

# PMSE NEWS

Polymeric Materials: Science and Engineering Division of the American Chemical Society

## FALL 2007 - ELECTION ISSUE

### Contents

PMSE Fellows ..... p. 1

#### ACS National Meetings

Boston ACS National Meeting  
Program..... p. 3  
New Orleans (Sp 2008) ACS National  
Meeting symposia..... p. 14

#### PMSE Awards

Distinguished Service Award ..... p. 4  
ACS Award in Applied Polymer  
Science..... p. 5  
Tess Award in Coatings..... p. 8  
National Starch & Chemical  
Award ..... p. 13  
Doolittle Award..... p. 13

#### PMSE Election

Candidates for Councilor..... p. 10  
Voting Instructions..... p. 10  
Candidates for  
Member-at-Large..... p. 11



**Ballot Enclosed**

**Don't forget to vote!**

### Eighth Class of PMSE Fellows



From L to R: PMSE Fellows James Crivello, Wen-Li Wu, Mohamed El-Aasser, James Stoffer, with PMSE chair Elliot Douglas (R)

James Crivello, Mohamed El-Aasser, James Stoffer and Wen-Li Wu were inducted as the eighth class of PMSE fellows at the PMSE Awards Reception at the Chicago ACS National Meeting on Monday, March 26, 2007. PMSE is pleased to welcome this distinguished group of polymer scientists and engineers to the ranks of fellows.



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# Program for the Boston ACS National Meeting

August 19-23, 2007

PMSE Sessions to be held at the Westin Boston Waterfront Hotel

**40 Years of Macromolecules (CO-SPONSORED WITH POLY).** Timothy P. Lodge, Dept. of Chemistry, U. of Minnesota, Minneapolis, MN 55455, 612 625-0877, [lodge@chem.umn.edu](mailto:lodge@chem.umn.edu).

**50 years after the discovery of polymer single crystals-a look back, current discoveries and future opportunities.**

Stephen Z. Cheng, Dept. of Polymer Science, Goodyear Polymer Center, Room 936, U. of Akron, Akron, OH 44325, [scheng@uakron.edu](mailto:scheng@uakron.edu); Andrew Lovinger, National Science Foundation, RM 1065, N 4201 Wilson Boulevard, Arlington, VA 22230, (703) 292-4933, [alovinge@nsf.gov](mailto:alovinge@nsf.gov).

**Beyond Biocompatibility: Characterization of Functional Biomaterials.** Matthew L. Becker, Polymer Division, NIST, Gaithersburg, MD 20899, (301) 975-6842; Sheng Lin-Gibson, Polymers Division, NIST, 100 Bureau Dr. Stop 8543, Gaithersburg, MD 20899.

**Hierarchically ordered functional materials.** Frederick Beyer, U.S. Army Research Lab, Bldg. 4600, Deer Creek Loop, Attn: AMSRL-WM-MA, Aberdeen Proving Grounds, MD21005, (410) 306-0893, [fbeyer@arl.army.mil](mailto:fbeyer@arl.army.mil); Mark VanLandingham, U.S. Army Research Lab, Chief Multifunctional Materials Branch, Aberdeen Proving Ground, MD 21005, 410-306-0670, [mvanlandingham@arl.army.mil](mailto:mvanlandingham@arl.army.mil).

**ICI Student Award Symposium.** Thomas Hahn, National Starch & Chemical Company, 10 Finderne Avenue, Bridgewater, NJ 08807, (908) 685-5672, [tom.hahn@nstarch.com](mailto:tom.hahn@nstarch.com).

**Morphology effects in organoelectronic materials.** Eric Lin, Electronics Materials Group, 100 Bureau Drive, Stop 8541, NIST, Gaithersburg, MD 20899, 301-975-6743, [eric.lin@nist.gov](mailto:eric.lin@nist.gov).

**Metal-Containing and Metallo-Supramolecular Polymers and Materials(Co-sponsored with Poly).** Ulrich S. Schubert, Eindhoven U. of Technology, Laboratory of Macromolecular Chemistry and Nanoscience (SMN), Dutch Polymer Institute - Center for Nanomaterials, P.O. Box 513, NL-5600 MB Eindhoven, The Netherlands, Tel.: +31 (0)40 247 4083, [u.s.schubert@tue.nl](mailto:u.s.schubert@tue.nl); Ian Manners, Lash Miller Chemical Laboratories, 80 St. George St, U. of Toronto, Toronto, Ontario, Canada M5S 3H6, (416)-978-

6157, [imanners@chem.utoronto.ca](mailto:imanners@chem.utoronto.ca); George R. Newkome, The U. of Akron, Office of the Vice President for Research and Dean of the Graduate School, Goodyear Polymer Center, Rm. 529, Akron, Ohio 44325, (330) 972-6458, [newkome@uakron.edu](mailto:newkome@uakron.edu).

**Nano- and Micro-Scale Porous Polymer-Based Systems.**

Michael S. Silverstein, Dept. of Materials Eng., Technion - Israel Institute of Technology, Haifa 32000, Israel, 972-4-829-4582, [michaels@tx.technion.ac.il](mailto:michaels@tx.technion.ac.il); Neil R. Cameron, Dept. of Chemistry, U. of Durham, Durham DH1 3LE, UK, +44 191 3342008, [n.r.cameron@durham.ac.uk](mailto:n.r.cameron@durham.ac.uk); Bradley F. Chmelka, Dept. of Chemical Eng., U. of California, Santa Barbara, CA 93106, USA, 805-893-3673, [bradc@engineering.ucsb.edu](mailto:bradc@engineering.ucsb.edu).

