

## The First Polish Conference on Applied Optics

The First Polish Conference on Applied Optics organized by the Institute of Technical Physics, Technical University of Wrocław, Poland took place on September 20–25 1971 in Bierutowice (Poland). An Organizing Committee has been called with

Professor M. Gaj	Chairman
Dr C. Wesołowska	Vice-chairman
Dr I. Wilk	Scientific Secretary
Mrs K. Niemierowska	Member
Mr T. Marcinow	Member

There were 128 persons participating in the Conference as representatives of both the research centres in optics as well as the Polish Optical Industry. Our guests from abroad were prof. B. Havelka and Dr B. Nabelek both from Czechoslovakia. The Conference proceeded in two sections:

### SECTION A

1. The Optical Technology
2. Instruments and Optical Measurement Methods
3. Criteria and Methods of Optical System Evaluation
4. Optical Microscopy

### SECTION B

1. Coherent Optics
2. Theory of Imaging
3. Miscelaneous
4. Thin Film Optics

Eight invited papers have been presented on each of the main topics of the Conference and 81 contributed papers have been read.

The purpose of the Conference was to discuss both the general trends and particular problems in applied optics in Poland and, what is perhaps more important, to help people to get together both as private persons and representatives of particular Institutions. The intention was to stimulate in this way a closer cooperation than that achieved up to now, especially in the frame of either the Conferences

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on special topics organized by the Polish Optical Industry or the annual Meetings of the Polish Optical Society, which occurred not to be the best forum for a wider exchange of opinions among the optics people. Neither the confrontation of the activity of the research centers with the needs of industry seemed to be satisfactory in the past. For some years there have been voices indicating the necessity of calling a nation-wide conference in applied optics, where both the scientists (physicists and specialists of all the branches of optical sciences) and the industry people could get together and talk both formally during the sessions and informally in the lobbying time. An additional reason for calling such a conference was a rather very restricted attendance of Polish specialists at the Optics Meetings abroad, which confronted with a stormy development of new branches of optics deepened the isolation of the particular scientific centres in this country. The results of a preliminary sounding carried out among the scientific institutions concerning the number of people intending to participate in the conference was a surprise for the organizers. We did not expect so much interest, which pleased very much on one side but avoked an anxiety on the other. The reason for the satisfaction was the popularity gained by our idea, the anxiety was caused by the lack of experience in organizing such big meetings as well as the great responsibility confronted with rather modest possibilities of our Institute.

The conference was planned as a local meeting without specialists from abroad. The only foreign scientists came from Czechoslovakia, which by some private contacts communicated their will of participation in the Conference to the Organizing Committee. Their attendance proved to be not only formal. During the Conference a close cooperation between the Czechoslovak and Polish scientific centres has been initiated and in particular a decision made as to a common organizing the next Conference in Czechoslovakia. It has been also declared that a wider collaboration of the Czechoslovak writers

with the Polish periodical *OPTICA APPLICATA* and the Polish writers with the Czechoslovak journal *JEMNÁ MECHANIKA A OPTIKA* is very welcome. To discuss the future collaboration in greater detail it has been decided to arrange a working meeting of the representatives of both sides at the University Palackého, Olomouc, Czechoslovakia at the invitation of Professor Havelka.

The participants of the Conference had an opportunity to acquaint themselves with the most important research in applied optics being actually developed in this country. A broad exchange of opinions on a variety of problems of interest, which took place not only during the sessions but also afterwards sometimes till late at night, resulted in many new ideas and presumably inspired to intensify many investigations. The discussions and the subject matter presented at the Conference were very inspiring. Unfortunately not all the Polish optics people having considerable achievements in science and technology could come. Fortunately these were only a small group. Those who came, both the readers and the disputants, proved to be well informed as to the literature in their respective fields of interest.

