

## HOTEL

The Symposium will be held at the Nugget Hotel in Sparks, Nevada (near Reno). This fine Hotel offers a thousand rooms, indoor swimming pool, health club, hot spas, eight award winning restaurants and other amenities. The hotel is located 10 minutes from the Reno Airport. Courtesy transportation is provided by the Hotel. In addition, taxi and limousine or bus service are also available and parking is gratis at the Hotel. Snow skiing is very popular in Reno in January with more than a dozen areas such as Squaw Valley, Heavenly Valley, and Alpine Meadows located within 1 hour drive from the Hotel. The group room rates are \$75, single and double occupancy, for rooms in the Tower; and \$60, single and double occupancy, for rooms in the Courtyard. Government rates are also available. The Hotel will honor the reduced rate 3 days before and after the Symposium. Please make your reservation directly with the Hotel by calling 1-800-648-1177 and reference the Polyimide meeting when making your reservation. The registration fee for the symposium is \$450 and \$100 for an accompanying guest not attending the technical program. A reduced rate is available for students. The fee includes registration, Symposium Book, breakfast for 3 days, welcoming reception, banquet, and coffee/soda breaks. Please send the completed registration form and remittance, made payable to **ACS Division of Polymer Chemistry, Inc.**, to: Diane M. Morrill, Division of Polymer Chemistry, Inc., 1103 Hahn Hall, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061-0212. Phone: 703-231-3029; Fax: 703-231-8517.

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### REGISTRATION FORM

**Recent Advances in Polyimides and  
Other High Performance Polymers**  
The Fourth Interdisciplinary Symposium  
January 18-21, 1993  
Nugget Hotel • Sparks, Nevada

Name \_\_\_\_\_

Organization \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Tel: (Business) \_\_\_\_\_ Fax: \_\_\_\_\_

Accompanying Guest \_\_\_\_\_

VISA OR MASTERCARD (circle one)

Account # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Symposium Registration Fee: \_\_\_\_\_

Accompanying Guest Symposium Reg. Fee: \_\_\_\_\_

TOTAL ENCLOSED: \_\_\_\_\_

**Cancellation in writing after December 18, 1992  
subject to \$50 fee.**

Division of Polymer Chemistry, Inc.  
American Chemical Society  
Diane M. Morrill  
1103 Hahn Hall  
Virginia Polytechnic Institute & State University  
Blacksburg, VA 24061-0212

*The Fourth Interdisciplinary Symposium*

on

## RECENT ADVANCES IN POLYIMIDES AND OTHER HIGH PERFORMANCE POLYMERS



Sponsored by



THE DIVISION OF POLYMER CHEMISTRY, INC.  
AMERICAN CHEMICAL SOCIETY

Nugget Hotel  
Sparks, Nevada (near Reno)

January 18-21, 1993

*Chairman*

**Paul M. Hergenrother**

NASA Langley Research Center

Mail Stop 226

Hampton, VA 23665-5225

Phone: (804) 864-4270

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POSTER PAPERS ARE SOLICITED

## The Interdisciplinary Symposium on Recent Advances in Polyimides and Other High Performance Polymers

THE POLYMER DIVISION OF THE AMERICAN CHEMICAL SOCIETY is pleased to announce a Symposium on Recent Advances in Polyimides and Other High Performance Polymers. This symposium, the fourth in a series, will be held at the Nugget Hotel in Sparks, Nevada (near Reno), January 18-21, 1993. A broadly based program has been planned for the symposium with lectures by recognized experts from academic, government and industrial organizations. The formal program will provide a basis for active participation by all attendees.

The three day technical program will feature lectures on recent developments in the synthesis, characterization, fabrication, applications and markets for polyimides and other high performance polymers. The first two days of the technical program will concern polyimides while the last day will concentrate on other high performance polymers and potential markets.

A poster paper session will be an important part of this meeting. The poster papers should include new findings on polyimides/other high performance polymers or information on new commercial high performance materials. Poster papers will be on display for two days with the formal poster paper session held at the end of the second day. An abstract (250 words maximum) will be required by November 1, 1992. The abstract should be sent to the chairman: Paul M. Hergenrother, NASA Langley Research Center, MS 226, Hampton, Virginia 23665 [Phone: (804) 864-4270].

A similar symposium held in San Diego, California in January 1990 was attended by 210 people representing 9 countries and 110 organizations. Attendance will again be restricted to approximately 200.