**Polypeptide and Protein Materials.** Tim Deming, UCLA Bioengineering/Biomedical Eng., BOX 951600, 7523 Boelter Hall, Los Angeles, CA 90095-1600, (310) 267-4450, [demingt@seas.ucla.edu](mailto:demingt@seas.ucla.edu); Harm-Anton Klok, Ecole polytechnique fédérale de Lausanne, Laboratoire des polymères, Office MXD-112, CH-1015 Lausanne, +41 (0)21 693 4866 or 4331 [harm-anton.klok@epfl.ch](mailto:harm-anton.klok@epfl.ch); Helmut Schlaad, Max Planck Institute of Colloids and Interfaces, Research Campus Golm, 14424 Potsdam, Germany +49-(0)331-567-9514, [schlaad@mpikg-golm.mpg.de](mailto:schlaad@mpikg-golm.mpg.de).

**Relaxation behavior of polymeric materials.** James Runt, Dept. of Materials Science and Eng., Penn State U., 101 Steidle Building, U. Park, PA 16802, 814-863-2749, [runt@matse.psu.edu](mailto:runt@matse.psu.edu); Ralph Colby, Dept. of Materials Science and Eng., Penn State U., 309 Steidle Building, U. Park, PA 16802, 814-863-3457, [rhc@plmsc.psu.edu](mailto:rhc@plmsc.psu.edu).

**Tess Award Symposium.** David R. Bauer, Ford Motor Co., MD-3182, SRL, P.O. Box 2053, Dearborn, MI 48197, (313) 594-1756, [dbauer3@ford.com](mailto:dbauer3@ford.com).

**General Papers/New Concepts in Polymeric Materials and**

**Joint PMSE/POLY Poster Session: General Papers/New Concepts in Polymeric Materials.** E. Bryan Coughlin, U. of Massachusetts, Dept. of Polymer Science and Eng., 120 Governors Drive, Amherst, MA 01003, (413) 577-1616, [coughlin@mail.pse.umass.edu](mailto:coughlin@mail.pse.umass.edu).

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## ***Distinguished Service Award***



**George R. Pilcher**

The recipient of the 2007 Distinguished Service Award, given by the ACS PMSE Division, is George R. Pilcher. George has been active in PMSE since the days when it was known as the Organic Coatings and Plastics Division (ORPL), initially as Chair of the Symposium on Application Methods of Coatings, which was followed by several Symposia on High Solids Coatings, which George co-chaired with Prof. Frank N. Jones. In 1984, George was asked by PMSE to establish the Roy W. Tess Award, which honors outstanding contributors to the science and technology of coatings, and which has become one of the top awards in the field. In 1985, George became PMSE's membership chair, and then progressed through the offices to become Chair of PMSE in 1993. Since that time, George has served as a member on several PMSE committees, and has been the Educational Funding and Educational Outreach Chair for the past several years. George was named a PMSE Fellow in 2001.

George is a 1970 graduate in chemistry of the College of Wooster, and worked initially for The Sherwin-Williams Company, where he was principally involved with new product development and investigations into the failure mechanisms of PVC coatings. In 1981, he became the Corporate Technical Director of Hanna Chemical Coatings Corporation, the predecessor organization to Akzo Nobel Coatings Inc. At Akzo,

George was the Technical Director for Coil and Extrusion Coatings in the Americas and the PRC, and he was responsible for polymer engineering and applied R&D for coatings technology.

In 1989, George was invited to contribute the paper, "Saturated Polyester Coatings," (co-authored with J. W. Stout) to The International Symposium on the History of Organic Coatings, which was organized in honor of Herman Mark's upcoming 95th birthday. The proceedings of this symposium were published the following year in book form by Elsevier as *Organic Coatings: Their Origin and Development*.

In 1991, George organized and chaired the Gordon Research Conference on the Chemistry and Physics of Coatings and Films, and from 1993-1996, he served on the Advisory Board of the National Science Foundation Coatings Center, located at Eastern Michigan University. From 1988-1995, George was active as the President of the Coatings Industry Education Foundation, and he received the George Baugh Heckel Award in 1996 from the Federation of Societies for Coatings Technology. George served on the Scientific Advisory Committee of the Athens Conference from 1997-2003, and in 2004 served on the Scientific Committee which organized the first Coatings Science International conference (COSI), held in Noordwijk, The Netherlands, in 2005.

George is the only American to be honored with the title of "Corresponding Member" by the Paints and Pigments Division of the Gesellschaft Deutscher Chemiker (1995) and, in 2004, George delivered the Joseph J. Mattiello Memorial Address in Chicago. In May, 2006, he was the recipient of the American Chemical Society Columbus Section Award for "outstanding achievement, and promotion of the chemical sciences."

George has been an invited contributor to a wide array of international scientific symposia and conferences, and his many papers have been published in over twenty journals and three book chapters. He currently serves on the Editorial Review Board of *J. Coatings Technology Research*.

## 2007 ACS Award in Applied Polymer Science



**Harry R. Allcock**

Harry R. Allcock, Winner of the 2007 ACS Award in Applied Polymer Science, is cited "for his seminal contributions to hybrid inorganic-organic polymers and especially for his development of polyphosphazenes for advances in biomedicine, photonics, and energy research".

Harry Allcock is Evan Pugh Professor of Chemistry at the Pennsylvania State University. He is one of the leading experts in the field of inorganic-organic polymers and materials derived from them. His early training was in organometallic and physical-organic chemistry, with his B.Sc. (1953) and Ph.D. (1956) degrees received from the University of London. His interest in polymers and materials developed during two post-doctoral appointments and five years as a research scientist at the American Cyanamid Central Research Laboratories in Connecticut. In 1964 he carried out the critical experiments that led to the synthesis of the first stable polyphosphazenes. These polymers have since proved to be the most diverse inorganic-organic macromolecules yet known, with over 700 different polymers now prepared and characterized, some of which have been developed commercially.

