

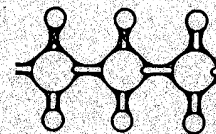
~135 People

TWELFTH BIENNIAL
POLYMER SYMPOSIUM

Sponsored by
The Division of Polymer Chemistry, Inc.
American Chemical Society

December 12-15, 1984

Intercontinental Hotel
Maui, Hawaii



NEW DIRECTIONS IN
HIGH PERFORMANCE POLYMERS

Ordered Polymers
Inorganic Polymers
Advanced Matrix Materials
Radiation Sensitive Polymers

PRESENTATION OF
POLYMER DIVISION AWARD

SPONSORED BY

DOW CHEMICAL CORPORATION

WEDNESDAY EVENING, December 12, 1984
Welcoming Reception

6:00

THURSDAY MORNING, December 13, 1984
Ordered Polymers

J. Economy -- Opening Remarks
General Chairman 8:00

G. Berry, (Presiding):
Introduction & Overview 8:05

P.J. Flory, Stanford University,
"Thermotropic Liquid Crystalline
Materials:" 8:20

Poster Session I and Coffee 9:10

C.L. Choy, The Chinese
University of Hong Kong,
"Thermal Conductivity and
Expansivity of Oriented Polymers" 10:00

D.G. Baird, Virginia Polytechnic
Institute, "Structure & Morphology
Development in Thermotropic Systems" 10:50

Panel Discussion - G. Berry 11:40

THURSDAY AFTERNOON, December 13, 1984
Inorganic Polymers

K. Wynne (Presiding):
Introduction & Overview 3:45

R. West, University of Wisconsin,
"Polysilane High Polymers and
Their Technological
Applications" 4:00

K. Okamura, Tohoku University,
"Polycarbosilanes: Preceramic
Polymers" 4:45

H. Allcock, Penn State University,
"New Chemistry of Polyphosphazenes:
Relationship to High Temperature
Processes and Electroactivity". 5:05

Panel Discussion - K. Wynne 5:40

THERMOLUMINESCENCE OF U.V. - IRRADIATED IONOMERS, J. Vanderschueren L. Aras, M. Corapci, J. Niezette, R. Jerome, and J. Horion, Departement de Chimie Physique et Departement de Chimie Macromoleculaire et Catalyse Organique, Universite de Liege, B 4000 LIEGE - Belgium.

DEVELOPMENT AND CHARACTERIZATION OF RADIATION HARDENED DIELECTRICS, C. Arnold, Jr. and S. R. Kurtz, Sandia National Laboratories, Albuquerque, NM 87185.

PHOTOABLATIONS OF POLYSILANES WITH UV-LASERS, A. Wayne Johnson, John M. Zeigler, Larry A. Harrah, and Merle E. Riley, Sandia National Laboratories, Organization 1126, P. O. Box 5800, Albuquerque, NM 87185.

POLYSILANE SELF-DEVELOPING DEEP-UV PHOTORESISTS, J. M. Zeigler, L. A. Harrah, A. W. Johnson, Sandia National Laboratories, P. O. Box 5800, Albuquerque, NM.

QUANTUM YIELD FOR PMMA CHAIN SCISSION FOR UV LIGHT, Allan R. Schultz, Polymer Physics & Engineering Branch, General Electric Co., Research & Development Center, P. O. Box 8, Schenectady, NY 12301.

CHANGES IN CRYSTALLINE CONTENT OF IRRADIATED ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE, S. K. Bhateja, 3M Company, Electronic and Information Sector Laboratory, 3M Center, 201-1C-01, St. Paul, MN 55144.

ANIONIC POLYMERIZATION OF ETHYL ACRYLATE VIA DIALKYLALUMINUM INITIATORS, I. B. Dicker, Central Research & Development Department, E. I. du Pont de Nemours & Co., Inc., Experimental Station, Wilmington, DE 19898.

SATURDAY MORNING, December 15, 1984
Radiation Sensitive Polymers

M. J. Bowden (Presiding): Introduction & Overview	8:00
J. H. O'Donnell, University of Queensland "Mechanism of Degradation of Radiation Sensitive Polymers"	8:20
Poster Session III and Coffee	9:10
C. G. Willson, IBM Research Laboratory "Chemical Amplification in Polymeric Imaging Systems"	10:00
M. Hasegawa, University of Tokyo, "Topochemical Synthesis and Photochemical Behavior of Radiation Sensitive Polymers"	10:50
Panel Discussion - M. Bowden	11:40

SATURDAY MORNING
POSTER SESSION III

AN ORGANOSILICON NOVOLAC RESIN FOR MULTILEVEL RESIST APPLICATIONS, C. W. Wilkins, Jr., E. Reichmanis, T. M. Wolf, and B. C. Smith, AT&T Bell Laboratories, 600 Mountain Ave., Murray Hill, NJ 07974.

