

James White Chosen for Charles Goodyear Medal

In recognition of his outstanding career contributions to the rubber industry, Dr. James L. White has been chosen as the 2009 recipient of the Charles Goodyear Medal. The most prestigious award given by the Rubber Division, ACS, honors an individual for outstanding invention, innovation or development which resulted in significant change or contribution to the nature of the rubber industry.

Dr. White, currently serving The University of Akron as the Chaired Morton Professor of Polymer Engineering, has excelled in the fundamental understanding of rheology and mathematical modeling of unfilled

Award winners

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and filled rubbers and simulations of flow in batch and continuous mixing machines. He developed the first commercial twin screw extruder flow simulation software.

Dr. James Lindsay White was born in 1938. He attended the Brooklyn Technical High School and later studied Chemical Engineering at

the Brooklyn Polytechnical Institute. He then joined the Department of Chemical Engineering, the research group of then A.B. Metzner at the University of Delaware. There they jointly developed the now famous White-Metzner rheological model. Professor White's early career started in industry, working for Uniroyal from 1963-1967 where he acquired his lifelong interest in rubber science and engineering to which he has made numerous contributions.

In 1967, he joined the University of Tennessee, where he quickly rose through the academic ranks ultimately becoming the originator of the Polymer Engineering M.S. and Ph.D. degree programs. His interest turned to process induced structuring, and in collaboration with such able colleagues as Joseph. E. Spruiell and John F. Fellers, he rapidly dove into the new areas of polymer melt/solution, fiber spinning, film blowing and biaxial stretching processes, as well as injection molding. During this time, his contributions expanded into liquid crystalline polymers and developing unique processes to manufacture biaxially oriented lyotropic liquid crystalline films and a fundamental understanding of solidification from solution processing.

In 1983, Dr. White moved to The University of Akron, where he started the Polymer Engineering Department and served as chair and center director.

At Akron, he turned his attention to rubber processing and compounding, experimentally studying and simulating flow in internal mixers and pin barrel extruders, as well as twin screw extrusion with and without reactions taking place in the latter process. The later activities culminated with the first commercially successful software to simulate flow in twin screw extrusion.

In this period, he started a new society now called the Polymer Processing Society. From its inception in 1985, this society was organized to be international in character. Shortly after formation of the society, a new journal, International Polymer Processing was initiated and he successfully served as editor-in-chief from 1986 until 2004.

Professor White has published over 500 (and counting) papers in international journals. He has also published eight books on subjects ranging from rheology, twin screw extrusion, rubber (rubber processing) polyolefins and polymer compounds plastic elastomers. His book "Rubber Processing" is considered by many a seminal work that has aided engineers and scientists alike.

Among the numerous awards he has received for his accomplishments include:

- Bingham Medal of the Society of Rheology;
- Yuko -Sho Award, Society of Rheology, Japan 1984;
- Society of Plastics Engineers, Education Award 1987;
- Research Award , Society of Plastics Engineers, 1992; and the
- Heinz Herrmann Twin Screw Extrusion award of the Extrusion Division of Society of Plastics Engineers.



James L. White

Ignatz-Hoover Named Mooney Award Winner

Dr. Frederick Ignatz-Hoover is the 2009 winner of the Melvin Mooney Distinguished Technology Award. The award, sponsored by Lion Copolymer, honors a Rubber Division member or affiliate member who has exhibited exceptional technical competency by making significant and repeated contributions to rubber science and technology.

Ignatz-Hoover is principal chemist and market development manager, new products, for Flexys America. In 1989, he was awarded his Ph.D. in polymer science from The University of Akron for his research in anionic polymer synthesis.

Ignatz-Hoover began his rubber chemistry industrial career by joining the New Products Group of Monsanto's Rubber Chemical Division. He studied accelerator and antidegradant chemistry, as well as carbon black dispersion. He has worked with molecular modeling, applying semi-empirical quantum mechanical techniques and QSPR/QSAR techniques to various aspects of polymer chemistry and vulcanization chemistry. This modeling work has provided new insights into the mechanism of zinc-mediated-accelerated sulfur vulcanization and free radical reactivity in antidegradant chemistry.

Ignatz-Hoover is a member of the American Chemical Society and Rubber Division, ACS. He has served as an inaugural member of the advisory board at the Florida Center for Heterocyclic Compounds at the University of Florida, the industrial advisory board for the Center for Advanced Polymer Composites Engineering (CAPSE) at The Ohio State University, and the industrial advisory board at The University of Akron, Department of Chemistry.

Mentioned in eight patents, Ignatz-Hoover has also authored 25 works in various publications. He served as editor for Rubber Chemistry and Technology during the time the entire journal was converted to a keyword-searchable on-line form. A multiple lecturer at Rubber Division Technical Symposia, he has also been a member of the Program Planning Committee.



