

Chronicle

Fifth Polish Conference in Radiospectroscopy and Quantum Electronic from the Viewpoint of Solid State Physics

The Fifth Polish Conference in Radiospectroscopy and Quantum Electronics from the viewpoint of solid state physics, organized by the Institute of Physics, Polish Academy of Science and the Institute of Physics, Adam Mickiewicz University Poznań, took place in Poznań on 24th – 27th April, 1972. It was one of the traditional Conferences organized every second year since 1964 at the initiative of physicists from the Poznań center known for their excellent research achievements in quantum electronics and radiospectroscopy.

The Poznań meetings enjoy a great interest of Polish specialists in both fields, which is manifested, in particular, by a still increasing number of participants (350 persons this year).

The course of the last Conference speaks well for the development of Polish investigations in quantum electronics and radiospectroscopy. The number of 91 contributed papers on the author's own research in quantum electronics and of 76 contributed papers in the field of radiospectroscopy, which have been submitted, are proof of it.

All Polish research centres working in the two fields were represented. Apart from the papers presented during the p.m. sessions, 13 invited lectures have been delivered during the a.m. plenary sessions, including: "Application of laser techniques to physical research" by Tadeusz SKALIŃSKI, "Investigations of the molecular motion in solid bodies" by Jerzy JANIK, "Interaction of the light wave with phonons" by Arkadiusz PIEKARA, "On the great resolving power of the NMR in the solid medium" by Jacek HENNEL, "Radiospectroscopic investigations of fluid crystals" by Zdzisław PAJAŁ, "Magnetic interaction in the solid body" by Leon KOWALEWSKI, the "Theory of crystal field and the theory of molecular orbitals. A comparison" by Alojzy GOŁĘBIEWSKI, "Molecular lasers" by Zbigniew PUZEWICZ, "Application of holography in solid state investigations" by Bohdan KARCEWSKI, "Statistical properties of light" by Adam KUJAWSKI, the "General theory of laser" by Roman Stanisław INGARDEN, "Paramagnetic resonance of the conductivity electrons" by Janusz KONOPKA, "Investigations of the solid state structure with radiospectroscopic methods" by Jan STANKOWSKI.

This year's Conference in Poznań, being a review of achievements in radiospectroscopy and quantum electronics, has proved that the results obtained in many fields in this country are of competitive value when compared with the corresponding accomplishments abroad.

The level of the papers relating to the speakers' own work was, in general, high. A number of original and interesting results has been presented. Unfortunately, there were some exceptions. Hence, it might be suggested to future Organizing Committees to select more carefully the papers to be submitted to later Conferences.

A variety of holograms was demonstrated during the Conference by a group of physicists from the Central Optical Laboratory (Warsaw), while the researchers from the Institute of Physics, Warsaw Technical University, presented, among other things, a new and original method of multiplication of both the holograms and holographic images.

Furthermore, an exhibition of radiospectroscopic instruments produced in Poland was opened during the Conference.

As regards weak points it should be mentioned, that the rather poor acoustics in some rooms make communication difficult between the speakers and discussants. Besides, some of the announced contributed papers have – for unknown reasons – not been published in the Conference materials, which resulted in a not quite complete documentation of the Conference.

On the whole, the V Poznań Meeting was very profitable and well organized. We would like, therefore, to express our gratitude to the Organizing Committee as a whole and Doc. dr Jan STANKOWSKI in particular.

Bohdan Karczewski

Scientific Conference on the Electron Beam Wrocław—Karpacz, September 14–16, 1972

The First Nation-wide Conference on the Application of an Electron Beam has been organized by the Institute of Electron Technology, Technical University, Wrocław. Of the 72 participants in the Conference 49 represented the most important scientific institutions in this field, including the Technical University of Warsaw Academy of Mining and Metallurgy in Cracow, the Institute of Electron Technology UNITRA-CEMI in Warsaw, the Scientific Development Center for Vacuum Electronics in Warsaw and Wrocław, Poznań Technical University and the CRT Works in Piaseczno near Warsaw.

On the first day of the Conference (held in Wrocław) the following plenary lectures were presented:

Application of the Electron Beam by Professor W. BARWICZ I.E.T. Wrocław,

Errors in Electrooptical Imaging by Doc. Dr H. SZYMAŃSKI I.E.T. Wrocław,

On Synthesis Possibilities of Electronoptical Systems by Doc. Dr A. MULAŁ I.E.T. Wrocław.