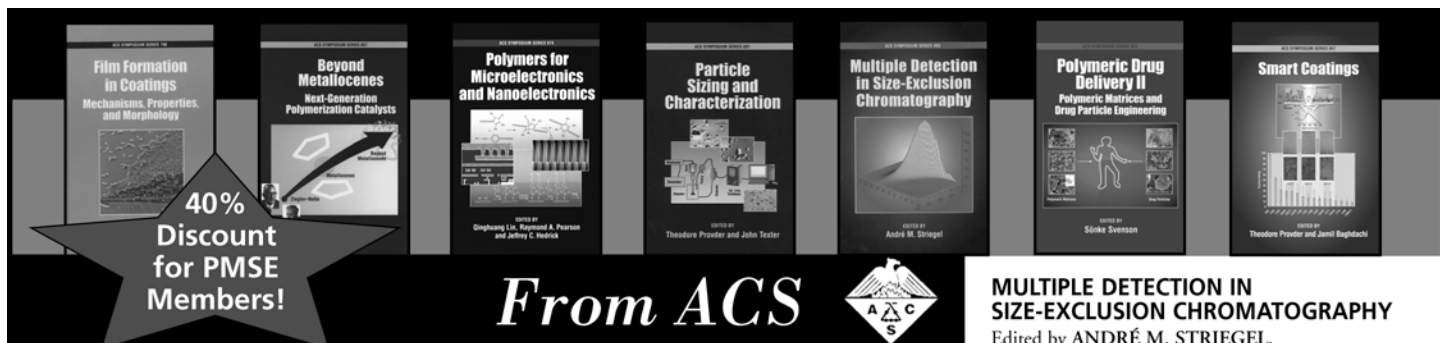
Since 1966 he has led a team of coworkers in the Chemistry Department at Penn State that has made many of the fundamental discoveries in the design,

synthesis, and structural characterization of polyphosphazenes and related systems, and has been responsible for extending the primary chemistry into areas as diverse as biomedicine, energy storage, communications science, and novel structural materials. Concurrently, his research group has made numerous fundamental advances in the field of small-molecule inorganic ring systems, and has pioneered the use of these compounds as models for the reactions and structures of high polymers.

Among the applied developments he has initiated in recent years are the first hydrogels and responsive membranes based on polyphosphazenes, new bioerodible polymers for tissue engineering, high refractive index, NLO, and liquid crystalline polymers for photonic advances, and a wide range of ion conductive polymers with unique properties of interest in the energy storage and energy generation fields. His recent work with hydrophobic and super-hydrophobic surfaces promises to lead to new advances in both surface science and biomedicine.

Dr. Allcock has trained more than 130 graduate students and postdoctorals at Penn State. He has played a major role in connecting the fields of inorganic chemistry and polymer science, and he has done much to expand the appeal of polymer chemistry through his lecturing and writing activities.

Harry Allcock was the recipient of the 1984 American Chemical Society Award in Polymer Chemistry, the 1992 ACS Award in the Chemistry of Materials, and the 1994 Herman F. Mark Polymer Award. He was a Guggenheim Fellow in 1986-87, and has held numerous endowed lectureships. He was a visiting scientist at Stanford University, Imperial College of Science and Technology in London, and the IBM Almaden Laboratories in San Jose, California. He is the author or co-author of over 500 publications and five books in the fields of inorganic and organic polymers and materials, and has co-edited three additional volumes on these topics.



## POLYMERS FOR MICROELECTRONICS AND NANO-ELECTRONICS

Edited by QINGHUANG LIN, *IBM T. J. Watson Research Center, China*, RAYMOND A. PEARSON, *Lehigh University*, and JEFFREY C. HEDRICK, *IBM T. J. Watson Research Center*

Discusses patterning, insulating, and packaging polymeric materials for the \$150-billion microelectronics industry as well as the rapidly emerging nanoelectronics and organic electronics industries. Chapters discuss patterning, insulating, and packaging polymeric materials as well as organic materials for nanoelectronics, organic electronics, and optoelectronics. This book covers the synthesis, characterization, structure-property relationship, performance, and applications of these materials.

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## BEYOND METALLOCENES

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## SMART COATINGS

THEODORE PROVIDER, *Botnat*, and JAMIL BAGHDACHI, *Eastern Michigan University*

Over the past 25 years coatings technologies have been influenced by the need to lower volatile organic contents (VOC) in order to comply with stricter environmental regulations as well as to reduce the use of costly petroleum based solvents. Alternative technologies in the industrial and OEM sectors that include powder coatings, uv-curable coatings and high solids coatings have had significant growth. Traditionally these coatings had the primary functions of protecting and decorating substrates. More recently, there has been growth in research and development and commercial product generation of coatings which have novel functions and sense and interact with their environment in addition to having the traditional protection and decoration functions. These coatings are often referred to as Smart Coatings.

(ACS Symposium Series 957)  
(An American Chemical Society Publication)

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(An American Chemical Society Publication)

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## STIMULI-RESPONSIVE POLYMERIC FILMS AND COATINGS

Edited by MAREK W. URBAN, *University of Southern Mississippi*

Science of the stimuli-responsive materials, and in particular polymers and coatings play a key role in the developments of future technologies and new knowledge in this field. The book provides the highlights for newcomers as well as a comprehensive review for experienced practitioners of the recent advances to stimuli-responsive polymeric films and coatings. This book is a must to those involved in the growing field of nanotechnologies of stimuli-responsive polymers.

(ACS Symposium Series No. 912)  
(An American Chemical Society Publication)

2005 268 pp.; 27 halftones, 83 line & 9 color illus.  
978-0-8412-3932-6 \$139.50/\$83.70

## NEW DEVELOPMENTS IN COATINGS TECHNOLOGY

Edited by PETER ZARRAS, *Naval Air Warfare Center Weapons Division, U.S. Navy*, BRIAN C. BENICEWICZ, *Rensselaer Polytechnic Institute*, TIM WOOD, *Botnat*, and BROUGH RICHEY, *Rohm And Haas Company*

The scope of this book covers all aspects of coatings: anti-fouling, anti-corrosion, specialty coatings and testing methods for coatings. This ACS symposium book is focused on polymer synthesis, materials development, advanced applications for coatings and techniques for measuring a coatings performance in various environments. This book addresses current coating technologies geared for an organic-polymer chemist and chemical engineers perspective.