### Monday - January 18, 1993

3:00 - 8:00 P.M. **Registration**  
6:30 - 9:30 P.M. **Welcoming Reception**

### Tuesday - January 19, 1993

7:30 A.M. **Continental breakfast and registration**  
8:30 A.M. Condensation Polyimides: Recent Developments  
F. W. Harris, The University of Akron  
9:30 A.M. Base Catalyzed Imidization of Polyamic Alkyl Esters  
W. Voksen, T. Pascal, J. Labadie and M. Sanchez, IBM Almaden Research Center  
10:15 A.M. **Break**  
10:30 A.M. Kinetic and Mechanistic Studies of Homogeneous Solution Imidization  
J. E. McGrath, Y. J. Kim, T. E. Glass and G. D. Lyle, Virginia Polytechnic Institute and State University

11:15 A.M. Preparation of Soluble Polyimides Containing Pendent Imide Groups  
A. L. Rusanov and Z. B. Shifrina, A. N. Nesmeyanov, Institute of Element-Organic Compounds, Russian Academy of Sciences (Russia)  
12:00 P.M. **Lunch (on your own)**  
1:30 P.M. Polyimide Chemical Structure/Property Relationships: Recent Work  
T. L. St. Clair, NASA Langley Research Center  
2:30 P.M. Molecular Geometry in Polyimide Fibers  
R. S. Irwin, E. I. DuPont DeNemours and Company  
3:15 P.M. **Break**  
3:30 P.M. Imide/Arylene Ether Copolymers  
B. J. Jensen, NASA Langley Research Center  
4:15 P.M. Morphological and Crystallization Behavior of Polyimides Containing Carbonyl and Ether Connecting Groups  
G. W. Wilkes, J. T. Muellerleile and D. K. Brandom, Virginia Polytechnic Institute and State University  
5:00 P.M. **Session Ends**

### Wednesday - January 20, 1993

7:30 A.M. **Continental Breakfast**  
8:30 A.M. Polyimides Containing Hydroxy Groups or Pendent Siloxane Groups  
J. W. Connell, NASA Langley Research Center  
9:15 A.M. New Synthetic Approaches in Polyimide and Bismaleimide Chemistry  
P. M. Preston, Heriot-Watt University (United Kingdom)  
10:00 A.M. **Break**  
10:15 A.M. Addition Polyimides: Recent Developments  
H. D. Stenzenberger, Shell/Technochemie GmbH (Germany)  
11:15 A.M. Some Aspects of Bisnadimide Polymerization. Formation of Expanded Crosslinking by Controlled Cyclopentadiene Evolution  
B. Sillion, P. Mison, M. Senneron and F. Bertholio, CEMOTA (France)  
12:00 P.M. **Lunch (on your own)**  
1:30 P.M. Thin Film Polymer Issues in Electronic Packaging  
S. Senturia, Massachusetts Institute of Technology

2:30 P.M. Processing/Property Relationships in Polyimides  
C. Feger, IBM T. J. Watson Research Center  
3:15 P.M. **Break**  
3:30 P.M. Dielectric and Thermal Characterization of Fluorinated Polyimides  
F. W. Mercer and M. T. McKenzie, Raychem Corporation  
4:15 P.M. High Temperature Polyimide Nanofoams for Microelectronic Applications  
J. L. Hedrick, IBM Almaden Research Center  
5:00 P.M. **Session Ends**  
5:30 - 8:00 **Formal Poster Session (Open Bar)**  
8:00 P.M. **Banquet**

### Thursday - January 21, 1993

7:30 A.M. **Continental Breakfast**  
8:30 A.M. Polyimide Metal Oxides Hybrid Materials Via Sol-Gel Process  
M. Kakimoto, Tokyo Institute of Technology (Japan)  
9:15 A.M. Poly(arylene ether)s: Recent Developments  
J. E. McGrath, Virginia Polytechnic Institute and State University  
10:15 A.M. **Break**  
10:30 A.M. Aryl Ether Cyclooligomers  
M. J. Mullins, D. J. Murray, M. Bishop and E. P. Woo, The Dow Chemical Company  
11:15 A.M. Recent Developments in Benzocyclobutene Technology  
K. Bruza, The Dow Chemical Company  
12:00 P.M. **Lunch (on your own)**  
1:30 P.M. Rigid Rod Polymers and Molecular Composites: Recent Developments  
F. E. Arnold, Air Force Wright Laboratories  
2:30 P.M. Polyimides for 370°C Applications  
D. Scola, United Technology Research Center  
3:15 P.M. **Break**  
3:30 P.M. Polymeric Materials for High Speed Civil Transports  
M. Rogalski, Boeing Commercial Airplane Group  
4:15 P.M. Recent Development in Polyimide Composites  
D. Wilson, BP Chemicals/Hitco  
5:00 P.M. **Symposium Ends**