TUESDAY, OCTOBER 20, Continued

ORDERED THIN FILMS, *Continued*

10:00 **Coffee Break**

10:30 **F. Bates, University of Minnesota**
Block Copolymer Melts: From Three to Two Dimensions

11:30 **G. Whitesides, Harvard University**
Self-Assembled Monolayers and the Physical-Organic Chemistry of Interfaces

12:30 **Lunch**

SURFACE TENSION/INTERFACES

2:00 **J. Koberstein, University of Connecticut**
Headgroup Effects on the Interfacial Properties of Polymers

3:00 **B. Sauer, Du Pont**
Surface Tension of Polymer Melts and Blends

3:45 **Coffee Break**

4:15 **S. Kumar, Pennsylvania State University**
The Role of Chain Architecture in Determining The Surface Tension of Polymeric Systems

5:00 **K. Shull, IBM Almaden Research Center**
Model Metal Dispersions in Polymeric Matrices

6:00 **Banquet**

POSTER SESSION - II

WEDNESDAY, OCTOBER 21

SOLID/SOLUTION INTERFACE

8:00 **M. Tirrell, University of Minnesota**
Tailoring Interactions at Solid-Liquid Interfaces With Polymeric Amphiphiles

9:00 **M. Kim, Exxon**
Experimental Studies of Polymers at Interfaces

10:00 **Coffee Break**

10:30 **G. Strobl, University of Freiburg**
Studies of the Surface Structure of LC-Side Group Polymers by X-ray Reflection and Ellipsometry

11:30 **S. Rice, University of Chicago**
Packing Structures of Polymers at Interfaces

Division of Polymer Chemistry, Inc.
American Chemical Society
Diane M. Morrill
1103 Hahn Hall
Virginia Tech
Blacksburg, VA 24061-0212

Polymer Surfaces and Interfaces

AN INTERDISCIPLINARY WORKSHOP

October 18-21, 1992

Sponsored by

The Division of Polymer Chemistry
American Chemical Society

IBM
Eastman Kodak
Exxon

at

Sheraton Tara Hotel & Resort
Danvers, Massachusetts

Housing and Registration

The conference fee includes the conference registration, hotel accommodations at the Sheraton Tara Hotel for three nights, continental breakfasts, lunches, dinners, coffee breaks and a wine and cheese reception on Sunday evening.

Hotel accommodations will be at the Sheraton Tara Hotel in Danvers, MA, located at Routes 95 and 1 (15 miles north of Boston). Access is easy to Boston's Logan Airport via regularly scheduled limousine service.

Special airline discounts have been arranged with American Airlines which is offering up to 40% off their coach fare and 5% off super saver fare to the participants attending this workshop. Ticket reservations can be made with American by calling American at 1-800-433-1790 and asking to speak with the meeting services desk. Refer to the star record 05Z2V3.

Detach and mail by September 18, 1992

REGISTRATION FORM

Polymer Surfaces and Interfaces • An Interdisciplinary Workshop
October 18-21, 1992
Sheraton Tara Hotel & Resort
Danvers, Massachusetts

Name _____

Organization _____

Mailing Address _____

City _____ State _____ Zip _____

Tel: (Business) _____ Fax: _____

Accompanying Guest _____

VISA OR MASTERCARD (circle one)

Account # _____ Exp. Date _____

Signature _____

Circle Applicable Rate
One registrant per room $650.00
Two registrants per room $550.00 (you may designate a roommate or one will be assigned)
One registrant with non-participating, accompanying guest sharing one room $900.00 (includes room, reception, breakfasts, lunches and dinners)
Registration only: $425.00 (includes reception, breakfasts, breaks, lunches and dinners)
Cancellation in writing after Sept. 15 subject to $25 fee
Please send form and check (payable to ACS Polymer Division) to: Diane M. Morrill, Business Manager, Division of Polymer Chemistry, 1103 Hahn Hall, Virginia Tech, Blacksburg, VA 24061-0212
Phone (703) 231- 3029 • Fax (703) 231-8517

Polymer Surfaces and Interfaces

WORKSHOP ORGANIZERS:
T. P. Russell, IBM Almaden Research Center
R. Nuzzo, University of Illinois

The Polymer Chemistry Division of the American Chemical Society is offering an interdisciplinary workshop on *Polymer Surfaces and Interfaces* at the Sheraton Tara Hotel in Danvers Massachusetts. The workshop, the fourth in a series, has been designed to provide an overview of the current status on polymer surfaces and interfaces with the intent of providing the novice with some of the fundamental concepts and the expert with some of the most recent developments in the field. Advances in the basic concepts of interfaces, as in surface tension, to the more technologically important aspects of adhesion will be presented. Ample time has been given to the invited lecturers to stimulate discussions with the attendees. In addition, two poster sessions are planned so that all attendees have a formal means of presenting some of their most recent work in the field.