(ACS Symposium Series 962)  
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## *2007 Roy W. Tess Award in Coatings*



Professor L. E. (Skip) Scriven of the University of Minnesota will receive the Roy W. Tess Award in Coatings for 2007. The announcement was made by the Officers and the Award Committee of the Division of Polymeric Materials: Science and Engineering (PMSE) of the American Chemical Society.

In a long, prolific and illustrious career, from the 1970's, Professor Scriven focused on coating science and coatings processes. He led an internationally renowned research program dedicated to understanding coating application processes, using detailed theoretical modeling and experimental flow visualization to get at the crucial operating parameters in industrial coatings flow processes. Since 1990, he has turned his attention to film formation process in crosslinking and latex coating systems. Professor Scriven was a co-founder of the NSF Center for Interfacial Engineering (1988-1999) and long was Program Leader of the Coatings Process Fundamentals program at the University of Minnesota.

Professor Scriven earned his B.S. from the University of California, Berkeley in 1952. He earned his Ph.D. from the University of Delaware in 1956. After working as a Research Engineer for the Shell Development Co. in Emeryville, CA, he joined the faculty of the University of Minnesota as an Assistant Professor of Chemical Engineering in 1959. He became a Full Professor in

1966 and Regents Professor of Chemical Engineering and Materials Science in 1988. He is a Fellow of the Minnesota Supercomputer Institute and past member of the Graduate Faculties of Biophysics and of Fluid Mechanics.

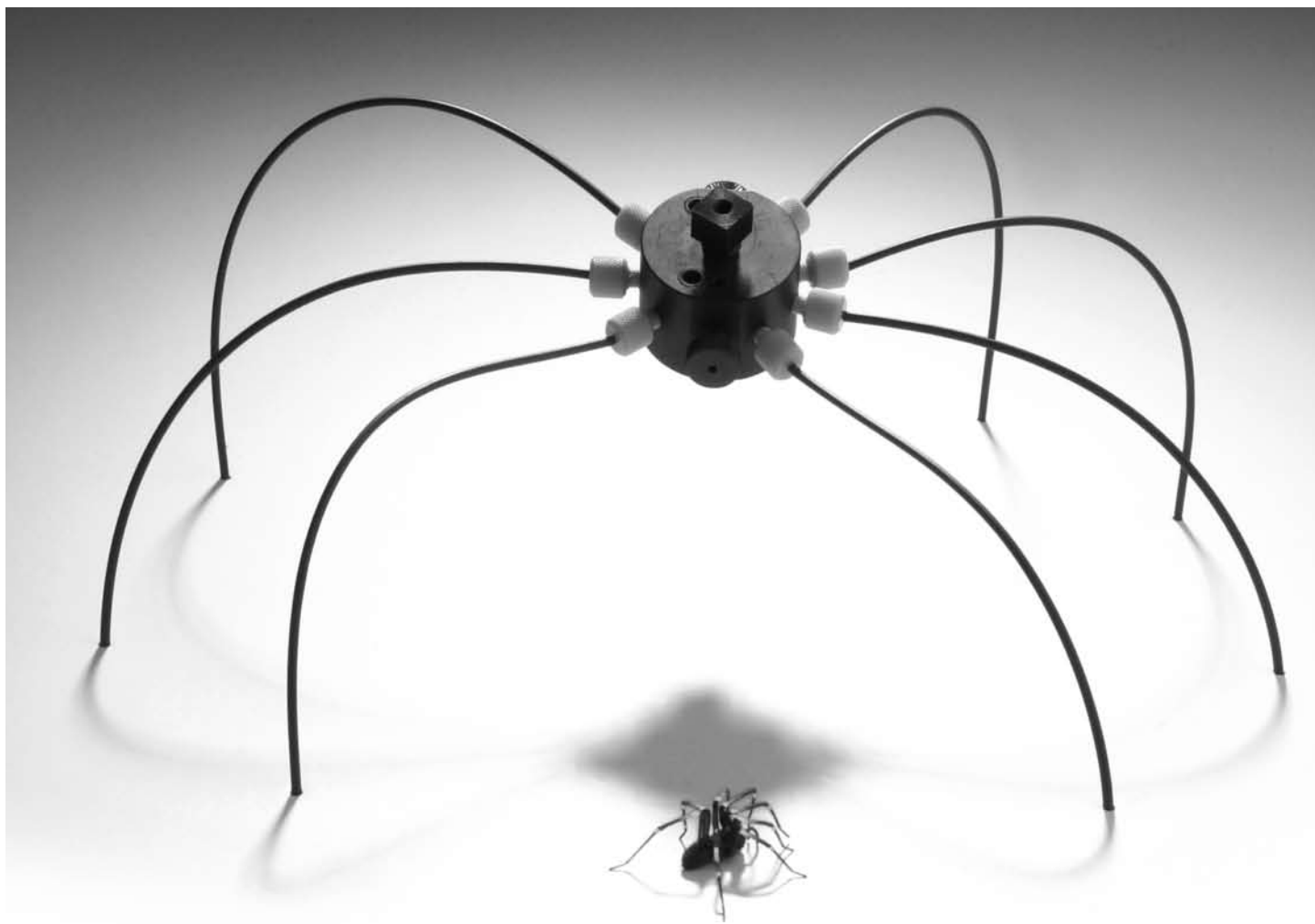
Professor Scriven has advised or co-advised over 100 Ph.D. students and authored over 400 publications. His work on coating processes includes coil coating, blade coating, spray application, spin coating, slot coating, and others. His research has combined experimental, theoretical and computer modeling approaches wherein he and his co-workers have shown the power of large finite element models to elucidate the causes of various processing issues such as ribbing instabilities. He has developed key understandings around the effects of rheological properties, evaporation rates, internal stresses and process boundary conditions on coating applications. He has improved experimental techniques for flow visualization and controlled freezing techniques to arrest solidification and enable the use of advanced microscopy techniques in coatings characterization. His research has been applied to coil coating processes, paper coating, inkjet printers, magnetic and optical disks, photographic films, liquid crystal displays, automotive finishes, printed circuits, optical fibers and others. More recently he has carried out very detailed studies of the compaction processes and water movement in latex films and the stresses that coalesce latexes.

