



*Notes from the Chair*

Welcome to the election issue of the MESD newsletter. I am grateful to recent past chairs Doug Kalika and John Ekerdt, and awards chair Dennis Hess for their assistance in assembling an excellent slate of candidates. I hope that all members will participate in the election and add their voice to the direction of MESD as the AIChE grows in new multidisciplinary directions. The last few years have seen the growth of new groups and forums closely related to MESD - the Particle Technology Forum, the NanoScience and Engineering Forum, and the new Society for Biological Engineering - and it will be important for MESD to work well and efficiently with these new groups.

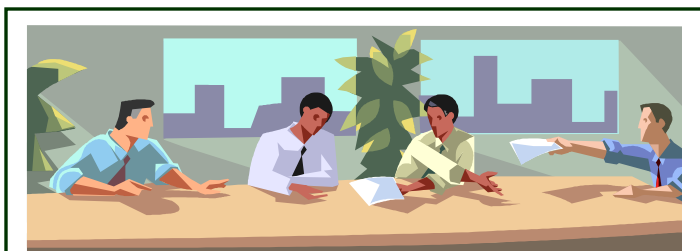
I'm sure we are all holding in our thoughts friends and colleagues affected by Hurricane Katrina; I hope by the time we meet in Cincinnati we will know they are all safe.

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**2005 Stine Award Winner Biographical Summary of Dr. Nitash P. Balsara**

Dr. Nitash P. Balsara is a chemical engineer with a bachelor's degree from the Indian Institute of Technology in Kanpur, India in 1982, a master's degree from Clarkson University in Potsdam, New York in 1984, and a PhD from Rensselaer Polytechnic Institute in Troy, New York in 1988. He did post-doctoral research at the Department of Chemical Engineering and Materials Science at the University of Minnesota, and at Exxon Research and Engineering Company in Annandale, New Jersey. In 1992, he joined the faculty of Department of Chemical Engineering at Polytechnic University in Brooklyn, New York. In 2000 he moved to the Department of Chemical Engineering at the University of California, Berkeley where he is currently a professor. His research is concerned with microstructure formation and phase transitions in polymer materials. He received the National Science Foundation Young Investigator Award in 1994, the John H. Dillon Medal for Polymer Physics, from the American Physical Society in 1997, the Camille Dreyfus Teacher-Scholar Award, the Van Ness Lectureship at Rensselaer Polytechnic Institute in 1998, and was elected a fellow of the American Physical Society in 2000.



**Upcoming Meetings and Events**

MESD election September 12<sup>th</sup> – October 10<sup>th</sup>

AIChE has its annual fall meeting October 30<sup>th</sup> –November 4<sup>th</sup>. This years meeting will be in Cincinnati, OH

**AIChE Note on Hurricane Katrina**

On behalf of our 40,000 members around the world, AIChE offers condolences to the victims of Hurricane Katrina, and caring and encouragement to the survivors. This tragedy has hit many of our members on a personal level--more than 2500 AIChE members live and work in Louisiana, Mississippi, Alabama, and Florida. These colleagues and their neighbors will need special support as they recover and rebuild.

The most urgent need is for humanitarian relief, and financial donations are currently most helpful. Donations are being accepted by [The Red Cross](http://www.redcross.org), as well as a number of other relief organizations listed on the [US Federal Emergency Management Agency Web site](http://www.usfda.gov). The Red Cross has an ongoing need for engineers who are trained in disaster response and ready for deployment. To volunteer, contact your local American Red Cross chapter or visit <http://www.redcross.org/donate/volunteer>.

**The ELECTION SLATE: FALL 2005****Candidates for Position of Second Vice-Chair (vote for one):**

(i) Paula Hammond

(ii) Christine Schmidt

**Paula T. Hammond** is the Mark Hyman, Jr. Career Development Chair Associate Professor in the Department of Chemical Engineering at the Massachusetts Institute of Technology. Paula Hammond earned her S.B. in Chemical Engineering from the Massachusetts Institute of Technology in 1984, her M.S. degree from Georgia Institute of Technology in 1988, and her Ph.D. in Chemical Engineering in 1993 from the Massachusetts Institute of Technology. In 1994 Dr. Hammond was awarded the NSF Postdoctoral Fellowship in Chemistry while performing postdoctoral research in the Harvard University Chemistry Dept as a member of the Whitesides research group. In 2000, Professor Hammond was awarded the Junior Bose Faculty Award at MIT. She has also received the NSF Career Award, the EPA Early Career Award, the DuPont Young Faculty Award, and the 3M Innovation Fund Award, and is on the Advisory Board of the journals *Advanced Materials* and *Chemistry of Materials*. She was recently a 2003 Radcliffe Fellow at Harvard University.



