, Military Acad. of Tech., Warszawa, POLAND; Prof. B.R. Tittmann, The Pennsylvania State University, USA; Prof. Chen Tsai, University of California, Irvine, USA; Prof. A. Zarembowitch, Dep. Rech. Phys., Paris, FRANCE.

The Organizing Committee consisted of Prof. A. Śliwiński, president, Prof. P. Kwiek, vice president, Dr M. Kosmol, secretary and members: Prof. C. Lewa, Dr M. Borysewicz, Mgr G. Gondek, Dr B. Linde, Dr A. Markiewicz, Dr A. Sikorska, Dr J. Szurkowski.

The School brought together 71 participants, above 60 specialists and students from the following countries: Belgium (1), Brazil (1), Bulgaria (1), Denmark (1), France (1), Germany (6), Italy (3), Lithuania (1), Poland (39), Russia (7), Switzerland (1), United Kingdom (1), United States of America (8) and Poland. 17 invited lecturers, 25 papers and 15 posters were presented.

The Programme of the School included:

### General invited papers

1. Ultrasound field mapping by light diffraction tomography — a review.  
*R. Reibold, P. Kwiek*
2. Nearfields of ultrasonic transducers.  
*B.D. Cook*
3. Strong acousto-optic interaction during collinear diffraction.  
*V. Parygin*
4. Image propagation through acousto-optic devices.  
*P. Banerjee*
5. Acoustically induced light polarization effects in isotropic media.  
*E. Blomme*
6. The wavelet transforms: fundamentals and acousto-optic implementation.  
*P. Das, C. DeCusatis, J. Koay, D.M. Lityński*
7. Sensors for material process monitoring and control.  
*B.R. Tittmann*
8. Integrated optical Mach-Zehnder interferometer (technology, structure, functioning).  
*A. Opilski, R. Rogoziński*
9. Acousto-optics without Bessel functions and Bessel functions by acousto-optics.  
*I. Gabrielli*
10. Quantum wells as a future acousto-optic materials.  
*V. Proklov*
11. New developments of resonant acousto-optics in semiconductors.  
*J. Sarpziel*

12. Acousto-optic studies of planar optical waveguides: velocity and attenuation of SAW in proton-exchanged  $\text{LiNbO}_3$ .  
*D. Ciplys*
13. A short history of acoustical imaging.  
*H.W. Jones*
14. The scanning acoustic microscopy and confocal laser scanning microscopy — foundations and applications on human bones.  
*H.-J. Hein*
15. Nonlinear acoustics and its impacts on nondestructive evaluation with acousto-optic technique.  
*L. Adler*
16. Investigation of acousto-optic interaction in dense flint glass and tellurium dioxide.  
*V. Voloshinov*

### Oral contribution papers

1. Light diffraction by ultrasound: near field investigation.  
*G. Gondek, T. Katkowski, P. Kwiek*
2. Collinear acousto-optic tunable filter using  $\text{CaMoO}_4$  single crystal for processing of nonpolarized radiation.  
*V.Ya. Molchanov*
3. Numerical and experimental comparison of polarization effects in ultrasonic light diffraction in the intermediate range in isotropic  $\text{SiO}_2$ .  
*E. Blomme, P. Kwiek, O. Leroy, A. Śliwiński*
4. Use of acousto-optic image correlators for wavelet transforms.  
*D.M. Lityński, C. DeCusatis, J. Koay, P. Das*
5. CAD techniques for electronic and optoelectronic devices and circuits.  
*M.N. Armenise, M.N. Passaro*
6. Polarization effects at acousto-optic interaction in anisotropic medium.  
*V. Balakshy, G. Gondek, T. Katkowski, I. Krylov, P. Kwiek, A. Śliwiński*
7. Construction and properties of the multielement filters for matching piezoelectric transducer.  
*I. Merta*
8. Photoluminescence temperature sensor.  
*T. Pustelny*
9. Integrated optical amplitude refractometer.  
*P. Karasiński*
10. Optimisation of heterodyne signal in acousto-optical experiment.  
*K. Abramski*
11. Bonded Silicon Wafers as a test object for the resolution power of subsurface voids.  
*K. Kosbi*
12. Using of acousto-optical resonant conditions in GaAs and InP for the creation of high efficiency 2 GHz bandwidth Bragg cells.  
*V. Petrov, B. Gur'ev, V. Kolosov, S. Kuryshov, J. Sapriel*
13. Acousto-optical Bragg interaction in isotropic media under uniaxial stress condition.  
*R. Bukowski, A. Dziechciarczyk*