Professor Scriven has held distinguished visiting professorships and lectureships, and he has served on many committees for outside and national organizations. He is a Fellow of the American Institute of Chemical Engineers and the Technical Association of the Pulp and Paper Industry (TAPPI). Some of the more recent awards he has received include two Roon Awards from the Federation of Societies of Coatings Technology (1993 and 2002), the ACS Murphy Award in Industrial and Engineering Chemistry (1990), the Tallmadge Award in Coating Science and Technology (1992) and the Founders Award from the American Institute of Chemical Engineers (1997). He was elected to the National Academy of Engineering in 1978.

Professor Scriven will receive the Tess Award from Prof. Elliot P. Douglas, Chair of the PMSE Division, on Monday, August 20, 2007 during the 234th Meeting of the American Chemical Society in Boston, MA. Professor Scriven will present an Award Address at that time. An evening reception sponsored by the PMSE Division will follow the Award Symposium.

The Tess Award is presented annually by the Division of Polymeric Materials: Science and Engineering in recognition of outstanding contributions to coatings science and technology. It is funded by a grant to the Division from Dr. and Mrs. Roy W. Tess. The purpose of the award is to encourage interest and progress in coatings and recognize significant contributions to the field. The Award consists of a plaque and a cash prize.





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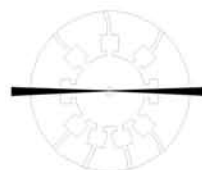
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# Election Candidates for Councilor

## **BENNY FREEMAN**

Dr. Freeman is the Kenneth A. Kobe Professor of Chemical Engineering at the University of Texas at Austin. His research focuses on the use of polymers and polymer-based materials for selective control of small molecule transport in applications such as gas and liquid separation membranes and barrier packaging. He has been a faculty member for 18 years and actively involved in PMSE leadership, in various positions up to and including Chair of the Division, for more than a decade. He is running for Councilor to be able to represent and advance PMSE's interests on the ACS Council.

## **THEODORE PROVDER**

Dr. Provder received his Ph.D. from the University of Wisconsin in physical chemistry. He joined the Coatings Research Institute (CRI) at Eastern Michigan University (EMU) as Director, CRI in 2001. He also is Director of the NSF I/UCRC Research Center in Coatings at EMU. He has held previous adjunct research professor positions at the Institute of Materials Science in New Paltz, NY; Case Western Reserve University; Kent State University; and North Dakota State University. He has over 39 years of industrial experience in polymers and coatings, most spent at The Glidden Company (ICI Paints) as a Principal Scientist. He is credited with over 120 publications, 17 edited books, and 3 patents. He has received numerous technical awards including the ACS Roy W. Tess Award in Coatings, the Federation of Societies for Coatings Technology (FSCT) coveted Joseph J. Mattellio Lectureship Award, FSCT 1999 First Place and 2006 First Place Roan Awards, the University of Missouri-Rolla Coatings Institute Distinguished Scientist Award, appointment to the first class of PMSE Fellows and the 2003 PMSE Distinguished Service Award.

He has been a member of ACS since 1967. In the PMSE Division, he has been a Councilor 1996-07; Alternate Councilor 1994-95; Chair, 1988; Chair-Elect, 1987; Vice-Chair 1986; Treasurer, 1984-85; Membership Committee, Chair, 1981-83. He also was on the Joint Polymer Education Committee of PMSE and POLY Divisions as Treasurer from 1989-1997. As a Councilor he has served on the Patents and Related Matters (CP&RM) committee and currently serves on the Divisional Activities (DAC) committee. He thoroughly enjoys serving PMSE and ACS as a Councilor and a member of DAC.

## **~ Voting Instructions ~**

If you are a member in good standing of the PMSE Division, look for your official ballot, blank ballot envelope, and pre-addressed return envelope attached inside this newsletter.

Seal your cast ballot inside the smaller blank envelope, then seal inside the pre-addressed return envelope, sign, and return to the PMSE secretary.

Important! For your vote to count, be sure to leave the blank ballot envelope unmarked, and don't forget to sign the outer return envelope.

**Ballots must be received before November 1.**

**List of Candidates** (this is not the official ballot)

### **Candidates for Councilor for 2008-2010 Term**

*Benny Freeman*

*Theodore Provder*

(The candidate receiving the most votes will become Councilor, the other will become Alternate Councilor)

### **Candidates for Member-at-Large for 2008-2009 Term**

Lisa S. Baugh

John Gilmer

Ellen Lee

David Martin

Leslie Sperling

Richard Vaia

(The top five will become Members at Large)

For questions about the election, please contact

PMSE Secretary: Dr. Julie Jessop (319) 335-0681

[julie-jessop@uiowa.edu](mailto:julie-jessop@uiowa.edu)

**~ Don't forget to vote! ~**

## Election Candidates for Member-at-Large

### LISA S. BAUGH

Lisa S. Baugh is a Research Associate at ExxonMobil's Corporate Strategic Research Laboratory in Annandale, NJ, where her research focuses on metal-mediated polymerization, polymer functionalization, and the synthesis of model polyolefins. She received her B.S. (1991) from the University of Texas and her Ph.D. (1996) from the University of California, Berkeley, completing part of her thesis work in the Polymer Science & Engineering Department of the University of Massachusetts, Amherst. She has been with ExxonMobil since 1997 and has authored numerous technical publications and patents, including three edited books on transition metal-mediated polymerization.