Prof. Hammond's research and educational program emphasizes the use of molecular aspects in the study and development of new materials and processes. Her general areas of interest include electrical and optical properties of polymers, biomaterials, and nano to microscale fabrication using directed and self-assembly of polymers. Her research program on self-assembling polymeric systems and directed assembly and patterning includes ultrathin patterned polymer films, liquid crystalline polymers and block copolymers. These systems are of interest for applications ranging from nanostructured materials to electro-optical films, and include micro- and nano-fabrication techniques that don't require conventional lithography. More recent applications investigated in her group include ultrathin film systems for microbatteries and fuel cells, drug delivery and cellular templates for biomaterials.

Dr. Hammond has had organizing and programming experience in a number of professional organizations. She has been involved in AIChE since 1993, and has served as Programming Vice-Chair and Chair of Area 8a (Polymers), and has co-organized a Topical Conference on Polymer Processing at the National Meeting in 2003. She was also Meeting Chair for the Fall 2003 Materials Research Society Meeting, and she has also organized symposia for the American Chemical Society. She also serves as Member-at-Large for the Polymeric Materials Science and Engineering Division of ACS.

As Vice Chair, she hopes to continue the tradition of strength that the Materials programming area has enjoyed, and to ensure integration of new areas such as Nanomaterials with more established areas. She will continue efforts to connect the MESD to the broader materials and chemical engineering disciplines through topical conferences and collaborative programming.

**Christine E. Schmidt** received her B.S. degree in Chemical Engineering from the University of Texas at Austin in 1988 and a Ph.D. in Chemical Engineering from the University of Illinois at Urbana-Champaign in 1995, where she studied with Douglas Lauffenburger. She was an NIH postdoctoral research fellow in Chemical Engineering at MIT for 18 months with Robert Langer. Christine joined the faculty at the University of Texas at Austin in June of 1996. Christine is currently the Lawrence E. McMakin Jr. Associate Professor of Biomedical Engineering and Chemical Engineering at The University of Texas at Austin, and is a member of the Texas Materials Institute, the Center for Nano- and Molecular Sciences and Technology, the Institute for Neurosciences, and the Institute for Cell and Molecular Biology.



Christine's current research interests are in the area of biomaterials for wound healing, cell-material interfaces, nerve repair technologies, and electronic communication with neurons. In particular, she and her students are developing new biomaterials and biomaterial composites (e.g., electronic polymer composites) that can be used as nerve conduits to physically guide and stimulate regenerating nerves. In addition, her group is also investigating neuron-electronic interfacing using small semiconductor nanoparticles (i.e., quantum dots) as a means to ultimately develop new bioprosthesis. Christine has published numerous peer-reviewed manuscripts and authored several book chapters and invited review articles on the topics of nerve injury and repair.

Christine's honors include a National Science Foundation CAREER Award and a number of college and university teaching awards. She has been a selected participant in the National Academy of Engineering "Frontiers of Engineering" Symposium and has served as a member of the advisory workshop for the National Research Council on "Challenges for the Chemical Sciences in the 21st Century: Health & Medicine". She currently serves on the Editorial Board for the *Encyclopedia of Biomaterials and Biomedical Engineering*.

Christine has been active in AIChE since 1993. She has served as the programming vice-chair and chair of Area 8b, and is a co-organizer (with Nicholas Peppas, Kristi Anseth and Angela Dillow) of the Topical Conference on "Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering" for the upcoming Fall Annual Meeting in Austin. She has chaired and co-chaired a number of sessions in areas 8b and 15d/e. Christine has also been active in a number of other societies including BMES, MRS and ACS.

As Second Vice-Chair, Christine plans to promote the visibility of MESD with other groups in AIChE and externally to foster the integration of materials into

"mainstream" Chemical Engineering. She will work to secure jointly sponsored sessions and topical conferences that will support the interdisciplinary nature of materials science research.

**To vote for your candidate** the AIChE Division web site is: [www.aiche-xtranet.org/divisions/](http://www.aiche-xtranet.org/divisions/)  
The Division code for log-in is "MES"  
The election period will be September 12<sup>th</sup> through October 10<sup>th</sup>.



### Candidates for Position of Director (vote for two):

(i) Tom Kuech



**Thomas F. Kuech** received his B.S. in Physics from Marquette University in Milwaukee as well as a M.S. in Materials Science. He received both a M.S. and Ph.D. (1981) in Applied Physics from the California Institute of Technology. He was a Research Staff Member at the IBM T.J. Watson Research Center from 1981 to 1990. While at IBM, he was the manager of III-V Epitaxial Growth group. He has been a member of the faculty of the Chemical Engineering Department at the University of Wisconsin in Madison since 1990 and he currently holds the Shoemaker Professorship and is department chair. He has been involved in the study of the chemical and physical processes underlying the synthesis of semiconductor materials and structures. A particular focus has been the formation of semiconducting structures from the gas phase chemical reactions and the formation of new materials integration technologies based on solid-solid interfaces. Tom has been honored as a Fellow of the American Physical Society, several named lectureships, the MESD 2003 Stine Awardee, and was named a concurrent professor of Nanjing University in the department of Physics in 2000. Tom has been very active in professional service and leadership. While at UW-Madison, he was the inaugural director of the UW-Madison Materials Research Science and Engineering Center. He has served as an executive officer in several professional societies, most recently as president of the American Association for Crystal Growth, as well as organizing and chairing several major national and international conferences. As the materials-based industries increasingly reach out to the chemical engineering community, the AIChE/MESD needs to continually franchise both academic and industrial researchers now active in sister organizations in established and emerging areas in order to broaden and enrich the field as well as our ChE community. As MESD director, he hopes to expand the breath of MESD programming and engage the larger research community into the activities of the AIChE.

