

## MONDAY, FEBRUARY 7, 1972

### 8:45 A.M. OPENING REMARKS

R. V. Pole

### 9:00 A.M. PLENARY SESSION

R. V. Pole, *Chairman*

**MA1** Invited Paper: *Early Work on Optical Surface Waves*  
H. Osterberg, L. W. Smith  
American Optical Corporation  
Southbridge, Massachusetts 01550

**MA2** Invited Paper: *Development of Thin-Film Optoelectronics in the Past Two Years*  
P. K. Tien  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**MA3** Invited Paper: *Two-Dimensional Optics*  
J. H. Harris  
University of Washington  
Seattle, Washington 98105

### DISCUSSION, COFFEE

### 11:00 A.M. PASSIVE INTEGRATED ELEMENTS I

L. Kuhn, *Chairman*

**MA4** Invited Paper: *Passive Integrated Optical Circuits*  
T. Li  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**MA5** Contributed Paper: *Guidance of Surface Waves by Periodic Layers*  
J. A. Arnaud, A. A. M. Saleh  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**MA6** Contributed Paper: *Propagation Properties of Optical Signal Waves in Perturbed Dielectric Waveguides by Conformal Mapping Technique*  
Y. Miyazaki  
Nagoya University  
Nagoya, Japan

### DISCUSSION, LUNCH

### 2:00 P.M. PASSIVE INTEGRATED ELEMENTS II

J. H. Harris, *Chairman*

**MB1** Contributed Paper: *Radiation Losses in Multimode, Dielectric Slab Waveguides*  
D. Marcuse  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**MB2** Contributed Paper: *Optical-Waveguide Mode-Conversion Experiments and Further Development of the Theory of Propagation in Waveguides with Gyrotropic and Anisotropic Substrates*  
M. Shah, J. D. Crow, S. Wang  
University of California  
Berkeley, California 94720

**MB3** Contributed Paper: *Unified Theory of Optical Beam Couplers*

T. Tamir, H. L. Bertoni  
Polytechnic Institute of Brooklyn  
New York, New York 11201

**MB4** Contributed Paper: *Holographic Couplers for Integrated Optical Circuits*

E. A. Ash, E. Seaford  
University College London  
London, WC1E 2JE, England

K. Pennington  
IBM Watson Research Center  
Yorktown Heights, New York 10598

**MB5** Contributed Paper: *Polarization-Independent Optical Waveguide*

L. Bergstein  
Polytechnic Institute of Brooklyn  
New York, New York 11201

### DISCUSSION, COFFEE

### 3:45 P.M. FABRICATION TECHNIQUES

H. Nassenstein, *Chairman*

**MB6** Invited Paper: *High-Precision Electron-Beam Technique for Useful Integrated Optics*

G. Möllenstedt  
Universität Tübingen  
74 Tübingen, Germany

**MB7** Contributed Paper: *Electron-Beam Masking for Optical-Waveguide Fabrication*

D. B. Ostrowsky, J. C. DuBois  
Thomson/CSF-LCR/DR1  
91 Orsay, France

**MB8** Contributed Paper: *Electron-Resist Fabrication of Integrated Optical Circuits*

J. E. Goell  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**MB9** Contributed Paper: *Embossed Optical Waveguides*

R. Ulrich, H. P. Weber, E. A. Chandross, W. J. Tomlinson, E. A. Franke  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**MB10** Contributed Paper: *Waveguiding in Proton-Implanted GaAs*

E. Garmire, A. Yariv  
California Institute of Technology  
Pasadena, California 91109  
R. G. Hunsperger  
Hughes Research Laboratories  
Malibu, California 90265

### DISCUSSION

## TUESDAY, FEBRUARY 8, 1972

### 9:00 A.M. MATERIALS I

P. K. Tien, *Chairman*

#### TuA1 Invited Paper: *Materials Aspects of Thin-Film Optical Circuits*

A. G. Chynoweth  
Bell Telephone Laboratories  
Murray Hill, New Jersey 07974

#### TuA2 Contributed Paper: *Optical Transmission Characteristics in Ta<sub>2</sub>O<sub>5</sub> Film*

M. Fujimori, M. Sasaki, M. Honda  
Fujitsu Laboratories  
Kawasaki 211, Japan

#### TuA3 Contributed Paper: *Guided-Wave Propagation in Mixed Silicon Oxide-Silicon Nitride Dielectric Films*

R. D. Standley  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733  
M. Rand  
Bell Telephone Laboratories  
Allentown, Pennsylvania 18103