Dr. Baugh has served ACS and PMSE in a number of positions since 1998, with past or current roles as Membership Chair (2004-05), Awards Publicity Coordinator, Member-at-Large, Catalysis & Surface Science Secretariat Representative, Books Committee Chair, *PMSE News* team member, *PMSE Preprints* Subscription Manager, and Electronic Preprints Committee member. She has also recently worked to increase PMSE's presence at regional ACS meetings and obtain special benefits from publishers for PMSE members. In other areas of ACS, she has served as CATL Secretary-General/Program Chair (2001), Women Chemists Committee Associate, and Editorial Advisory Board member for the magazine *Chemistry*. She is also a member of POLY and CINF divisions and the National Association of Science Writers, having contributed many feature pieces to college and high school chemistry textbooks.

### JOHN GILMER

John Gilmer is presently employed as an Associate Professor of Chemistry at King College in Bristol, TN. His current research involves the chemistry of polymeric nanocomposite materials. He received his B.S. in Chemistry from the College of William and Mary and his Ph. D. in Physical Chemistry under Professor Richard Stein at the University of Massachusetts. From 1983 to 1985, he was a postdoctoral fellow with Professor Gerhard Zachmann at the University of Hamburg in Germany. Prior to joining King College in 2006, Dr. Gilmer worked as a Research Associate at Eastman Chemical Company in Kingsport, Tennes-

see in the development of high performance polyester resins. Previously he served as a Principal Scientist at EniChem Americas and as Assistant Professor of Polymer Science at Penn State University.

Dr. Gilmer's research interests include the engineering uses of polyesters, weathering and stabilization of polymers, the phase behavior of copolymers and blends, reactive extrusion, and polymer morphology. Dr. Gilmer has more than 40 patents and publications. For the past 15 years, Dr. Gilmer has been active in the PMSE Division as Editor of the *PMSE News* and as Publicity Coordinator. Presently, he serves on the administrative committee for the National Starch and Chemical Award for Outstanding Graduate Research.

### ELLEN LEE

Ellen Lee is currently a Technical Specialist in plastics research at Ford Motor Company in Dearborn, MI. She received her B.S. in Chemical Engineering from Northwestern University in 1993 and a Ph.D. in Chemical Engineering from the University of California at Berkeley in 1998. Her thesis work, under the guidance of Professor Susan Muller, centered on the direct measurement of polymer chain dynamics in quiescent and flowing solutions by a flow light scattering technique. These measurements allowed development and testing of constitutive equations needed to describe more complex processing flows and earned her the ICI Student Award in 1997.

Dr. Lee's work at Ford involves the development of novel plastic materials and processing techniques including biomaterials and nanocomposites. Of particular interest are the environmentally friendly and sustainable aspects of these materials and methods. In 2002, Dr. Lee was awarded the ACS Central Regional Industrial Innovation Award for her work in the area of polymer clay nanocomposite processing. She holds seven U.S. patents (issued and pending); is author or co-author on 22 publications, both refereed and Ford internal journals; and has given six invited lectures. Dr. Lee has been a member of ACS and the PMSE division since 1998. She has served on the electronic preprints committee and was a Member-at-Large in 2005. Dr. Lee looks forward to again serving as a Member-at-Large and having a more active role in PMSE.

## Election Candidates for Member at Large, Continued

### DAVID MARTIN

David Martin is currently a Professor of Materials Science and Engineering, Macromolecular Science and Engineering, and Biomedical Engineering at the University of Michigan. His research interests focus on detailed studies of the morphology of crystalline and liquid crystalline polymers and organic molecular materials, with particular focus on optoelectronically active materials of interest for device applications. In recent years Dr. Martin's group has been focusing on conducting polymers for interfacing electronic biomedical devices such as cortical microelectrodes, cochlear implants, retinal prostheses, and pacemakers with living tissue.

Dr. Martin received a BS degree in Materials and Metallurgical Engineering in 1983 and an MS in Macromolecular Science and Engineering in 1985 from the University of Michigan. He completed his Ph.D. in Polymer Science and Engineering in 1989 from the University of Massachusetts at Amherst with Prof. Edwin L. Thomas. He was a Visiting Scientist in Central Research and Development at Dupont till 1990. He spent 1997-1998 as a Humboldt fellow in the laboratory of Prof. Gerhard Wegner at the Max Planck Institute for Polymer Research in Mainz, Germany. He served as Director of Macromolecular Science and Engineering Center at the University of Michigan from 2000 to 2005. He is a fellow of the American Institute for Medical and Biological Engineering.

Dr. Martin is interested in helping PMSE continue its strong technical programming at national meetings, and also in helping to facilitate outreach to and participation of both graduate and undergraduate students. He would also like to help foster interactions between ACS and other organizations such as the Materials Research Society and the American Physical Society.

### LESLIE SPERLING

Dr. L. H. Sperling has been active in the PMSE Division since around 1980. He is currently on the PMSE Board, and chairing the committee to call attention to the recent edited books by both the PMSE and POLY Divisions via the POLY e-mail list. Dr. Sperling is also active in the ACS Polymer Education Committee (POLYED). He wrote a number of polymer educational

articles for the Journal of Chemical Education. He also contacts book authors and publishers about the importance of including polymer examples or material in chemistry textbooks. Currently, Dr. Sperling, along with other POLYED members will provide a free, half-day introduction to polymers to professors and textbook writers at the Boston ACS meeting to introduce the basics of polymer science to them. He is also a speaker in the ACS Speaker's Bureau, donating one week a year to visit local sections to seminar about polymers.