Who Should Attend

The workshop has been organized to meet the needs of a broad base of scientists and engineers interested in the interfacial and surface behavior of polymers. Sessions dealing with the most basic concepts of surface tension, the structure of polymers at surfaces and adhesion are planned with outstanding lecturers from a broad institutional base. These lectures are meant to bring novices rapidly to an understanding and appreciation of the most important developments in the field. This workshop should be of interested to scientists and engineers currently working in the field and to anyone who has interest in the area of polymer surfaces and interfaces.

Poster Presentations

All attendees are encouraged to present posters at the workshop. Two poster sessions are planned (Mon. and Tue. evenings). Anyone wishing to present a poster should send a title with authors and affiliations to:

T. P. Russell
IBM ARC, K93/802
650 Harry Road
San Jose, CA 95120

or

Prof. R. Nuzzo
Dept. of Mat. Science & Engr.
University of Illinois
Urbana, IL 61801

The Program

SUNDAY, OCTOBER 18

1:00 Registration
5:00 Social Hour

MONDAY, OCTOBER 19

8:00 Registration
8:45 Welcoming Remarks

ADHESION

9:00 **A. Gent, University of Akron**
Interdiffusion, Interlinking and Adhesion
10:00 **E. Kramer, Cornell University**
Adhesion Enhancement by Block Copolymers at Interfaces
11:00 **Coffee Break**
11:30 **M. Chaudhury, Dow-Corning**
Study of Adhesion via Surface Modification
12:30 **Lunch**

DYNAMICS/KINETICS AT SURFACES

2:00 **S. Granick, University of Illinois**
Motions and Relaxations at the Polymer-Solid Interface
3:00 **L. Leger, College de France**
Lateral Mobility of Polymer Molecules in Contact With a Wall: Influence of the Monomer-Wall Interactions
4:00 **Coffee Break**
4:30 **H. Yu, University of Wisconsin**
Collective Dynamics and Transport of Polymer Monolayers
5:30 **Dinner**

POSTER SESSION - I

TUESDAY, OCTOBER 20

ORDERED THIN FILMS

8:00 **E. Thomas, Massachusetts Institute of Technology**
Interfaces and Near-Surface Structure in Block Copolymers
9:00 **G. Coulon, Instiute Curie, Paris**
Morphology of the Free Surface of Thin Diblock Copolymer Films

Workshop on

Polymer Surfaces and Interfaces

sponsored by

The Division of Polymer Chemistry
American Chemical Society

IBM

Eastman Kodak

Department of Energy
Office of Basic Energy Sciences

October 18-21, 1992

Danvers, Massachusetts

Polymer Surfaces and Interfaces Program

Monday, October 19

8:00 **Registration**
8:45 **Welcoming Remarks**

Adhesion

H. Brown, *Chair*

9:00 **A.Gent, University of Akron**
Interdiffusion, Interlinking and Adhesion
10:00 **E.Kramer, Cornell University**
Adhesion Enhancement by Block Copolymers at Interfaces

11:00 **Coffee Break**

11:30 **M.Chaudhury, Dow-Corning**
Study of Adhesion via Surface Modification

12:30 **Lunch**

Dynamics/Kinetics at Surfaces

H. Hampsch, *Chair*

2:00 **S.Granick, University of Illinois**
Motions and Relaxations at the Polymer-Solid Interface
3:00 **L.Leger, College de France**
Lateral Mobility of Polymer Molecules in Contact With A Wall: Influence of the Monomer-Wall Interactions

4:00 **Coffee Break**

4:30 **H.Yu, University of Wisconsin**
Collective Dynamics and Transport of Polymer Monolayers

5:30 **Dinner**

7:00 **Poster Session, R. Nuzzo,** *Chair*

Tuesday, October 20

Ordered Thin Films

A. Balazs, *Chair*

8:00 **E.Thomas, Massachusetts Institute of Technology**
Interfaces and Near-Surface Structure in Block Copolymers

9:00 **G.Coulon, Instiute Curie, Paris**
Morphology of the Free Surface of Thin Diblock Copolymer Films

10:00 **Coffee Break**

10:30 **F.Bates, University of Minnesota**
Block Copolymer Melts: From Three to Two Dimensions

11:30 **G.Whitesides, Harvard University**
Self-Assembled Monolayers and the Physical-Organic Chemistry of Interfaces

12:30 **Lunch**

Surface Tension/Interfaces

W.-L. Wu, *Chair*

2:00 **J.Koberstein, University of Connecticut**
Headgroup Effects on the Interfacial Properties of Polymers

3:00 **B.Sauer, Du Pont**
Surface Tension of Polymer Melts and Blends

3:45 **Coffee Break**

4:15 **S.Kumar, Pennsylvania State University**
The Role of Chain Architecture in Deterining The Surface Tension of Polymeric Systems