The resulting debate was held on the two consecutive days at Karpacz-Bierutowice, where further two plenary lectures were delivered:

A review of the contemporary applications of electron microscopy for the solid state investigations by Doc. Dr St. GORCZYCA Academy of Mining and Metallurgy, Cracow, and

Laser Processing of Materials by Doc. Dr W. WOLIŃSKI, Technical University of Warsaw.

All together 27 contributed papers were presented divided into two working sections. Those delivered in the frame work

of the Section of Electron Optics discussed the following problems: examination of the field distribution in electric and magnetic lenses as well as magnetic deflecting systems, analysis and compensation of some electrooptical aberration and the theory of electron beams in the electric and magnetic fields.

The Section of Electron Beam Applications deliberated the following subject matters: the design of arrangements for electron beam microprocessing, welding and melting by use of electron beam, control an interaction of the electron beam with the polymeres and deposition with the aid of the electron beam.

During the Conference an exchange of experiences took place and many contacts between particular research centers have been initiated. Another achievement of the Conference concerned better information on scientific and technological research programme to be developed in this country. The present state of the technology of processing with the help of the laser beam and its competitive possibilities in comparison with the electron beam have been discussed. Moreover, the possibility of getting acquainted with design solutions and the exploitation of several types of electron beam processors, e.g. microprocessor, welder, melting furnace and zone melting arrangements, were offered to all participants in the Conference.

The Conference was regarded as successful. It was suggested to organize the next meeting of this kind in 3-4 years.

Andrzej Mulak

International Conference on Molecular Spectroscopy Wrocław, September 15-19, 1972

The Conference was held at the Wrocław University under the auspices of IUPAC and sponsored by the Polish Academy of Science and the Ministry of Science, Higher Education and Technology of the Polish People's Republic.

About 420 scientists participated from the following 25 countries: Austria, Belgium, Bulgaria, Canada, Czechoslovakia, Denmark, Finland, France, GDR, GFR, Hungary, India, Italy, Japan, Malaysia, Netherlands, Norway, Poland, South Africa, Sweden, Switzerland, UK, USA, USSR, Yugoslavia.

Some 210 papers were presented: 2 were plenary, 33 invited and 175 contributed. Because of the large number of papers it was necessary to hold five parallel sessions on the following topics:

1. New theoretical approaches and new experimental methods.
2. Molecular excitons. Molecular excited states. Application of quantum chemical methods to vibrational problems. Normal coordinate analysis.
3. Spectroscopy and structure of inorganic molecules and coordination compounds.
4. Spectroscopy and structure of organic molecules.
5. Spectral characteristics. Intermolecular interactions. Vibrational spectroscopy of solids.

Novum of the Conference was the presentation of some papers (101) in the discussion groups under the guidance of discussion leaders. This was made in the hope that an organized discussion on selected topics between scientists from different laboratories but working in the same fields would stimulate progress in the field. The following discussion groups were formed: Molecular excitons. Molecular excited states. Spectroscopy of diatomic molecules. Force constant calculations from vibra-

tional frequencies. IR studies of clathrates. Vibrational spectra of oxygen-bond compounds. Electronic spectroscopy of inorganic compounds containing d-electron elements. Electronic spectroscopy of inorganic compounds containing f-electron elements. ESR studies of Cu complexes. Isomerism and tautomerism of organic compounds. Conformation studies by NMR. Application of rare earth complexes in NMR studies. Correlation between spectral and structural parameters of organic compounds. Spectroscopic studies of adsorbed molecules. IR studies of hydrogen-bonded systems, Proton-transfer effect in the hydrogen bond. Influence of hydrogen bond on molecular structure. Lattice vibrations.

The welcoming address of the opening of the Conference were given by the Chairman of the Conference — Professor B. Jeżowska-Trzebiatowska, by the President of the Polish Academy of Sciences Professor W. Trzebiatowski and by the delegate of the Ministry of Science, Higher Education and Technology of Poland — Professor W. Jarominek. Professor N. Sheppard greeted the participants in the name of IUPAC. The opening lectures were given by professor N. Sheppard on "Recent Advances in the Infrared and Raman Spectra of Adsorbed Molecules" and by professor Y. Morino on "Application of Microwave Spectroscopic Techniques to the Detection of Transient Species and to the Study of Reaction Mechanism".