14. Method of analysis of acousto-optic interaction by used Kotelnikov-Shannon's distribution on sample function.  
*W. Rysakow, M. Stoń*
15. Investigation of acousto-electronic gain piezosemiconductor by method of light diffraction.  
*W. Rysakow*
16. Nanoscale acoustics: detection of ultrasound using an atomic force microscope (AFM).  
*A.J. Kulik, N.A. Burnham, G. Gremand, F. Oulevey, P.-J. Gallo*
17. Influence of an excentric transducer on  $V(z)$  measurement.  
*U. Scheer*
18. Investigation of tooth tissue — photoacoustics versus other spectroscopic methods..  
*A. Christ, U. Cobet, T. Siebert, K. Giese, N. Harendt*
19. Combined acousto- and electro-optic effects study and applications.  
*G. Mendes Pacheco*
20. Acousto-optical investigation of the phase transitions in the olygoethertmetacrylates.  
*R. Mervinskij, J. Kityk, M. Makowska-Janusik, J. Filipecki, J. Straube, J. Yateczyszyn*
21. Modified polyvinile alcohol photopolymer modulators and deflectors.  
*V. Kravchuk, J. Kityk, M. Makowska-Janusik, D. Korolev, M. Yasinskij, B. Holan*
22. Multifunctional processors of acousto-optic signal processing.  
*M. Szusztakowski*
23. Photothermal measurements for plates.  
*J. Bodzenta*
24. Preliminary investigation of the degradation of motor oil by photoacoustic spectroscopy.  
*J. Motylewski, J. Szurkowski, B. Wiślicki, T. Zmierczak*
25. Precision measurements of elasticity modulus by improvement of Schaefer-Bergmann method.  
*E. Kotlicka, I. Gronowska, G. Hendor, A. Latuszek*

### Poster form papers

1. Nonradiative processes in CdS:Cu system doped by diffusion as studied by microphone-gas coupled photoacoustic spectroscopy.  
*M. Grus, A. Sikorska*
2. Propagation of acoustic waves in randomly inhomogeneous media.  
*E. Soczkiewicz*
3. Is it possible to determine times of thermal deactivation excitation energy of molecules placed in thin films?  
*J. Szurkowski*
4. Light diffraction by two spatially separated ultrasonic beams — Intermediate region of investigation. The case of  $v \ll Q$ .  
*T. Katkowski*
5. Acoustic investigations of liquids ( $C_8F_{16}$ ,  $C_9F_{18}$ ) at various thermodynamic conditions.  
*T.V. Burlachenko, N.B. Lezhnev*
6. Acoustic spectroscopy of simple liquids at high pressure.  
*U.M. Esanov*

7. Ultrasound studies of critical micellar concentrations of ionic surfactants.  
*A. Jumaev, N. Lezhnev, B. Ovlyakuliev, K. Amanov*
8. Influence of pressure on acoustic and reologic parameters in water solution of lauril sodium sulphate.  
*B.T. Khamidov, N.B. Lezhnev*
9. Kinetics of micelle formation of carboxymethylated surfactant in aqueous solution.  
*N. Pirmedova, N.B. Lezhnev, B. Ovlyakuliev*
10. Temperature-pressure hysteresis of the acoustic parameters of the supercooled liquids.  
*A.V. Rudin*
11. Mathematical processing of Mandelshtam-Brillouin spectra.  
*G.P. Stanev*
12. Correlation of acoustic distribution of the relaxation times and anti-water properties of lubricant liquids.  
*V.M. Troitsky*

The sessions involved numerous debates. In addition a final round table discussion under Professor B.D. Cook's moderatorship summarized achievements of the School. The two and a half hour of mutual exchange of information and ideas on the role of acousto-optics, its development and perspectives was very alive and fruitful.

An excursion by boat from Hel to Gdańsk, the short visit to the acousto-optical laboratory at the Institute of Experimental Physics of the University of Gdańsk (demonstrations by P. Kwiek) and sightseeing of the Gdańsk Downtown were included.

The proceedings of the School are published by SPIE (International Society of Optical Engineering) (Acousto-Optics and Applications II, A. Śliwiński, P. Kwiek, B. Linde, A. Markiewicz [Eds.] Proc. SPIE 2643, 1–394).

The next 7-th International Spring School on Acousto-optics and Applications will be organized in May 1998.

*A.S. Śliwiński*