Frederick Ignatz-Hoover

McGrath to Receive George S. Whitby Award

Dr. James E. McGrath, distinguished professor of chemistry at Virginia Tech, is the recipient of the George S. Whitby Award for Distinguished Teaching and Research. The award, sponsored by Cabot, honors outstanding international teachers of chemistry and polymer science, and recognizes innovative research, as well as outstanding contributions to the integration of chemistry and polymer science into our educational system.

Dr. McGrath is a native of the Adirondacks in New York, where he earned his first degree in chemistry from Siena College, near Albany. He worked in cellulose chemistry for about three years at Rayonier, which included service in the U.S. Army in Texas. He joined Goodyear Tire and Rubber in 1959, and for several years conducted research on synthetic rubber. He initiated his graduate studies at The University of Akron, earning his Master's in 1964. His Ph.D. research (completed in 1967 under the direction of the late Maurice Morton) involved structure/physical property relationships in rubbers, as well as in organolithium anionic living polymerization, with a particular focus on block copolymers.

Dr. McGrath then spent eight years at Union Carbide, working in the area of engineering thermoplastics, polyurethanes, siloxane chemistry and gas phase polyethylene processes. He joined Virginia Tech in 1975 as an assistant professor, and was named full professor five years later. He was instrumental in starting the undergraduate and graduate polymer chemistry programs at that institution. He was appointed director of the Materials Institute there in 1987. In 1989, he and colleagues in chemistry and engineering at Virginia Tech established the National Science Foundation Science and Technology Center for High Performance Polymeric Adhesives and Composites. This changed his focus to phosphorous-containing polymers, and thermoplastic toughened adhesives and structural composites, particularly for aerospace.

Dr. McGrath is also known for the ACS hands-on short courses at Virginia Tech, which he instituted in 1976 with colleagues Garth Wilkes and Tom Ward (for which they won the ACS P.J. Flory Education Award, ACS, Division of Polymer Chemistry, in April 2004). They estimate that about 5,000 industrial, governmental and academic participants have taken the week-long courses, which range in subject from principles of polymer chemistry to introduction to polymeric adhesives and composites.

Dr. McGrath is currently a co-director of the Macromolecules and Interfaces Institute and the University Distinguished Professor of Chemistry. His fundamental chemistry has included many contributions to organolithium polymerizations over a period of nearly 30 years, and in ring opening polymerization with a specialty in epoxides and organosiloxane chemistry, where he generated a number of new synthetic methods to produce functional oligomers. He has also maintained an active research interest in the area of polyarylene ethers. His current focus is on polymeric materials for membranes, including fuel cells, reverse osmosis water purification membranes, membranes for the electrolysis of water and gas separations.

Dr. McGrath has received a number of prestigious awards, including:

- Elected, National Academy of Engineering, 1994;
 - Herman F. Mark Award, ACS, Division of Polymer Chemistry, November 1996;
 - Inducted into the Plastics Hall of Fame by the Society of Plastics Engineers, 1997;
 - Recipient of the "The International Award" from the Society of Plastics Engineers, April, 1998;
 - 2001 Chemistry of Thermoplastic Elastomers Award, Rubber Div., ACS, April, 2001;
 - Recipient of the American Chemical Society (ACS) Award in Applied Polymer Science, April 2002;
 - Recipient (with T.C. Ward and G.L. Wilkes) of the P.J. Flory Education Award, ACS, Division of Polymer Chemistry, April 2004;
- and
- Recipient of the American Chemical Society Award in Polymer Chemistry, 2008

He has 50 patents and over 400 publications, has graduated 107 MS and Ph.D. students, mentored over 70 post doctoral fellows, and has literally given hundreds of lectures worldwide. He remains one of the leaders in polymer science and engineering.



James E. McGrath

Sparks-Thomas Award Presented to John Baldwin

Dr. John M. Baldwin, senior managing scientist in Exponent's Vehicle Engineering practice, will be receiving the Sparks-Thomas Award at the Spring 2009 Rubber Division meeting. This award, sponsored by ExxonMobil Chemical, is to recognize and encourage outstanding scientific contributions and innovations in the field of elastomers by younger scientists, technologists and engineers.

Baldwin's expertise includes polymer science and technology, specializing in the synthesis, compounding, degradation (chemical/physical) and testing of elastomer, plastic, adhesive and foam based systems.

Prior to joining Exponent, Dr. Baldwin worked in the research laboratory of Ford Motor, where he became internationally recognized for his research on the topics of tire aging, tire test development, tire service life prediction, and the use of nitrogen as a tire inflation media. Before joining Ford Research, Dr. Baldwin worked in the Advanced Manufacturing Technology Department, where he researched and implemented high volume, automated adhesive, sealer and structural foam dispensing processes, along with automated in-process quality tests. Based on his professional and academic background, Baldwin was placed on a major tire recall root cause analysis team, where he was responsible for developing, coordinating and implementing the chemical and physical testing of thousands of new and recalled tires.

Dr. Baldwin worked for the 3M Company prior to joining Ford. While working in the 3M Automotive Division, he developed and serviced a line of two-part structural epoxy adhesives that were sold to automotive manufacturers and the aftermarket. As a member of 3M Occupational Health and Environmental Specialties Division, he was responsible for the material research and development, as well as the process engineering, of the blown microfiber nonwoven filter media used in maintenance-free respirators.