(ii) Buddy Ratner



**Buddy D. Ratner**, Michael L. and Myrna Darland Endowed Chair in Technology Commercialization in the Department of Bioengineering, and Professor of Chemical Engineering at the University of Washington, received his Ph.D. (1972) in polymer chemistry from the Polytechnic Institute of Brooklyn. From 1985-1996 he directed the NIH-funded National ESCA and Surface Analysis Center for Biomedical Problems (NESAC/BIO), and in 1996 he assumed the directorship of University of Washington Engineered Biomaterials (UWEB), an NSF Engineering Research Center. He is the editor of the Journal of Undergraduate Research in Bioengineering, a past president of the Society for Biomaterials and author of over 300 scholarly works. Ratner is a Fellow of the American Institute of Medical and Biological Engineering (AIMBE), the AVS Science and Technology Society and the Society For Biomaterials. He served as president of AIMBE, 2002-2003. He is vice president for North America of the Tissue Engineering Society International, 2003-2005. In 2002 Ratner was elected a member of the National Academy of Engineering, USA. He now is Chair of the Biomaterials Engineering and Materials Applications (BEMA) roundtable of National Research Council and the National Materials Advisory Board (2002-2005). In 1998 he received the C.M.A. Stine Award from the Materials Science and Engineering Division of the AIChE and in 2004 he received the Founder's Award from the Society For Biomaterials. He has received numerous other awards. His research interests include biomaterials, medical implants, tissue engineering, polymers, biocompatibility, surface analysis of organic materials, self-assembly, nanobiotechnology and RF-plasma thin film deposition.

Dr. Ratner can bring to the position of Director perspectives in newer directions for materials research (biological applications, nanotechnology, molecular assembly, surface studies), an understanding of the legislative process and its impact on US technology, experience with education and outreach to

underrepresented groups in science and engineering, entrepreneurial ideas and management experience.



Dr. John Zielinski is a Lead Research Engineer at Air Products and Chemicals in Allentown, Pennsylvania. He earned his Ph.D. in 1992 from the Chemical Engineering Department at Penn State, under the tutelage of Prof. Larry Duda, and was appointed an Adjunct Professor in that department in 1996. He was a von Humboldt Postdoctoral Fellow working

between Johannes Gutenberg Universität and the Max Planck Institut für Polymerforschung in Mainz, Germany with Prof. Hans Sillescu. He also was awarded postdoctoral fellowships from NSF and from DAAD in Germany.

John worked for two years in the Advanced Concepts Research Division of the Department of Energy. Prior to that he earned a Masters degree from the University of California, Berkeley (working with Gene Petersen) and a Bachelors degree from Manhattan College (working with Stewart Slater). He is an active member of AIChE, Alpha Chi Sigma, and the von Humboldt Society of America.

At Air Products and Chemicals, John's research has spanned a range of materials frontiers, including creating flexibilized heat-cured polymer matrices, devolatilizing polymers, examining the effect of process parameters on the viscosity of high-solid latex emulsions,

studying mass transport in adsorbents for gas separation, and most recently examining the hydrogen storage characteristics of advanced carbon materials.

John continues to be active professionally and is well recognized for his expertise in diffusion and the sorption of solvents in polymers. He has published over 40 articles (and book chapters) on the experimental and theoretical aspects of mass transport and phase equilibrium in polymer/solvent and microporous adsorption systems. In addition, he has published in areas as diverse as predicting the domain sizes of microphase-separated block copolymers to modeling small-scale reverse osmosis systems.

John has been active in the MESD Division, particularly in Polymers sessions, and he would contribute to the MESD Executive Board a voice representing world-class industrial research.

#### Voting Instructions:

To vote, you will need to know your member ID number and graduation date (for your Bachelor's degree)  
If you do not know either, please contact  
[mailto:divisions@aiiche.org](mailto:mailto:divisions@aiiche.org)

Please follow these instructions:

1. Access the election on <<http://www.aiiche-xtranet.org/divisions/>>
2. Enter MES as the division/forum code
3. Enter your member ID number and graduation date (year)  
NOTE: You need to enter all four digits
4. Click 'submit' to register your vote.
5. You must vote by October 10<sup>th</sup>, 2005

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