A special meeting has been arranged during the Conference to discuss the prospects of creation a vocation of the Polish Optical Society. Three forms of its organizational structure were suggested. These are: 1) as a section of the Polish Physical Society, 2) as a section of the Society of Polish Engineers or 3) as an autonomous Society. A Preparatory Committee has been chosen with Prof. M. Gaj as a head as well as a preliminary programme of the future activity sphere of the Society outlined. The latter may be formulated as follows:

1. Organizing nation-wide conferences in applied optics.
2. Organizing seminars-in-depth on particular fields in applied optics.
3. Informational activity concerning the works carried out in optics (including information concerning the curricula of study in optics on both the undergraduate and graduate level).
4. Cooperation with the foreign Optical Societies and facilitating private contact with the foreign research workers. Planning and facilitating the participation of Polish specialists in scientific meetings organized abroad.
5. Coordinating and encouraging the cooperation between the research workers affiliated with the Universities and research Institutes and the industry people.

Final, at the end of the Conference it has been

agreed that the nation-wide conferences on applied optics should be organized regularly every second year to stimulate in this way a proper and successful development of optical research in Poland. The next Conference was suggested to be arranged in two years again by the local Institute of Technical Physics, Technical University of Wrocław, Poland.

## The Invited Papers

1. *Coherence Problems in Sources of Radiation* — B. KARCZEWSKI, Instytut Fizyki, Politechnika Warszawska.
2. *Development of Laser Technique and its Application in Optics* — Z. PUZEWICZ, Wojskowa Akademia Techniczna, Warszawa.
3. *Some Applications of Optoelectronics* — Z. BODNAR, Instytut Fizyki Technicznej, Politechnika Wroclawska.
4. *Organization of Optics and Optical Education in Czechoslovakia* — B. HAVELKA, Universita Palackého, Olomouc, CSSR.
5. *Some Problems in Optical System Evaluation* — I. WILK, Instytut Fizyki Technicznej, Politechnika Wroclawska.
6. *The Present State and Contemporary Trends in Optical Microscopy Development* — M. PLUTA, Centralne Laboratorium Optyczne, Warszawa.
7. *Dielectric Layers on Absorbing Substrates and Laser Materials* — C. WESOŁOWSKA, Instytut Fizyki Technicznej, Politechnika Wroclawska.
8. *New Trends in the Development of Applied Optics* — H. CHĘCIŃSKA, Instytut Fizyki, Politechnika Wroclawska

## The Contributed Papers

### SECTION A

#### The Optical Technology

1. *A Possibility of Producing Microimages on a Glass Substrate with the Help of Photoresist* — J. BIELSKI, Centralne Laboratorium Optyki, Warszawa.
2. *Selected Problems in Surfacing Optical Elements Treatment with the Help of Diamond Tools by Milling, Lapping and Polishing on Hard Base* — A. DOBRZAŃSKI, Polskie Zakłady Optyczne, Warszawa.
3. *An Investigation of the Accurate Smoothing of Spherical Surfaces Processed with a Grinder of*

*Forced Movement of Both the Tool and Workpiece* — A. SZWEDOWSKI, Instytut Konstrukcji Przyrządów Precyzyjnych i Optycznych, Politechnika Warszawska, Warszawa.

4. *An Analysis of the Glass Raw Materials and Optical Glasses by Means of the Spectroscopic Methods in Infra-Red Region* — A. HUBERT, Jeleniogórskie Zakłady Optyczne, Jelenia Góra.
5. *Determination of the Colourless Degree for Optical Glasses* — S. SOKOŁOWSKI, Centralne Laboratorium Optyki, Warszawa.
6. *Refraction Index Heterogeneity Measurement with the Help of an Autocollimation and an Interference Method* — Z. BODNAR, W. KOWALIK, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
7. *Stria Destructiveness Assessment in the Optical Instruments* — F. RATAJCZYK, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
8. *An Attempt of Numerical Estimation of the Striae Measurement due to GOST-Method* — H. PŁOKARZ, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
9. *Birefringence Assessment in the Small Crystals from the Measurements Carried out for Large Glass Blocks* — J. ZARÓWNY, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
10. *Investigation of Birefringence in the NaCl Monocrystals* — A. BOGDANIENKO, B. HAŁACIŃSKI, Instytut Fizyki, Politechnika Warszawska, Warszawa.
11. *A. Proposal for New Criteria of Striae Classification in the Optical Glass for Shadow Method* — Z. BILEWICZ, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.

