

# Contents

ix *Conference Committee*

## SOL-GEL I

- 3 **Molecular design of oxide precursor for advanced materials [CR68-01]**  
L. G. Hubert-Pfalzgraf, Univ. de Nice-Sophia-Antipolis (France)
- 25 **Sol-gel nonlinear materials based on the incorporation of nanosize crystals and fullerene derivatives [CR68-02]**  
M. Guglielmi, Univ. di Padova (Italy)
- 54 **Transparent polymer/silica hybrid gels [CR68-03]**  
L. C. Klein, Rutgers Univ.; C. L. Beaudry, Komatsu Silicon America;  
S. Yamazaki, Central Glass Co., Ltd. (Japan); A. B. Wojcik, Spec Tran Corp.
- 64 **Optical chemical sensors based on sol-gel-derived films [CR68-04]**  
B. D. MacCraith, Dublin City Univ. (Ireland)
- 90 **Polymer and ormosil materials for optical data storage [CR68-05]**  
F. Tang, F. Gan, Shanghai Institute of Optics and Fine Mechanics (China)

## SOL-GEL II

- 119 **Sol-gel fabrication for optical communication components: prospects and progress [CR68-06]**  
E. M. Yeatman, Imperial College (UK)
- 143 **Potential of organic-inorganic hybrid materials derived by sol-gel for photonic applications [CR68-07]**  
A. B. Seddon, Univ. of Sheffield (UK)
- 172 **Sol-gel technologies in thin film fabrication for integrated optics lasers and amplifiers [CR68-08]**  
R. M. Almeida, H. C. Vasconcelos, Instituto Superior Técnico (Portugal)
- 192 **Chances and limitations of sol-gel-derived metal oxide and chalcogenide nanocomposites for optic and photonic application [CR68-09]**  
H. K. Schmidt, Institut für Neue Materialien gem. GmbH (FRG)

## POLYMER I

- 207 **Next-generation polymeric photonic devices [CR68-20]**  
L. A. Eldada, L. W. Shacklette, R. A. Norwood, J. T. Yardley, AlliedSignal Inc.

- 228 **Polyimide-based waveguides for guided-wave multi-Gbit/sec MCM optoelectronic interconnects [CR68-21]**  
R. T. Chen, L. Wu, F. Li, Univ. of Texas at Austin; S. Tang, Radiant Research, Inc.; M. Dubinovsky, J. M. Qi, C. L. Schow, J. C. Campbell, Univ. of Texas at Austin; R. W. Wickman, B. Picor, Cray Research, Inc.; M. K. Hibbs-Brenner, J. P. G. Bristow, Honeywell Technology Ctr.; Y. S. Liu, GE Corporate Research and Development Ctr.; S. Rattan, C. Noddings, Microelectronics and Computer Technology Corp.

### SOL-GEL III

- 253 **Passive and active sol-gel materials and devices [CR68-10]**  
M. P. Andrews, McGill Univ. (Canada); S. Najafi, Ecole Polytechnique de Montréal (Canada)
- 286 **New developments in integrated optics using the sol-gel process [CR68-11]**  
P. Coudray, Y. Moreau, P. Etienne, J. Porque, Univ. de Montpellier II (France)

### POLYMER II

- 307 **Designing electro-optical polymer films: optical loss vs EO activity vs stability [CR68-13]**  
G. A. Lindsay, Naval Air Warfare Ctr.
- 313 **Role of intermolecular interactions in fabricating hardened electro-optic materials [CR68-14]**  
L. R. Dalton, A. W. Harper, J. Chen, S. Sun, S. Mao, S. Garner, A. Chen, W. H. Steier, Univ. of Southern California
- 322 **Poling and characterization of photonic waveguide devices for efficient second-harmonic generation [CR68-19]**  
M. L. Jäger, G. I. Stegeman, CREOL/Univ. of Central Florida; S. Bauer, S. Bauer-Gogonea, W. Brinker, S. Yilmaz, W. Wirges, Heinrich-Hertz-Institut (FRG)

### POLYMER III

- 343 **Current status and future of photorefractive polymers for photonic applications [CR68-15]**  
B. Kippelen, N. Peyghambarian, Optical Sciences Ctr./Univ. of Arizona
- 374 **Unification of azo-polymer systems by photo-induced molecular movement [CR68-16]**  
Z. Sekkat, Univ. of California/Davis and Max-Planck-Institut für Polymerforschung (FRG); A. Knoesen, Univ. of California/Davis; W. Knoll, Max-Planck-Institut für Polymerforschung (FRG) and RIKEN—The Institute of Physical and Chemical Research (Japan); R. D. Miller, IBM Almaden Research Ctr.

- 399    **Cross-linked polyimides for integrated optics [CR68-17]**  
K. D. Singer, Case Western Reserve Univ.; T. C. Kowalczyk, H. D. Nguyen,  
NASA Lewis Research Ctr.; A. J. Beuhler, D. A. Wargowski, Amoco  
Chemical Co.
- 422    **Polymer optical fibers for photonics [CR68-18]**  
M. G. Kuzyk, Washington State Univ.



# Conference Committee

## *Conference Chairs*

**Mark P. Andrews**, McGill University (Canada)  
**S. Iraj Najafi**, Ecole Polytechnique Montréal (Canada)

## *Session Chairs*

- 1 Sol-Gel I  
**S. Iraj Najafi**, Ecole Polytechnique de Montréal (Canada))
- 2 Sol-Gel II  
**Mark P. Andrews**, McGill University (Canada)
- 3 Polymer I  
**S. Iraj Najafi**, Ecole Polytechnique de Montréal (Canada)
- 4 Sol-Gel III  
**S. Iraj Najafi**, Ecole Polytechnique de Montréal (Canada)
- 5 Polymer II  
**Mark P. Andrews**, McGill University (Canada)
- 6 Polymer III  
**Mark P. Andrews**, McGill University (Canada)