#### TuA4 Contributed Paper: *Optical Absorption and Scattering in Low-Loss Glasses*

D. A. Pinnow, T. C. Rich  
Bell Telephone Laboratories  
Murray Hill, New Jersey 07974

### DISCUSSION, COFFEE

### 10:45 A.M. MATERIALS II

E. G. H. Lean, *Chairman*

#### TuA5 Contributed Paper: *Fabrication of Integrated Optical Circuits by Solid-State Diffusion*

H. F. Taylor, W. E. Martin, V. N. Smiley, D. B. Hall  
Naval Electronics Laboratory Center  
San Diego, California 92152

#### TuA6 Contributed Paper: *Infrared Waveguides in Silicon*

D. Vincent  
University College London  
London, WC1E 2JE, England

#### TuA7 Contributed Paper: *Thin Organosilicon Films for Integrated Optics*

P. K. Tien, G. Smolinsky, R. J. Martin  
Bell Telephone Laboratories  
Holmdel and Murray Hill, New Jersey

#### TuA8 Contributed Paper: *Light-Guiding Structures of Photo-resist Films*

H. P. Weber, R. Ulrich, E. A. Chandross, W. J. Tomlinson  
Bell Telephone Laboratories  
Holmdel and Murray Hill, New Jersey

#### TuA9 Contributed Paper: *Accurate Measurements of Some Properties of Sputtered-Glass Waveguides*

F. Zernike, E. L. Sloan, J. C. Webster, R. B. McGraw, W. L. Knecht  
Perkin-Elmer Corporation  
Norwalk, Connecticut 06852

### DISCUSSION, LUNCH

### 2:00 P.M. ACTIVE INTEGRATED ELEMENTS I

D. R. Herriott, *Chairman*

#### TuB1 Invited Paper: *Active Integrated Optics*

A. Yariv  
California Institute of Technology  
Pasadena, California 91109

#### TuB2 Invited Paper: *Interactions Between Optical Guided Waves and Surface Acoustic Waves*

L. Kuhn  
IBM T. J. Watson Research Center  
Yorktown Heights, New York 10598

#### TuB3 Contributed Paper: *Excitation and Modulation of 10.6 Micrometer Guided Waves in GaAs Epitaxial Thin Films*

P. K. Cheo  
United Aircraft Research Laboratories  
East Hartford, Connecticut 06108

### DISCUSSION, COFFEE

### 3:45 P.M. NONLINEAR INTERACTIONS

A. Yariv, *Chairman*

#### TuB4 Invited Paper: *Some Problems in Guided-Wave Parametric Interactions*

Y. Suematsu  
Tokyo Institute of Technology  
Tokyo, Japan 152

#### TuB5 Invited Paper: *Waveguide Phase-Matched Parametric Interactions in GaAs*

D. B. Anderson  
Autonetics, Division of North American Rockwell  
Anaheim, California 92803

### DISCUSSION

## WEDNESDAY, FEBRUARY 9, 1972

### 9:00 A.M. FIBERS I

E. Ash, *Chairman*

**WA1** Invited Paper: *Optical Fiber Waveguides*  
P. J. B. Clarricoats  
Queen Mary College, University of London  
London, England

**WA2** Invited Paper: *Fiber Optics for Long-Distance Communication*  
E. A. J. Marcatili  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**WA3** Contributed Paper: *Analysis of Optical Wave Launching and Propagation in Monomode and Multimode Fibers with Imperfections*  
H. J. Heyke, H. Kirchhoff, H. -G. Unger  
Technische Universität Braunschweig  
Braunschweig, Germany

### DISCUSSION, COFFEE

### 10:45 A.M. FIBERS II

S. E. Miller, *Chairman*

**WA4** Contributed Paper: *Loss Measurements of Unclad Optical Fibers*  
P. Kaiser, A. R. Tynes, A. H. Cherin, A. D. Pearson  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**WA5** Contributed Paper: *Optical Transmission Loss in Liquid-Core, Hollow Fibers*  
J. Stone  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**WA6** Contributed Paper: *Measurement of the Angular Distribution of Light Scattered from a Glass Fiber Optical Waveguide*  
E. G. Rawson  
Bell Telephone Laboratories  
Murray Hill, New Jersey 07974

