mations from the neighbouring fields which may be easily deepened when taking advantage of the very extended list of 351 references.

Ireneusz Wilk
Institute of Physics,
Technical University of Wrocław,
Wrocław, Poland

Meeting Report

IX-th Conference on Quantum Electronics and Nonlinear Optics EKON-80

The Conferences EKON are organized by the Institute of Physics, Adam Mickiewicz University, under the auspices of the Polish Physical Society, in cooperation with the Institute of Experimental Physics of the Warsaw University, Institute of Electron Technology of the Technical University in Warsaw,, Institute of Quantum Electronics of the Military Academy in Warsaw, and the Institute of Plasma Physics and Laser Microsynthesis in Warsaw. These Conferences, organized in Poznań every two years (starting with 1964), have won great popularity and appreciaton in wide circles of scientific workers. English being and official language enables the participants from foreign countries to take an active part in discussions. The Conferences EKON are the review of the current status of scientific researche on nonlinear optics and quantum electronics, conducted both in this and other countries, and play an important role in exchange of scientific information. The last Conference EKON-80, held from April 23-rd to 26-th, 1980, was organized with the active cooperation of the Soviet scientifists. The Organizing Committee - with Prof. Franciszek Kaczmarek as the Chairman - cooperated with a Subcommittee. The latter acting on behalf of the Committee on Coherent and Nonlinear Optics of the Academy of Sciences USSR and presided by acedemician prof. F.V. Bunkin - dealt with all the matters concerning the Conference in USSR.

The debates proceeded in morning plenary session for all the participants, in poster session, which took place on the second day of the Conference, and in two evening sessions held in sections A and B.

Section A - *Quantum Electronics and Laser Techniques* was concerned with the following problems: laser and laser materials; laser theory; generation of short-pulse laser beams; laser spectroscopy (its technique and application of lasers in chemistry, biology and industry); optoelectronics; modulation and detection of laser radiation; information transmission by laser beam; laser plasma and fusion.

Section B - *Nonlinear Optics and Quantum Optics* dealt with light coherence and photon statistics; multiphoton spectroscopy, absorption, ionization and emission; generation of harmonics and mixing of frequencies; nonlinear electro- and magnetooptical effects, self-induced optical processes, dispersion, relaxation and resonance processes, nonlinear optical properties of materials.

Of 333 scientists participating in the Conference, 83 came from abroad. The most numerous group (47 persons) from USSR represented Lebedev Institute of Physics in Moscow, Moscow State University, Institute of Applied Physics in Moscow and other scientific centres: Tomsk, Krasnoyarsk, Novosibirsk, Ashtarak (Armenia), Rostov, Minsk, Vilnius, In the group of 13 physicists coming from GDR there were the representatives of two main quantum electronics centres: Zentralinstitute für Optik und Spektroskopie (Berlin) and Friedrich Schiller University (Jena), 8 persons came from Bulgaria. The representative of other countries USA (3), China (3), Hungary (3), Czechoslovakia (2) were less numerous. Great Britain, Austria, France and Vietnam were represented by one delegate at a time. The Polish centres, apart from Poznań, were represented by the most numerous group from Warsaw (125 participants), then by Łódź (18), Toruń (17), Gdańsk (17), Wrocław (16), and Kraków (13).

The Conference EKON-80 was opened by Prof. S. Kozarski, vice-president of Adam Mickiewicz University, who emphasized its importance for the development of science and its role in the exchange of information. The first lecture in plenary session *Optical Frequency Standards* was delivered by V.P. Chebotaev (Novosibirsk) who presented the recent achievements of the Soviet scientific workers in this