Professionally, Dr. Sperling has a Ph.D. in chemistry from Duke University, and has done Postdoctoral work at Princeton. He worked for Buckeye Cellulose Corp. for five years, and joined the Lehigh University Dept. of Chemical Engineering in 1967. He authored or coauthored over 350 papers, and edited and authored 15 books. The most recent book, was "Introduction to Physical Polymer Science," 4th Ed., Wiley, 2006. Although now emeritus from Lehigh U., he remains active in consulting, writing, and speaking.

### RICHARD VAIA

Richard A. Vaia is the Lead of the NanoMaterials Strategy Group and Chair of the NanoScience and Technology (NST) Strategic Technology Team at the U.S. Air Force Research Laboratory (AFRL). His research group focuses on polymer nanocomposites, photonic technologies and their impact on developing adaptive soft matter. He received his PhD degree in Materials Science and Engineering at Cornell University in 1995 and was a distinguished graduate from Cornell's AF-ROTC. His honors and awards include the Air Force Outstanding Scientist (2002), MRL Visiting Professor at University of California Santa Barbara (2006), Air Force Office of Scientific Research Star Team (2003-2005; 2005-2007) and the Outstanding Engineers and Scientists Award (2006) from the Affiliate Societies Council of Dayton. Dr. Vaia serves on the editorial boards of Chemistry of Materials, Macromolecules and Materials Today, and Board of Directors for MRS. He has authored over 100 peer-reviewed papers and patents.

## National Starch & Chemical Award for Outstanding Graduate Research in Polymer Chemistry



Dr. Jason Rolland, with an SEM micrograph of PRINT™ particles from his research

The recipient of the 2007 National Starch & Chemical Award for Outstanding Graduate Research in Polymer Chemistry is Dr. Jason Rolland, who received his doctorate in 2005 from the University of North Carolina, Chapel Hill, under the direction of Professor Joseph M. DeSimone. Dr. Rolland's Ph.D. dissertation research focused on novel applications for perfluoropolyethers (PFPEs), primarily in the field of nanotechnology.

A versatile technique, Particle Replication in Non-wetting Templates, or "PRINT™" was developed that uses low surface energy PFPEs, cast onto nano-featured master templates and cured to form transparent fluoroelastomers. These become molds containing billions of nano-scale cavities that can be filled with liquid precursors that are solidified and harvested to yield highly monodisperse populations of shape-specific, engineered nano-scale particles. PRINT™ has tremendous promise in several applications including delivery of therapeutics such as siRNA and drugs for cancer treatment.

In addition to the PRINT process, PFPE elastomers can be patterned with micron and nanometer sized features and used as molds for imprint lithography. In collaboration with IBM researchers, Dr. Rolland showed that features as small as 70 nm can be replicated in organic resins with 1 nm precision using PFPE molds. The PFPE molds are superior in terms of resolution, release, and compatibility when compared to either poly(dimethyl siloxane) (PDMS) or rigid materials.

Multifunctional PFPE formulations were also synthesized and used to fabricate transparent, elastomeric, microfluidic devices compatible with organic solvents and chemical reagents. These replace PDMS, which swells in most organic solvents and is not compatible with microchemistry platforms. Multilayer, complex microfluidic chips containing pneumatic valves were fabricated from PFPE materials. Due to their compatibility with chemistry platforms, PFPE-based microfluidic chips have recently been used in the synthesis of radiolabelled biomarkers, such as [F-18] 2-Fluoro-2-deoxy-D-glucose for PET imaging.

The award will be presented at a symposium in Dr. Rolland's honor to be held in the Division of Polymer Chemistry at the American Chemical Society National Meeting in Boston August 19-23, 2007.

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### Arthur K. Doolittle Award, 2007 Spring National Meeting

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The Arthur K. Doolittle Award, established by the Union Carbide Corporation, is given to the authors of an outstanding paper presented before the Division at each national meeting of the ACS. A prize in the amount of \$1,000.00 is financed with the gift of royalties from A. K. Doolittle's book, *Technology of Solvents and Plasticizers*. All papers appearing in the Preprint Book are evaluated on the basis of content, with emphasis on originality and development of new concepts, and on the quality of presentation. Recipients are selected by an anonymous panel of judges appointed by the Chairman of the Doolittle Award Committee.

The winners from papers presented at the Spring 2007 meeting are H. Klok, S. Tugulu, A. Arnold, I. Sielaff, K. Johnsson, P. Silacci and N. Stergiopoulos (Ecole Polytechnique Federale de Lausanne, Switzerland), for their paper entitled "***Studying protein function and controlling cell adhesion with polymer brushes.***"

## ***A look ahead: Symposia at the New Orleans National Meeting April 6-10, 2008***

**Advances in Adhesion Science.** Christopher White, National Institute of Standards and Technology, 100 Bureau Drive, Stop 8615, Gaithersburg, MD 20899-8615, (301) 975-6016, [christopher.white@nist.gov](mailto:christopher.white@nist.gov); Professor A.J. Kinloch, Imperial College London, Dept. of Mechanical Engineering, Exhibition Rd., London, SW7 2AZ, UK, 020 7594 7082/7083, [a.kinloch@imperial.ac.uk](mailto:a.kinloch@imperial.ac.uk); Donald Hunston, National Institute of Standards and Technology, Materials and Construction Research Division, 100 Bureau Dr., MS 8615, Gaithersburg, MD 20899-8615, 301-975-6837, [donald.hunston@nist.gov](mailto:donald.hunston@nist.gov).