NEW RADIATION SENSITIVE POLYMERS: POLYSILANE DERIVATIVES, R. D. Miller, D. Hofer, C. G. Willson, R. Twieg, D. R. McKean, P. T. Trefonas III, and R. West, IBM, 5600 Cottle Rd., San Jose, CA 95193 and Univ. of Wisconsin, Madison, WI 53706.

RELATIONSHIP BETWEEN ELECTRON SENSITIVITY AND CHEMICAL STRUCTURE OF POLYMERS AS EB RESISTS. POLYAMIDE CONTAINING SULFUR AS POSITIVE TYPE EB RESIST, N. Ogata, K. Sanui, S. Yoneyama, K. Oguchi, T. Nakata, and Y. Takahashi, Department of Chemistry, Sophia University, Chiyoda-ku, Tokyo 102, Japan.

PHOTOCHEMICAL POLYMERIZATION OF THICK EPOXY FILMS, A. R. Guiterrez and R. J. Cox, IBM Corporation, Department K34-281, 5600 Cottle Rd., San Jose, CA 95193.

THURSDAY MORNING*
POSTER SESSION I

SOME CONSEQUENCES OF CONFORMATIONAL SELECTION BY MESOPHASES, Robert R. Matheson, Jr., E. I. DuPont de Nemours & Company, Wilmington, DE 19898.

POLYMERIZATION OF LIQUID CRYSTALLINE EPOXY OLIGOMERS, K. Kanayama, T. Tayama, and A. Shimizu, Central Research Laboratory, Mitsubishi Petrochemical Company, 1315, Ami-cho, Wakaguri, Inashiki-gun, Ibaraki-Pref., Japan.

PRECIPITATION-CRYSTALLIZATION OF POLY-P-PHENYLENE TEREPHTHALAMIDE FROM LIQUID CRYSTALLINE SOLUTION, Q. Renyuan, Academia Sinica, Beijing, China.

FRACTIONATION OF FUNCTIONAL POLYSILOXANE OLIGOMERS WITH SUPERCRITICAL CARBON DIOXIDE, I. Yilgor and J. E. McGrath, Department of Chemistry, Polymer Materials and Interfaces Laboratory, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061.

CONFORMATIONAL CHARACTERISTICS AND CONFIGURATION DEPENDENT PROPERTIES OF POLYSILANES, W. J. Welsh and J. E. Mark, Department of Chemistry and Polymer Research Center, University of Cincinnati, Cincinnati, OH 45221 and Department of Chemistry, College of Mount St. Joseph, Mount St. Joseph, OH 45051.

PHYSICAL PROPERTIES OF HIGH-PERFORMANCE POLY(ORGANOPHOSPHAZENES), W. J. Welsh, M. A. Harrigan, and J. E. Mark, Department of Chemistry and Polymer Research Center, University of Cincinnati, OH 45221 and Department of Chemistry, College of Mount St. Joseph, Mount St. Joseph, OH 45051.

IONIC CONDUCTIVITY OF POLYMER COMPLEXES FORMED BY ALIPHATIC POLYESTERS AND ALKALI METAL SALTS, M. Watanabe, M. Rikukawa, K. Sanui, N. Ogata, Department of Chemistry, Sophia University, Chiyoda-ku, Tokyo 102, Japan.

PREFERENTIAL SOLVATION OF POLYVINYLACETATE (PVA) IN WATER-ETHANOL MIXTURES AND ITS EFFECT ON THE PERMEABILITY PROPERTIES OF PVA-MEMBRANES, Hermann H. Neidlinger, Solar Energy Research Institute, 1617 Cole Boulevard, Golden, CO 80401.

HETEROAROMATIC LADDER POLYMERS AS A NEW CLASS OF CONDUCTING POLYMERS, Oh-Kil Kim, Naval Research Laboratory, Code 6120, Washington, DC 20375.

