



DIVISION OF POLYMERIC MATERIALS: SCIENCE & ENGINEERING

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## 2006 PMSE Fellow Ceremony

The American Chemical Society Division of Polymeric Materials: Science and Engineering (PMSE) has just completed its process to select a new class of PMSE Fellows for 2006, and the following people have been chosen:

- Anne Hiltner
- Robert Miller
- Donald Plazek
- Richard Stein
- Robert Weiss

They will be inducted as the seventh class of PMSE Fellows during the Awards Lunch at the Atlanta ACS National Meeting on Monday, March 27th, 2006. PMSE is pleased to welcome this distinguished group of polymer scientists and engineers to the ranks of fellows. A short description of their work up to the point of the induction as a PMSE Fellow is on the following pages.



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## 2006 PMSE Fellow Induction Biographies

### 2006 PMSE Fellow

Anne Hiltner

Case Western Reserve University

Dr. Anne Hiltner, the Herbert Henry Dow Professor of Macromolecular Science & Engineering at Case Western Reserve University, received a B.A. in Chemistry from Reed College, and a Ph.D. in Physical Chemistry from Oregon State University. In the years since receiving her doctorate, Anne has become a world-renown expert in the field of polymer creep/deformation/crack propagation/failure, wherein she has contributed to the very real development of new materials used in a host of applications, including gas distribution pipes. Anne is also very well-known for her leadership roles in the characterization and structure-property relationships in olefin copolymers, which contributed to the commercialization of these materials by Dow Chemicals, where they are now a multi-billion dollar product line - it is this collaboration that led to Anne and Dow's Dr. Steven Chum being awarded PMSE's Cooperative Research Award. Collaborations with the Hoechst Group led to Anne's major contributions in the area of structure property relationships governing gas transport properties in polyesters and polyester blends, which has in turn launched new products in the food/beer packaging field. Also of note is Anne's long-standing work in hierarchy and structure in polymer blends, composites, and in biopolymer systems. Anne has directed the NSF Center for Applied Polymer Research, served on numerous advisory and review boards for corporations, NSF, DOD, and a wide range of scholarly journals. Anne recently became Editor-in-Chief of the Journal of Applied Polymer Science. She is also a Fellow of the American Physical Society, and the author of approximately 300 scholarly papers.



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## 2006 PMSE Fellow

Robert D. Miller

IBM Almaden Research Center

Dr. Robert D. Miller received his PhD in Organic Chemistry working with Professor A.T. Blomquist on the Stereochemistry of Functionalized Medium-Sized Rings. After a year of postdoctoral work at Union Carbide Research Institute in Tarrytown New York working on the generation and low temperature matrix isolation and characterization of highly reactive intermediates generated by flash vacuum pyrolysis, he joined the IBM Research Division in Yorktown Heights, NY as a member of the first basic studies group in Chemistry in the Research Division. In 1971, he moved to the San Jose Research Laboratory where he staffed and managed a group tasked with basic studies in Organic Synthesis and Reaction Mechanisms. He currently manages the Advanced Organic Materials group at the Almaden Research Laboratory. His research activities have included: basic photochemical processes and mechanisms, radiation sensitive polymers and microlithography, synthetic methods utilizing multifunctional synthons, synthetic applications of strained ring materials, spectroscopy and chemistry of reactive intermediates, new polymeric materials for nonlinear optics, polymeric light emitting diodes, novel polymeric architectures, silicon and germanium containing polymers, functionalized organic and inorganic nanoparticles, organic materials for magnetic storage, polymeric electronic materials for semiconductors, and nanoporous thin films for Bioscience, Optics and Photonics.

He is a member of the American Chemical Society and the Materials Research Society and serves on the editorial advisory boards of Chemical Reviews, J. Inorganic and Organometallic Polymers, and Advanced Functional Materials. During his career, he has received four IBM awards for outstanding technical achievements, 21 invention plateau awards and is a member of the IBM Academy of Technology. Dr Miller was elected a Fellow of the Division of Polymeric Materials Science and Engineering for 2006. Dr. Miller is a co-inventor on more than 50 patents and patent publications and has published more than 325 articles in refereed technical journals. During his career at IBM, he has directly supervised the research of more than 25 postdoctoral fellows and numerous undergraduate and graduate students. He is currently an original member and principal investigator in the Center for Polymeric Interfaces and Macromolecular Assemblies which is a NSF-funded MERSEC center composed of members from Stanford University, UC Davis, UC Berkeley and the IBM Almaden Research Center and has served on the executive board of this organization.