**Controlling cell functions through polymer synthesis and engineering.** Jason Burdick, Dept. of Bioengineering, University of Pennsylvania, 120 Hayden Hall, 3320 Smith Walk, Philadelphia, PA 19104, 215-898-8537, [burdick2@seas.upenn.edu](mailto:burdick2@seas.upenn.edu); Ali Khademhosseini, Harvard-Massachusetts Institute of Technology Division of Health Sciences and Technology, Harvard Medical School / Brigham and Women's Hospital, 65 Landsdowne Street, Rm. 265, Cambridge, MA, USA, 02139, (617) 768-8395, [alik@mit.edu](mailto:alik@mit.edu) OR [alik@rics.bwh.harvard.edu](mailto:alik@rics.bwh.harvard.edu); Xinqiao Jia, Dept. of Materials Science and Engineering, 201 DuPont Hall, University of Delaware, Newark, DE 19716, [xjia@udel.edu](mailto:xjia@udel.edu).

**Fire and Polymers.** Gordon L. Nelson, College of Science, FL Inst. of Tech., 150 W. University Blvd., Melbourne, FL 32901 (321) 674-7260, [nelson@fit.edu](mailto:nelson@fit.edu); Charles A. Wilkie, Dept. of Chem., Marquette Univ., P.O. Box 1881, Milwaukee, WI 53201 (414) 288-7239, [charles.wilkie@marquette.edu](mailto:charles.wilkie@marquette.edu).

**Drug Delivery Systems.** Scott Michael Grayson, Dept. of Chemistry, 2015 Percival Stern Hall, Tulane University, New Orleans, Louisiana 70118, (504) 862-8135, [sgrayson@tulane.edu](mailto:sgrayson@tulane.edu)

**Mechanical Instabilities in Polymer Films, Interfaces and Nanostructures.** Christopher M. Stafford, Polymers Division, National Institute of Standards and Technology, Gaithersburg, MD 20899, (301) 975-4368, [chris.stafford@nist.gov](mailto:chris.stafford@nist.gov); Adam J. Nolte, Polymers Division, National Institute of Standards and Technology, Gaithersburg, MD 20899, (301) 975-2895, [adam.nolte@nist.gov](mailto:adam.nolte@nist.gov); Rui Huang, Dept. of Aerospace Engineering and Engineering Mechanics, University of Texas, Austin, TX 78712, (512) 471-7558, [ruihuang@mail.utexas.edu](mailto:ruihuang@mail.utexas.edu).

**Novel Fluorophores, Syntheses, Properties and Uses.** Dr. rer. nat. habil. Uwe Bunz, School of Chemistry and Biochemistry, Georgia Institute of Technology, 404-385-1795,

**Nonlinear Dynamics in Polymeric Systems (CO-SPONSORED WITH POLY. POLY IS PRIMARY).** John A. Pojman, Dept. of Chemistry and Biochemistry, The University of Southern Mississippi, USM Box 5043, Hattiesburg, MS 39406; Qui Tran-Cong-Miyata, Dept. of Polymer Science and Engineering, Kyoto Institute of Technology, Matsugasaki, Kyoto 606-8585, Japan, Matsugasaki, Sakyo-ku, Kyoto 606-8585 Japan.

**Plasticized Polymers and Highly Concentrated Solutions.** Bryan R. Chapman Corporate Strategic Research, ExxonMobil Research and Engineering Company, 1545 Route 22 East, Annandale, NJ 08801, 908-730-2196, [bryan.r.chapman@exxonmobil.com](mailto:bryan.r.chapman@exxonmobil.com)

**Polymer Surfaces and Interfaces: Loops, Branches, and Brushes (CO-SPONSORED WITH POLY. PMSE IS PRIMARY).** Mark Dadmun, Dept. of Chemistry, University of Tennessee, Knoxville, TN 37996, (865) 974-6582, [Dad@utk.edu](mailto:Dad@utk.edu); S. Michael Kilbey II, Clemson University, Dept. of Chemical and Biomolecular Engineering, 130 Earle Hall, Clemson, SC 29634-0909, 864/656-5423, 864/656-0784, [amkilbey@ces.clemson.edu](mailto:amkilbey@ces.clemson.edu); Jimmy Mays, University of Tennessee at Knoxville, Dept. of Chemistry, Knoxville, TN 37996, 865-974-0747, [jimmymays@utk.edu](mailto:jimmymays@utk.edu); Grant Smith, Dept. of Materials Science & Engineering, University of Utah, Dept. of Chemical Engineering, University of Utah, Salt Lake City, UT 84112, 801-585-3381, [gsmith2@cluster2.mse.utah.edu](mailto:gsmith2@cluster2.mse.utah.edu); Rigoberto Advincula, Dept. of Chemistry, Dept. of Chemical Engineering, University of Houston, 136 Fleming Bldg., Houston, TX 77204-5003, 713-743-1760, [radvincula@uh.edu](mailto:radvincula@uh.edu).

**Synthesis and Self-Assembly Approaches to Polymer-Inorganic Hybrid Nanoparticles.** Jeff Pyun, Dept. of Chemistry, The University of Arizona, P.O. Box 210041, 1306 E. University Blvd., Tucson, Arizona 85721-0041, (520) 626-1834, [pyun@email.arizona.edu](mailto:pyun@email.arizona.edu); Michael Bockstaller, Carnegie Mellon University, 4307 Wean Hall, Pittsburgh, PA 15213-3890, (412) 268-2709 [bockstaller@cmu.edu](mailto:bockstaller@cmu.edu).

**Cooperative Research Award.** David Schiraldi, Case Western Reserve Univ., 2100 Adelbert Rd., Cleveland, OH 44106-7202, (216) 368-4243, [das44@po.cwru.edu](mailto:das44@po.cwru.edu).

**General Papers/New Concepts in Polymeric Materials and Joint PMSE/POLY Poster Session: General Papers/New Concepts in Polymeric Materials.** E. Bryan Coughlin, University of Massachusetts, Dept. of Polymer Science and Engineering, 120 Governors Drive, Amherst, MA 01003-4350, (413) 577-1616, [coughlin@mail.pse.unmass.edu](mailto:coughlin@mail.pse.unmass.edu).



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