5:00 **K.Shull, IBM Almaden Research Center**
Model Metal Dispersions in Polymeric Matrices

6:00 **Banquet**

7:30 **Poster Session, A. M. Mayes,** *Chair*

Wednesday, October 21

Solid/Solution Interface

T. P. Russell, *Chair*

8:00 **M.Tirrell, University of Minnesota**
Tailoring Interactions at Solid-Liquid Interfaces With Polymeric Amphiphiles

9:00 **M.Kim, EXXON**
Experimental Studies of Polymers at Interfaces

10:00 **Coffee Break**

10:30 **G.Strobl, University of Freiburg**
Studies of the Surface Structure of LC-Side Group Polymers by X-ray Reflection and Ellipsometry

11:30 **S.Rice, University of Chicago**
Packing Structures of Polymers as Interfaces

POSTERS

1. *The Development of Adhesion in Copper-Coated Polyetherimide Films*
G. M. Porta
GE Plastics, Pittsfield, MA 01201
B. R. Karas, D. F. Foust
GE Corporate Research and Development, Schenectady, NY 12301

2. *Surface Studies of Block Copolymers of Styrene and Dimethyl Siloxane by FTIR-ATR and ESCA*
X. Chen, J. A. Gardella, Jr.
Department of Chemistry, SUNY at Buffalo, Buffalo, NY 14214
P. L. Kumler
Department of Chemistry, SUNY at Fredonia, Fredonia, NY 14063

3. *Surface Modification of Various Polymeric Substrates by One-Step Photografting of Hydrophilic Polymers*
P. DePalma, Jr., M. Flaitz, D. Nuszkowski, S. Sack, P. L. Kumler
Department of Chemistry, SUNY at Fredonia, Fredonia, NY 14063
J. A. Gardella, Jr.
Department of Chemistry, SUNY at Buffalo, Buffalo, NY 14214

4. *A Molecular Approach to Contact Charging*
A. F. Diaz
IBM Research Division, Almaden Research Center, San Jose, CA 95120

5. *Relationship Between Polymer Adhesion Strength and Depth of Polymer Surface Modification*
K.-W. Lee
IBM T. J. Watson Research Center, Yorktown Heights, NY 10598

6. *Adsorption of Block Copolymers at Surfaces*
D. Boils
Xerox Research Centre of Canada, Mississauga, Ontario, L5K 2L1 CANADA

7. *Specular and Off-Specular Reflectivity Measurements from Polymer/Solid Interfaces*
W. Wu, C. F. Majkrzak, S. K. Satija, W. Orts, J. F. Ankner
NIST, Polymers Division, Gaithersburg, MD 20899

8. *Effects of Chain Pull-Out in Adhesion of Elastomers*
H. R. Brown
IBM Research Division, Almaden Research Center, San Jose, CA 95120

9. *Nonlinear Optical Methods for Studying Reactions at Surfaces*
J. Kerney, S. Fu, H. L. Hampsch
Purdue University, School of Chemical Engineering, West Lafayette, Indiana 47907

10. *Aluminum/Polymer Interphase: A Morphological Characterization*
C. H. Chen-Tsai, J. E. Cornetta, W. L. Burton
Aluminum Company of America, Alcoa Technical Center, Alcoa Center, PA 15069

11. *Diblock Copolymer Monolayers at the Liquid-Air Interface by Neutron Reflectivity and Surface Tension Measurements*
M. S. Kent
Sandia National Labs, Albuquerque, NM 87185
Francis Rondelez
Institut Curie, Section de Physique et Chimie, 75005 Paris, FRANCE
L.-T. Lee, B. Farnoux
Laboratoire Leon Brillouin, CEN-Saclay, 91191 Gif-sur-Yvette, Cedex, FRANCE

12. *Structure and Orientation of Homopolymers, Copolymers, and Associating Liquids at the Melt Interface*
G. T. Dee, B. B. Sauer
E. I. DuPont de Nemours and Company, Experimental Station, Wilmington, DE 19898

13. *Chain Extension at Copolymer Interfaces*
I.-J. Chin
INHA University, Department of Polymer Science and Technology, Inchon, Korea
T. P. Russell, B. A. Smith
IBM Research Division, Almaden Research Center, San Jose, CA 95120

14. *Study of the Surface Structure of Diblock Copolymer Films Using X-ray and Neutron Scattering*
Z. H. Cai, K. G. Huang, P. A. Montano
Argonne National Laboratory, Argonne, IL 60439
T. P. Russell
IBM Research Division, Almaden Research Center, 650 Harry Road, San Jose, CA 95120

15. *Surface Forces Measurements Using Self-Assembled Hydrocarbon Monolayers*
C. Kessel
3M Industrial & Consumer Sector, Research Laboratory, St. Paul, MN 55144
S. Granick, J. Peanasky
Department of Materials Science and Engineering, University of Illinois, Urbana, IL 61820