In addition the following lectures were delivered by specially invited speakers:

- A. BARTECKI (Poland): Influence of Sulphur Atoms on the Electronic Transitions in Some Chemical Compounds;
- D. BETERIDGE (UK): Photo-Electron Spectroscopy;
- H. J. BERNSTEIN (Canada): Resonance Raman Spectra;
- P. J. BEYNON (UK): Fourier Transform NMR;
- N. A. BORISEVICH (USSR): Spectroscopy of Complex Molecules in the Gas Phase;
- S. BRATOS (France): Infrared and Raman Spectra of Liquids;
- M. O. BULANIN (USSR): Infrared Spectroscopy of Liquefied Gases;
- M. DAVIES (UK): Dielectric Spectroscopy;
- T. M. DUNN (USA): Spectra of Diatomic Molecules Containing Transition Metal Elements;
- W. P. GRIFFITH (UK): Vibrational Spectra of Nitrido Complexes;
- J. B. GRUBER (USA): Multi-Photon Processes and Energy Exchange Mechanism Involving Rare Earth and Actinide Ions in Molecular Crystals;
- W. A. GUILLORY (USA): Structure, Bonding and Photochemistry of Some Germanium Free Radicals;
- B. JEŻOWSKA-TRZEBIATOWSKA (Poland): Infrared Spectroscopy of Oxygen Bond Systems;
- R. N. JONES (Canada): Problems in Infrared Photometry;
- W. KOŁOS (Poland): Ab Initio Potential Energy Curves;
- I. KOVACS (Hungary): Centrifugal Distortions and Multiplet Structure;
- Z. KĘCKI (Poland): Solvation of Molecules and Ions as Studies by NMR and Vibrational Spectroscopy;
- H. LEFEBRE-BRION (France): Calculations on Rydberg States of Some Diatomic Molecules;
- E. R. LIPPINCOTT (USA): Vibronic Effects in Hydrogen Bonding;
- E. A. C. LUCKEN (Switzerland): Nuclear Quadrupole Resonance;
- W. J. ORVILLE-THOMAS (UK): Rotational Isomerism and the Polar Nature of Chemical Bonds;
- C. N. R. RAO (India): Interaction of Li^+ with Electron Donor

Solvents and Vibrational Spectra of Alkali Metal Ion Solvent Cages and Glasses;

- H. RATAJCZAK (Poland): Charge Transfer Theory and Vibrational Problems of Hydrogen-Bonded Systems;
- J. RASSING (Denmark): Ultrasonic Spectrometry;
- L. SACCONI, J. BERTINI (Italy): Proton Magnetic Resonance Spectra of Paramagnetic Molecules;
- C. SANDFORFY (Canada): Chemical Spectroscopy in the Vacuum Ultraviolet;
- C. SCHAFFER (Denmark): Phase-fixed 3-Symbols and Coupling Coefficients for the Point Groups;
- O. SINANOĞLU (USA): Molecular Excited States and Potential Surfaces and Many-Electron Non-Closed Shell Theory;
- S. P. SINHA (Malaysia): Application of Rare Earth Complexes as NMR-Shift Reagent in Illustrating the Structure of Organic Molecules;
- H. S. TAYLOR (USA): The Application of Field Theory Techni-

ques to the Computations and Understanding of Atomic and Molecular Properties;

- A. WITKOWSKI (Poland): Vibronic Coupling in Molecules and Molecular Crystals;
- E. WYN-JONES (UK): The Conformational Analysis Using Ultrasonic Relaxation Spectrometry;
- I. A. ZAKHAROVA (USSR): ESCA Spectroscopy.

Most of the presented lectures and papers will be published in a special volume of the Journal of Molecular Structure.

Scientific aspects of the activities were supplemented by a comprehensive attractive social programme.

During the Conference an exhibition of spectroscopy apparatus was organized, where companies such as JEOL—Japan, Perkin-Elmer — Austria, and Pye-Unicam — UK, exhibited their products.

Henryk Ratajczak