### **Instruments and Optical Measurement Methods**

1. *Laser Device for Displacement Measurement* — Z. PUZEWICZ, T. MACHOWSKI, L. BOROWICZ, Cz. SKIBA, Wojskowa Akademia Techniczna, Warszawa.
2. *Photoelectric Tolerator of Focal Lengths* — J. JASNY, S. PŁOCHARSKI, Centralne Laboratorium Optyki, Warszawa.
3. *Analysis and Investigations of Frequency Function of a Dark Field Projector with the Slit System* — B. KLARNER, J. PACZÓSKI, Wojskowa Akademia Techniczna, Warszawa.
4. *Refractometric Analyser for Nontransparent Fluids* — J. SZUKALSKI, Centralne Laboratorium Optyki, Warszawa.
5. *An Electro-Optical Device for Measurement of*

*Pulsing Electromagnetic Fields and Current Surges* — J. SZUKALSKI, Centralne Laboratorium Optyki, Warszawa.

6. *Electro-Optical Methods of Metrical Magnitude Measurements* — J. SZUKALSKI, Centralne Laboratorium Optyki, Warszawa.
7. *Focal Length Digital Meter* — J. JASNY, Centralne Laboratorium Optyki, Warszawa.
8. *New Enlarger Objectives Designed in the Institute for Design of Precise and Optical Instruments* — M. LEŚNIEWSKI, Politechnika Warszawska, Warszawa.
9. *Determination of the Basic Optical Parameters of a Stereoscopic Photographic Measurement System* — A. KUBICA, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
10. *A High-Speed Cinematographic Camera* — E. WNUCZAK, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław, S. KRZECZKOWSKI, Instytut Maszyn Przepływowych PAN, Gdańsk.

### **Criteria and Methods of Optical System Evaluation**

1. *Phase of the Transfer Function for Changes in Focussing and Asymmetric Apodization* — R. JÓZWICKI, Instytut Konstrukcji Przyrządów Precyzyjnych i Optycznych, Politechnika Warszawska, Warszawa.
2. *Criteria and Quality Assessment Methods for Microscope Objectives and Eye-Pieces* — T. KOZŁOWSKI, Centralne Laboratorium Optyki, Warszawa.
3. *Direct Recovery Problem in Incoherent Imaging* — I. WILK, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
4. *Test Image Localization with Rectangular Intensity Distribution for Systems with Spherical Aberration* — A. WOJTASZEWSKI, Instytut Konstrukcji Przyrządów Precyzyjnych i Optycznych, Politechnika Warszawska, Warszawa.

### **Optical Microscopy**

1. *Interference Differential Microscopy with a Continuous Changes of Image Magnitude and Split Direction* — M. PLUTA, Centralne Laboratorium Optyki, Warszawa.
2. *Holographic Interference Microscope* — R. PAWLU CZYK, Centralne Laboratorium Optyki, Warszawa.
3. *Problem of Maximal Light Dumping in the Polarization Microscope* — M. DASZKIEWICZ, Cen-