16. *Equilibrium Surface Orientation of Lamellae*
G. T. Pickett, T. A. Witten
The James Franck Institute, The University of Chicago, Chicago, IL 60637

17. *Kinetics of Ordering Thin Films of Symmetric Diblock Copolymers*
A. M. Mayes, P. Bassereau, M. S. Kunz, T. P. Russell
IBM Research Division, Almaden Research Center, San Jose, CA 95120
G. S. Smith
LANSCE, Los Alamos National Laboratory, Los Alamos, NM 87545

18. *Interfacial Phase Transitions in Block Copolymer/Homopolymer Blends*
K. R. Shull
IBM Research Division, Almaden Research Center, San Jose, CA 95120

19. *Macro vs. Microphase Separation in Copolymer/Homopolymer Mixtures*
T. Pan, K. Huang, A. C. Balazs
Materials Science and Engineering Department, University of Pittsburgh, Pittsburgh, PA 15261
M. C. Kunz, A. M. Mayes, T. P. Russell
IBM Research Division, Almaden Research Center, San Jose, CA 95120

20. *Lateral Instabilities in a Grafted Layer in a Poor Solvent*
C. Yeung, A.-C. Balazs, D. Jasnow
Materials Science and Engineering Department, University of Pittsburgh, Pittsburgh, PA 15261

21. *Micro-Necking Process in Polystyrene by Crazing*
A. C.-M. Yang, M. S. Kunz, J. A. Logan
IBM Research Division, Almaden Research Center, San Jose, CA 95120

22. *Mechanical Properties of Crazes and Local Yielding in Glassy Polymers by an AFM Deflection Technique*
A. C.-M. Yang, J. A. Logan, T. W. Wu
IBM Research Division, Almaden Research Center, San Jose, CA 95120

23. *Perfluoropolyethers Tethered to the Water Surface*
W. A. Goedel, C.-B. Xu, C. W. Frank
Department of Chemical Engineering, Stanford University, Stanford, CA 94305

24. *Effects of Precursors on Chain Orientation and Properties of Thin Polyimide Films*
U. Göschel, D. Y. Yoon, W. Volksen, R. L. Siemens, H. Lee, B. A. Smith
IBM Research Division, Almaden Research Center, San Jose, CA 95120

25. *Characterization of the Interphase in â Model Water-Soluble Polymer/Particle Systems*
C. S. Heck, M. S. El-Aasser, J. E. Roberts, C. A. Silebi, I. E. Wachs
Lehigh University, Center for Polymer Science and Engineering, Bethlehem, PA 18015

26. *Photon Tunnelling Microscopy: Applications to the Study of Polymer Surfaces*
M. Srinivasarao, R. S. Stein
Polymer Science and Engineering Department, University of Masssachusetts, Amherst, MA 01003
J. Guerra
Polaroid Corporation, Cambridge, MA

27. *Interfaces of 'Hairy-Rod' Copolymers and Fatty Acids in Langmuir-Blodgett Multilayers*
M. D. Foster, T. R. Vierheller
The University of Akron, Akron, OH
A. Schmidt, K. Mathauer, W. Knoll, G. Wegner
Max-Planck-Institut fur Polymerforschung, Mainz, GERMANY
S. Satija, C. F. Majkrzak
National Institute of Standards and Technology, Gaithersberg, MD 20899

28. *Influence of the Mechanical Properties of the Dispersed Phase Upon the Behaviour of Nylon/Rubber Blends; Crosslinking Effect*
Y. Seo, T. Park, K. U. Kim
Polymer Processing Lab, Korea Advanced Institute of Science and Technology, Seoul, KOREA

29. *Binary Polymer Blend of Atactic Polypropylene and Diblock Poly(ethylene-proplene), Thermal Analysis, Crystallization Kinetics and Morphological Study*
K. Sakuarai, W. J. Macknight
Polymer Science and Engineering, University of Massachusetts, Amherst, MA 01003

D. N. Schulz, D. D. Lohse, J. A Sissano,
EXXON Research and Engineering, Annandale, NJ 08801

In Memoriam

On August 2, 1992 Jan Scheutjens died as a result of a traffic accident during a vacation in Norway. While only 45, he contributed significantly to the understanding of polymers at surfaces and interfaces. At the last meeting of this conference in Asilomar, he presented an invited lecture on work. Jan Scheutjens received his doctorate with honors in 1985 with his thesis laying the basis for the oft cited Sheutjens-Fleer theory. In his short career, he published over 50 articles in the areas of colloid associations, polyelectrolytes, block copolymers and polymer adsorption. While he was active in theoretical work, he also had a tremendous interest in experimental work as many in this room can attest. We have lost an outstanding colleague and friend. We only hope to work further in the rich heritage that he has left behind.