Baldwin holds an appointment as an adjunct associate professor of chemistry at Oakland University in Rochester, MI, where he teaches classes in polymer synthesis and polymer characterization.

Baldwin received his Ph.D. in polymer science at The University of Akron in 1992. He earned his B.S. in chemistry at the University of Detroit in 1986.



John Baldwin

Puskas Earns Thermoplastic Elastomer Award

Dr. Judit E. Puskas, a professor in the Department of Polymer Science at The University of Akron, will be the recipient of the 2009 Chemistry of Thermoplastic Elastomers Award. The award, sponsored by the Ralph S. Graff Foundation, honors significant contributions to the advancement of the chemistry of thermoplastic elastomers.

Dr. Puskas received a Ph.D. in plastics and rubber technology in 1985, and an M.E.Sc. in organic and biochemical engineering in 1977, from the Technical University of Budapest, Hungary. Her advisors were Professors Ferenc Tüdös and Tibor Kelen of Hungary, and Professor Joseph P. Kennedy at The University of Akron, in the framework of collaboration between the National Science Foundation of the U.S. and the Hungarian Academy of Sciences. She started her academic career in 1996. Before that she was involved in polymer research and development in the microelectronic, paint and rubber industries.

Her present interests include living carbocationic polymerization, polymerization mechanisms and kinetics, thermoplastic elastomers and polymer structure/property relationships, with a focus on the biomedical application of polymers and the combination of biopolymers and synthetic polymers.

She is a regional editor and a member of the advisory board of the European Polymer Journal, and a member of the IUPAC Working Party IV.2.1 "Structure-property relationships of commercial polymers." Puskas has been published in more than 300 publications, including technical reports, is an inventor or co-inventor of 20 U.S. patents and applications, and has been chair or organizer of a number of international conferences. She is the recipient of several awards, including the 1999 PEO (Professional Engineers of Ontario, Canada) Medal in Research & Development, a 2000 Premier's Research Excellence Award, and the 2004 Mercator Professorship Award from the DFG (Deutschen Forschungsgemeinschaft, German Research Foundation).

Dr. Puskas was group leader of Butyl Technology in the Rubber Division of Bayer (now Lanxess) before she left industry. From 1998 to 2003, she held the Bayer/NSERC (Natural Science and Engineering Research Council of Canada) Industrial Research Chair in elastomer technology, and was the director of the Macromolecular Engineering Research Centre at the University of Western Ontario in Canada from 1996 to 2004. In August of 2004, she joined the faculty in the Department of Polymer Science of the College of Polymer Science and Polymer Engineering of The University of Akron, where she held the Lanxess Chair in polymer science until 2008. She has been awarded her third NSF grant in 2008. As a coinventor of the polymer used on the Taxus coronary stent, she helped UA to generate more than \$5 million in license fees.

Most recently, she developed a synthetic rubber projectile that impacts, but does not penetrate, human tissue. Developed from work started at the University of Western Ontario, Puskas combined her work with butyl and SIBS to develop the bullet.



Judit Puskas

Donald Plazek is Chosen for Banbury Award

Dr. Donald J. Plazek, professor of materials engineering at the University of Pittsburgh, has been chosen for the Fernley H. Banbury Award. This award honors innovations of production equipment, instrumentation, control systems or improved technologies widely used in the manufacture of rubber or rubber-like articles of importance, and is sponsored by Farrel. Plazek is being recognized for his development of test equipment and his work with time/temperature measurement of polymers.

He invented and developed an instrument which covered unprecedented time scales with great accuracy at any desired temperature. His experiments revealed new and unexpected responses. In the four broad ranges of viscoelastic response, glassy, transition, plateau and terminal, the operative molecular mechanisms could and did have different temperature dependencies. He then collaborated with others in examining and testing both theoretical molecular origins of response and practical applications of molecular architecture.

Dr. Plazek received his B.S. in Chemistry in 1953 and Ph.D. in Physical Chemistry in 1957 from the University of Wisconsin. He joined the Metallurgical and Materials Engineering Department at the University of Pittsburgh as an associate professor in 1967 after nine years as a fellow in independent research at Mellon Institute. He was made a professor in 1975 and professor emeritus in 1993. He is also an adjunct professor in the chemistry department at Carnegie-Mellon University, a post he has held since 1987.

Dr. Plazek was the 1995 recipient of the Bingham Medal presented by the Society of Rheology for his extensive investigations of the viscoelastic behavior of amorphous polymers and other glass forming materials.

The Rubber Division gave him the George Stafford Whitby Award in 1993 for his innovative and inspirational teaching and research.

An author of 129 publications, Dr. Plazek was also the associate editor of Rubber Chemistry and Technology from 1993-1998 and a member of the Journal of Polymer Science (Physics) advisory board from 1991-1999.



Donald J. Plazek