- tralne Laboratorium Optyki, Warszawa.
4. *Holography of Polarizing Objects* — M. DASZKIEWICZ, Centralne Laboratorium Optyki, Warszawa.
  5. *New Trends in Fluorescence Microscopy* — M. POPIELAS, Centralne Laboratorium Optyki, Warszawa.
  6. "Point" Microscopic Photometer — B. KRZYŻANOWSKA, Centralne Laboratorium Optyki, Warszawa.
  7. *Requirements for Testing Objects Used for Imaging Error Analysis of Microscopic Objects* — S. WOJCIECHOWSKI, Polskie Zakłady Optyczne, Warszawa.
  8. *Stereoscopic Eyepiece Cap for Microscopes* — A. SOJECKI, Polskie Zakłady Optyczne, Warszawa.
  9. *Microstereology* — T. KOZŁOWSKI, Centralne Laboratorium Optyki, Warszawa.
  10. *A Phase- and-Amplitude-Contrast Device in Application to Semiconductive Material Investigation* — M. POPIELAS, Centralne Laboratorium Optyki, Warszawa.
  11. *Imaging of the Microscopic Objective Pupils into a Fixed Position by Applying a Movable Single-Lens Component with Practically Stable Object-Image Distance* — A. CHOJNACKA, Centralne Laboratorium Optyki, Warszawa.
  12. *A New Optical System Realizes a Continuously Variable Magnifications* — J. WILK, Polskie Zakłady Optyczne, Warszawa.
  13. *A Halogen and Luminescence Illuminators for Microscopy* — M. POPIELAS, Centralne Laboratorium Optyczne, Warszawa.
  - SKI, B. SMOLIŃSKA, Instytut Fizyki Politechnika Warszawska, Warszawa.
  6. *Problem of the Negative in Holography* — A. KALESTYŃSKI, Instytut Fizyki, Politechnika Warszawska, Warszawa.
  7. *White Light Reconstruction of Holograms Recorded on 10E70 Photographic Plates* — R. PAWLUCZYK, Centralne Laboratorium Optyczne, Warszawa.
  8. *Identification of the Optical Signals by Means of Lensless Fourier Holograms* — W. CHABROS, Wojskowa Akademia Techniczna, Warszawa.
  9. *Holographic Diffraction Gratings — Properties and Applications* — W. CHABROS, Wojskowa Akademia Techniczna, Warszawa.
  10. *Strain Investigation by Holographic Interferometry Methods* — W. CHABROS, Wojskowa Akademia Techniczna, Warszawa.
  11. *Chemical Treatment of the Laser Bars and its Influence on the Laser Action* — A. TULIBACKI, Z. OŹDŹEŃSKA-MARKS, J. SZYDLAK, Wojskowa Akademia Techniczna, Warszawa.
  12. *Laser Rods Technology* — A. TULIBACKI, Wojskowa Akademia Techniczna, Warszawa.
  13. *Investigation of Structure Nonuniformity of the Laser Glasses with a Replica Method on an Electron Microscope* — I. DĄBROWSKA, Wojskowa Akademia Techniczna, Warszawa.
  14. *A Nonlinear Filter for  $\lambda = 1.06 \mu\text{m}$*  — Z. JANKIEWICZ, Z. PUZEWICZ, K. KICIAK, W. NOWAKOWSKI, Wojskowa Akademia Techniczna, Warszawa.
  15. *Design of Multiplate Mirrors* — Z. PUZEWICZ, Z. JANKIEWICZ, J. SZYDLAK, W. NOWAKOWSKI, Wojskowa Akademia Techniczna, Warszawa.
  16. *Optical Systems for an Automatic Recognition of Accidental Images* — A. DUBIK, L. BOROWICZ, Wojskowa Akademia Techniczna, Warszawa.
  17. *Differentiation of the Object Functions by Means of Holographic Filters* — A. DUBIK, L. BOROWICZ, J. BUTOWTT, Wojskowa Akademia Techniczna, Warszawa.
  18. *Optical Methods of Phase Object Investigation Specifically with the Help of Holographic Interferometry* — A. BUDZIAK, Instytut Fizyki, Uniwersytet Jagielloński, Kraków.

## SECTION B

### Coherent Optics

1. *Inversion in the Theory of Coherence* — T. JANNON, B. KARCZEWSKI, Instytut Fizyki, Politechnika Warszawska, Warszawa.
2. *Coherence Properties of Radiation Emitted from a Large Dicke System* — J. CHROSTOWSKI, B. KARCZEWSKI, Instytut Fizyki, Politechnika Warszawska, Warszawa.
3. *Influence of Conducting Screen Sort on Polarization States of the Wave Diffracted on a Half Plane* — A. DOMAŃSKI, Instytut Fizyki, Politechnika Warszawska, Warszawa.
4. *Duplicating of Holograms* — A. KALESTYŃSKI, B. SMOLIŃSKA, Instytut Fizyki, Politechnika Warszawska, Warszawa.
5. *Reflection Relief Holography* — A. KALESTYŃ-
1. *Inverse Diffraction of the Electromagnetic Waves* — B. KARCZEWSKI, Instytut Fizyki, Politechnika Warszawska, Warszawa.
2. *An Experimental Comparison of the Diffraction*

### Theory of Imaging

*Theories as Formulated by Rayleigh-Sommerfeld and Miyamoto-Wolf, Respectively* — A. KALESTYŃSKI, A. ŻARDECKI, Instytut Fizyki, Politechnika Warszawska, Warszawa.