* POSTER SESSIONS ORGANIZED BY F. HARRIS

FRIDAY MORNING, December 14, 1984
Advanced Matrix Materials

N. Johnston (Presiding): Introduction & Overview	8:00
E.J. Kramer, Cornell University, "Network Effects on Deformation of Glassy Polymers"	8:20
Poster Session II and Coffee	9:10
R.L. van Deusen, Wright Patterson Air Force Base, "Synthesis & Characterization of Higher Performance Structural Materials"	10:00
A.F. Yee, General Electric Company, "Micro Macroscopic Approaches to Tough Plastics"	10:50
Panel Discussion - N. Johnson	11:40

FRIDAY EVENING, December 14, 1984
Polymer Division Award
Sponsored by
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G. L. Donaruma (Presiding)	4:45
W. Stockmayer, Dartmouth "Perspective on Contributions of John D. Ferry to Polymer Science"	4:50
J.D. Ferry, University of Wisconsin, "Fibrinogen - A Megabiopolymer; Fibrin-A Hyperbiopolymer"	5:10
Reception for Professor Ferry	6:00
Banquet	7:00

FRIDAY MORNING
POSTER SESSION II

BISOXAZOLINE-PHENOLIC RESIN REACTIONS: NEW POLYMERIC SYSTEMS FOR COMPOSITES, B. M. Culbertson and T. A. Tufts, Ashland Chemical Co., Columbus, OH 43216.

SILICA MODIFIED WITH 1, 2-POLYBUTADIENE AS AN IMPROVED REINFORCING FILLER, Shinzo Yamashita, Akira Nishikawa, Akira Yamada, Jitsuo Kiji, Hisatoshi Konishi, Tamon Okano, and Hiroyuki Yamauchi, Department of Chemistry, Kyoto Institute of Technology, Matsugasaki, Kyoto 606, Japan Department of Environmental Chemistry and Technology, Tottori University, Tottori 680, Japan.

TORSIONAL DYNAMIC MECHANICAL ANALYSIS OF POLYSULFONE IMPREGNATED COMPOSITE CLOTHS, A. Letton and J. R. Fried, Department of Chemical Engineering Polymer Research Center, University of Cincinnati, OH 45221.

MOLECULAR DEFORMATION MECHANISM AND MECHANICAL PROPERTIES OF POLY (BISPHENOL-A-DIPHENYL SULFONE), Su-Don Hong, Shirley Y. Chung and Robert F. Fedors, Applied Mechanics Technology Section, California Institute of Technology, Jet Propulsion Laboratory, Pasadena, CA 91109, Mail Stop 67-201.

MECHANICAL PROPERTIES AND MORPHOLOGY OF POLY(ETHERETHERKETONE), Peggy Cebe, Shirley Y. Chung, Amitava Gupta, and Su-Don Hong, M. S. 67-201, Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA 91109.

CHARACTERIZATION OF CURE IN ADVANCED MATRIX MATERIALS USING DYNAMIC DIELECTRIC ANALYSIS, D. E. Kranbuehl, S. Delos, J. Mayer, Eun Yi, and R. Howell, Dept. of Chemistry, College of William and Mary, Williamsburg, VA 23185.

TOUGHENING OF EPOXY NETWORKS WITH POLYSULFONE OLIGOMERS AND POLYMERS, J. L. Hedrick, I. Yilgor, E. Yilgor, and J. E. McGrath, Department of Chemistry, Polymer Materials and Interfaces Laboratory, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061.

ADVANCED MATRIX MATERIALS: DESIGN OF HIGH-PERFORMANCE POLYIMIDE COMPOSITES WITH CONTROLLED COEFFICIENTS OF THERMAL EXPANSION, L. K. Matiege, T. K. Shah and J. O. Venables, Martin Marietta Laboratories, 1450 So. Rolling Road, Baltimore, MD 21227.

GROUP TRANSFER POLYMERIZATION - A METHOD FOR CONTROL OF POLYMER ARCHITECTURE, W. R. Hertler, D. Y. Sogah, O. W. Webster, Central Research & Development Department, E. I. du Pont de Nemours & Co. Inc., Experimental Station, Wilmington, DE 19898.

CATALYSTS FOR POLYETHERIMIDE SYNTHESIS, D. M. White, and D. G. Keyes, GE Corporate Research & Development, Building K-1, Room 5A42, P. O. Box 8, Schenectady, NY 12301.