

Chronicle

Conference and Exhibition for Holography and its Applications in Industry and Science, November 1973, Warsaw, Poland

A nation-wide Conference on holography and its applications in industry and science, and the associated exhibition have been organized by the Central Optical Laboratory (COL) in Warsaw. The conference took place in November 27-28 1973. Among 300 participants there were also several foreign specialists coming from abroad.

Both the scientists from research institutes and mechanical engineers working in metal industry have participated in the Conference. The sessions were either general or held in two separate sections. The lectures given by various specialists covered the most vital problems of holography. First plenary session was opened by M. Pluta (COL). This lecture on *Principles and applications of holography*, was followed by three reports: *Properties of lasers used in holography*, by T. Lipowiecki and Z. Puzewicz (Institute of Quantum Electronics), *An universal holographic system developed in COL*, by M. Fuszara and T. Chrobak (COL) and *New photosensitive materials for holography* by M. Sadlej and B. Smolińska (Institute of Physics, Technical University of Warsaw). The afternoon session run in two parallel A and B sections.

Section A was devoted to various applications of holography in the industry. In *Holographic non-destructive testing of materials and of mechanical elements* by F. Pawluczyk (COL) a special attention has been paid to the application of holographic interferometry for studies of bonded structure and for the measurements of deformation and displacements. *Polarized light holography and its applications in studies of strains* was presented by M. Daszkiewicz (COL). J. Zieleniuk (Institute of Basic Problems of Technology, The Polish Academy of Sciences) in his lecture *Methods and applications of acoustic holography* gave a general review and presented his own results obtained in this field.

In section B was devoted to holographic storage and processing. Three papers have been presented: *Theory of holographic processing of information* by H. Lenk (Zentral Institut für Optik and Spektroskopie, Berlin-Aldershof, DDR), *Holographic data storage and retrieval* by M. Matczak, Z. Puzewicz and Z. Kraska (Institute of Quantum Electronics), and *Holographic filtering and identification of optical images* by A. Dubik and L. Borowicz (Military Technical Academy). Next day in first section the following reports were presented: *Holographic interferometry of phase objects* by A. Budziak (Institute of Physics, Jagiellonian University of Krakow), *The uses of holography for plasma studies* by S. Kozikowski (Institute of Nuclear Research, Świerk), *Holographic vibrations and motion analysis* by W. Chabros (COL) and *Applications of holography in analysis of fine particles* by A. Kozikowska (Institute of Geophysics — Polish Academy of Sciences). In the second section the following lectures were delivered: *Holographic photogrammetry and holographic interpretation of photographic pictures* by J. Butowtt, A. Dubik and S. Pachuta (Military Technical Academy), *Holographic optical memories for computers* by R. Kulewski, *Possibilities of appli-*

cation of holography in microelectronics by T. Szoplik, K. Macukow and A. Kaletyński (Institute of Physics, Technical University of Warsaw). In last lectures a particular attention was given to the application of holographic technique in projection of masks on microelectronic wafers (holomaskers). In plenary session the lecture *Projective properties of holographic imagery*, by M. Miller from the Institute of Radio Engineering and Electronics, of the Czechoslovak Academy of Sciences in Prague was followed by *Holographic microscopy and microinterferometry* by M. Pluta (COL). The latter author gave a review of actually known microholographic systems and described a holographic interference microscope which had been designed and constructed in COL. Finally, he discussed the problem of elimination of coherent noise and speckle patterns.

The last session was devoted to the discussion on the role of applied optics, in scientific research and industry, in general, and of laser technique and holography, in particular.

The Conference was combined with an exhibition available for the participants for 6 days. The chief purpose of the exhibition was to show the range of practical applications of holography. Holography systems were among others represented by: a versatile holographic kit (model ZHL) produced by Polish Optical Factory, a prototype of a holographic interference microscope constructed by R. Pawluczyk in COL, a simple device for Fourier spectroscopy with holographic subtraction of spectral lines, produced by COL; an experimental equipment for projection of holomask (Institute of Physics, Technical University, Warsaw), a model of holographic memory (Military Technical Academy), a microholographic device for information storage (Institute of Quantum Electronics). In a large collection of lasers — Ne-He lasers for holographic and other purposes were most strongly represented. A special attention deserved three models, namely LG360s (for schools), LG600 (for research works) and GL-1 (for mining) produced for sale by Polish Optical Manufacture. Of other types the following should be mentioned; two-pulsed dye lasers (of which one was pumped by means) of a nitrogen laser, and the other by using flash lamps), constructed in Institute of Experimental Physics, University of Warsaw: He-Cd laser giving 40 mW in blue (446.1 nm) light in the fundamental (TEM₀₀) mode; He-Se laser emitting eight lines within 441.6–530.5 nm a pulsed ruby laser with 5J output (all of them being constructed in the Institute of Quantum Electronics).

Several exhibitors demonstrated a number of various holograms. The presented (about 60) holographic interferograms have shown the applicability of holographic interferometry in studies of various technical problems (e. g. measurements of deformations and displacements caused by pressure, detection of delaminations in bonded structures, analysis of vibrations, distribution of temperature in plasma, diffusion of liquids and gases).

The exhibition was a success. Numerous visitors were given the opportunity to get acquainted both with holography and various possibilities of its applications.

Maksymilian Pluta