3. *On Some Properties of the Stigmatic Beams for the Plane Surfaces* — M. GAJ, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
4. *Superachromatic Correction in Compliance with the Chromatic Lateral Aberration* — M. GAJ, J. NOWAK, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
5. *On an Attempt of Automizing the Lay-out Calculation on Computer* — M. RAFAŁOWSKI, Instytut Konstrukcji Przyrządów Precyzyjnych i Optycznych, Politechnika Warszawska, Warszawa.
6. *A Method of Preliminary Optimizing the Optical Systems* — T. KRYSZYŃSKI, Centralne Laboratorium Optyki, Warszawa.
7. *The Application of Higher Order Aberrations for the Optical System Calculation* — M. GAJ, A. MAGIERA, L. MAGIERA, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
8. *Some Remarks Concerning Aberration Correction in Pancratic Systems* — J. BARTKOWSKA, Centralne Laboratorium Optyczne, Warszawa.
9. *An Optical System of a Colour Shadow-Mask Tube for the Colour Screen Printing* — E. JAGOSZEWSKI, B. LIPIŃSKA, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
10. *A Single-Lens Stigmatic Condensor* — H. WOJEWODA, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
11. *A Method of Tolerance Evaluation for Optical System Parameters* — M. PŁUŻAŃSKI, Centralne Laboratorium Optyki, Warszawa.
12. *An Analysis of Optical System Decentration with the Emphasis for Microscopic Objectives* — M. GAJ, J. OSIŃSKI, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.

### Miscellaneous

1. *A Magneto-Optical Modulator Using the Monocrystal YIG* — L. GROCHOWSKI, Instytut Fizyki, Politechnika Warszawska, Warszawa.
2. *A General Colour Indicator Meter „MOBAR”* — S. KOSEK, Instytut Elektrotechniki, Zakład Techniki Świetlnej, Warszawa — Międzylesie.
3. *Refraction of Light at a Moving Boundary* —

H. WOJEWODA, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.

4. *Parameter Determination for Electrono-Optical Systems with the Help of Resistor Network* — G. MULAŁAK, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
5. *Infrared Radiation Detectors Made of Mixed Crystals* — H. PYKACZ, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
6. *New Developments in Optics* — H. CHĘCIŃSKA, Instytut Fizyki, Politechnika Warszawska, Warszawa.

### Thin Film Optics

1. *Optical Coefficients of a Thin  $Zn_3As_2$  Layer* — J. PAWLIKOWSKI, T. BORKOWSKA, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
2. *Application of Mueller Matrix in Ellipsometry* — K. BRUDZEWSKI, Instytut Fizyki, Politechnika Warszawska, Warszawa.
3. *An Ellipsometric Method for Both the Refraction Index and Dielectric Layer Thickness Determination on a Metallic Substrate* — E. IDCZAK, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
4. *Determination of Optical Constants of Dielectric Thin Films* — O. DOBIJA, R. KOWALCZYK, J. MACKIEWICZ, B. MUCHA, Polskie Zakłady Optyczne, Warszawa.
5. *Optical Properties of the Thin Films within the Wavelength Range 220 nm-2500 nm* — E. DOBIERZEWSKA-MOZRZYMAS, C. WESOŁOWSKA, T. MARCINOW, J. PIETRASIK, B. STOLECKI, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
6. *Optical Properties of the  $CaF_2$ ,  $Al_3$ ,  $ThF_3$ ,  $LaF_3$  Layers in the Wavelength Range  $0.25 \mu m - 2 \mu m$*  — T. MARCINOW, J. PIETRASIK, B. STOLECKI, C. WESOŁOWSKA, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.
7. *Anti-Corroding Coatings for Optical Glass Elements* — T. STEFANIAK, Centralne Laboratorium Optyczne, Warszawa.
8. *Light Beam Splitters for Different  $R:T$  Ratios* — C. WESOŁOWSKA, E. DOBIERZEWSKA-MOZRZYMAS, E. IDCZAK, T. MARCINOW, J. PIETRASIK, B. STOLECKI, Instytut Fizyki Technicznej, Politechnika Wrocławska, Wrocław.