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## 2006 PMSE Fellow

Donald J. Plazek

University of Pittsburgh

Dr. Donald J. Plazek, Professor of Materials Science and Engineering of the University of Pittsburgh has research interests in the rheology and viscoelastic properties of polymers and other organic glass-formers in addition to the structure-property relations of polymers. He has made extensive measurements over wide ranges of time and temperature on numerous linear and cross-linked polymers. Studies above the glass temperature as well as below where physical aging occurs have been made. Several instruments were developed to carry out the investigations including the first creep apparatus utilizing a "drag-cup motor" and a magnetic bearing. He has over 140 publications.

After receiving a PhD in 1957 at the University of Wisconsin, studying under John D. Ferry including a year of Post-Doctoral study, he spent nine years as a Fellow in Independent Research at the Mellon Institute in Pittsburgh. In 1967 he moved to the Metallurgical and Materials Engineering Department of the University of Pittsburgh. He became a Professor in 1975 and Emeritus Professor in 1993. He has served as an Adjunct Professor in the Chemistry Department of Carnegie-Mellon University since 1987. From 1993 to 1998 he served as an Associate Editor of Rubber Chemistry and Technology. He also served as a member of the Advisory Board of the Journal of Polymer Science (Physics) from 1991 to 1999. In 1993 he received the George Stafford Whitby Award from the Rubber Division of the American Chemical Society. He was awarded the Bingham Medal in 1995 by the Society of Rheology. He is a member of the American Chemical Society, the American Physics Society (Fellow) and the Society of Rheology. During 1976-1977 he was a Senior Visiting Research Fellow at The University in Glasgow and during 1987-1988 he was a Japan for the Promotion of Science Fellow at Kyoto University in Uji, Japan.



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## 2006 PMSE Fellow

Richard S. Stein

University of Massachusetts

Dr. Richard S. Stein was born in Far Rockaway, NY in 1925. His undergraduate studies were at Brooklyn Polytechnic where he made some of the first studies of the dimensions of polymer molecules in solution using light scattering, Graduate studies at Princeton with Tobolsky involved using birefringence and x-ray diffraction for following the orientation and relaxation of polymers. This was followed by a postdoctoral year at Cambridge University in which studies were extended through use of infrared dichroism. Stein joined the University of Massachusetts in 1950 as an Assistant Professor and initiated its polymer program and started its Polymer Research Institute which evolved into the Polymer Science and Engineering Department. He now serves as Emeritus Goessmann Professor of Chemistry. He has continued to develop and use rheo-optical techniques for studying orientation and phase transition phenomena in amorphous, crystalline and liquid crystalline polymers. These have more recently been supplemented by neutron scattering and reflectivity techniques. Stein's efforts have been recognized by awards from the American Chemical Society, the American Physical Society, the Society of Rheology, the Society of Plastics Engineers and the Society of Polymer Science, Japan. He has been elected to membership in the National Academies of Sciences and of Engineering and awarded honorary degrees by the Universitat Ulm and the University of Massachusetts.



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## 2006 PMSE Fellow

Robert Weiss

University of Connecticut

Dr. Robert Weiss, is a Board of Trustees Distinguished Professor of Chemical Engineering at the University of Connecticut. He received his B.S. from Northwestern and Ph.D. from the University of Massachusetts, Amherst. His work on the use of ionomers to compatibilize blends, and more generally on the effect of ionic groups on miscibility, is outstanding and has opened up much new ground in this field. This could also be said about other areas in which he has contributed, such as the effects of shear on miscibility. Dr. Weiss's research has not only been of high quality, but the number of his publications and patents also attest to the extensive range of his interests. He also has shown the ability to find the key, critical experiment, particularly in terms of finding an answer to a particular question. This latter feature is one of the main reasons that his efforts have been so highly valued in the industrial research community. His widespread service record includes leadership roles in the PMSE and the Society of Plastics Engineers where he has served as editor of Polymer Engineering and Science for many years. In 2003 Bob was selected as a University of Connecticut Board of Trustees Distinguished Professor, the highest honor that the University bestows on faculty who have demonstrated excellence in teaching, research and service.