**WA7** Contributed Paper: *Dispersion in a Low-Loss, Multimode Fiber Measured at Three Wavelengths*  
D. Gloge, R. D. Standley, W. S. Holden, E. L. Chinnock, T. S. Kinsel  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**WA8** Contributed Paper: *Direct Measurement of the (Baseband) Frequency Response of Multimode Fibers*  
D. Gloge, E. L. Chinnock, D. H. Ring  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

### DISCUSSION, LUNCH

### 2:00 P.M. MISCELLANEOUS

Y. Suematsu, *Chairman*

**WB1** Contributed Paper: *Light-Intensity Modulation in CdS Film by Franz-Keldysch Effect*  
M. Honda, M. Fujimori, Y. Nishimura  
Fujitsu Laboratories  
Kawasaki, 211, Japan

**WB2** Contributed Paper: *Diode Phase Shifters for Infrared Radiation*  
J. R. Carter  
Naval Weapons Center  
China Lake, California 93555

**WB3** Contributed Paper: *Small-Area, High-Radiance, Light-Emitting Diodes Coupled to Multimode Optical Fibers*  
C. A. Burrus  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**WB4** Contributed Paper: *Fiber-Optics-Coupled Semiconductor Lasers*  
S. E. Smathers, S. B. Gibson, W. B. Lyttle  
Night Vision Laboratory, USAECOM  
Fort Belvoir, Virginia 22060

**WB5** Contributed Paper: *Optical-Coupling Problems in Communication Systems with Glass Fiber Waveguides*  
O. Krumpholz  
AEG-Telefunken  
Ulm, Germany

**WB6** Contributed Paper: *New Kind of Detector for Use in Communication Systems with Glass Fiber Waveguides*  
S. Maslowski  
AEG-Telefunken  
Ulm, Germany

### DISCUSSION, COFFEE

### 4:00 P.M. POST-DEADLINE PAPERS

A. J. DeMaria, *Chairman*

### DISCUSSION

## THURSDAY, FEBRUARY 10, 1972

### 9:00 A.M. INTEGRATED SOURCES AND AMPLIFIERS I

E. S. Barrekette, *Chairman*

**ThA1** Contributed Paper: *Distributed-Feedback Lasers in Thin-Film Optical Waveguides*

J. E. Bjorkholm, C. V. Shank  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**ThA2** Contributed Paper: *Leaky-Wave, Thin-Film Laser*

P. Zory  
IBM T. J. Watson Research Center  
Yorktown Heights, New York 10598

**ThA3** Contributed Paper: *Light Amplification in a Thin Film*

M. S. Chang, P. Burlamacchi, C. Hu, J. R. Whinnery  
University of California  
Berkeley, California 94720

**ThA4** Contributed Paper: *Evanescence-Field-Pumped Dye Laser*

E. P. Ippen, C. V. Shank  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**ThA5** Contributed Paper: *Some Experiments with Thin-Film Organic Dye Lasers*

G. Zeidler  
Forschungslaboratorien der Siemens AG  
München, Germany

**DISCUSSION, COFFEE**

### 10:45 A.M. INTEGRATED SOURCES AND AMPLIFIERS II

H. Kogelnik, *Chairman*

**ThA6** Contributed Paper: *Waveguide Gas Lasers*

P. W. Smith  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**ThA7** Contributed Paper: *Lasing Characteristics of Optical Guides in Double-Heterostructure-Semiconductor Lasers*

J. Umeda, R. Ito, T. Tsukada, H. Nakajima, O. Nakada  
Hitachi Ltd.  
Kokubunji, Tokyo, Japan

**ThA8** Contributed Paper: *Stimulated Raman Gain in Optical Waveguides*

E. P. Ippen, R. H. Stolen  
Bell Telephone Laboratories  
Holmdel, New Jersey 07733

**ThA9** Contributed Paper: *Amplification of 1.06 Micrometers Using Nd-Glass Thin-Film Waveguide*

H. Yajima, S. Kawase, Y. Sekimoto  
Electrotechnical Laboratory  
Tanashi-shi, Tokyo, Japan

**DISCUSSION**