field. Eight plenary lectures delivered were the following: *Theory of Simultons*: *Simultaneous Propagation of Intense Optical Pulses at Different Wavelengths* by J.H. Eberly and M.J. Konopiński (Rochester), *Novel Laser Systems for Nuclear Fussion* by S. Denus (Warsaw), *Coherence Problems of Multiphoton Processes and Special Consideration of Two-Photon Emission* by M. Schubert (Jena), *Time Development Linewidth and Polarization in Two-Photon Absorption* by L. Allen (Brighton), *Laser Light Scattering Spectroscopy* by Ben Chu (New York), *Developments and Application Possibilities of Resonance Coherent Antistokes* by A. Lau (Berlin), and *Hierarchy of Nostability in Laser Systems* by S. Dembiński (Toruń). The lectures delivered in sections were presented by the following scientists: Z. Jankiewicz (Warsaw) - *Generation of Laser Trains by Step - Wise Modulation of Resonator Losses*, S. Metev (Sofia) - *Laser Litography and Its Application to the Microelectronics*, M. Szymański (Poznań) - *New Achievements in the Field of Stoichiometric Lasers*, H. Vogt (Köln) - *Hyper Raman Scattering in Crystals*, M. Kozierowski (Poznań) - *Antibunching Effect in Nonlinear Optical Processes*, B.W. Shore (Livermore) - *Multilevel Atoms in Strong Laser Fields*, E.A. Manykin (Vol ronezh) - *Two-Photon Resonant Third Harmonic Generation*, I.L. Fabieliński (Moscow) - *Stimulated Mandelshtam-Brillouin Scattering in Extermal Resonator*. A special event of the debates became the projection of the film by J.H. Eberly - *Theory of Time-Dependent Spectra of Resonance Fluorescence* characterized by a clear and beautiful form. Another inventive film served also as an illustration to the interesting lecture by S. Dembiński.

It is difficult to discuss in detail all the lectures presented, but it should be noticed that they all were characterized by a high scientific level and gained a great interest of the participants. For example in the first plenary lecture Prof. V.P. Chebotayev presented various laser systems of highly stabilized frequency, which during harmonic generation was tuned in with the frequency of the standard, applying even the seventh harmonic of a submillimetre laser. The latest achievements in construction and optimization of high power pulse laser, as well as their application to the study of plasma were presented by Prof. S. Denus. The systems mentioned allow to obtain a 100 fold volumetric compression of plasma DD in glass microbaloons of a good symmetry. Prof. Ben Chu has shown that the results of classical theory of light scattering when combined with the modern electronic and computer technique allow to obtain new information about the structure and dynamics of liquid systems.

From the review of titles of the lectures presented it follows that a lot of time was devoted to the laser spectroscopy. Perhaps in future a separate section will be devoted to this subject. The debates of the Conference proceed usually in two closely related trends. The first one was represented by the plenary and section papers as well as by scientific bulletins included in the programme. The second one, not less important, includes informal meetings that cannot be overappreciated, as they create a unique attractiveness of each scientific conference. Having this in mind, the organizers substantially reduced the number of scientific communications to be delivered during the Conference (22 reports were delivered in each section), publishing instead in English all the scientific papers submitted and qualified by the Programming Committee (240 reports). Owing to such a policy the conference was not overloaded with a redundant programme activities and its participants could spend some time on informal discussions and meetings. The latter were facilitated due to evening discussion organized in the second day of the Conference. The place where the fruitful discussions could take place was the Poster Session which won great interest among the participants, a s results of many interesting works were presented in concise form. The exhibition of selected laser equipment presented in the Institute of Physics, Adam Mickiewicz University completed the Conference. Although it was not so rich as during the previous Conferences - the western firms did not exhibit their equipment but only the respective catalogues - it, nevertheless, gave a review of Polish potential in the construction of the quantum electronics equipment. YAG-pulse laser presented by the Institute of Microwaves and Laser Systems of MTA and the cw YAG-laser made in the Institute of Electron Technology Technical University (Warsaw) gained a great interest among the visitors. There were also crystals of high optical quality grown to meet the requirements of nonlinear optics (the Institute of Physics Technical University, Łódź, and the Institute of Physics, Adam Mickiewicz University, Poznań). In the exhibition of COBRABiD the meters of energy and power of lasers radiation drew the general attention.

The results of the Conference were summed up, as usual, by Prof. Tadeusz Skaliński from the Institute of Physics of the Polish Academy of Sciences, Warsaw. In his speech he briefly discussed the course of the Conference indicating its tradition and on behalf of all participants expressed his thanks to its organizers. Many participants emphasized high scientific level of the EKON Conference and its rank. This allows to expect that these Conferences will be continued.

Zdzisław Blaszczak
Institute of Physics,
Adam Mickiewicz University,
Poznań, Poland