The Dan Edie Distinguished Lectureship

November 9, 2017
Watt Innovation Center
Clemson University

Inaugural Speaker:
Anthony J. McHugh, Ph.D.
Ruth H. and Sam Madrid Professor
Chemical and Biomolecular Engineering
Lehigh University

CLEMSON
CHEMICAL AND BIOMOLECULAR ENGINEERING

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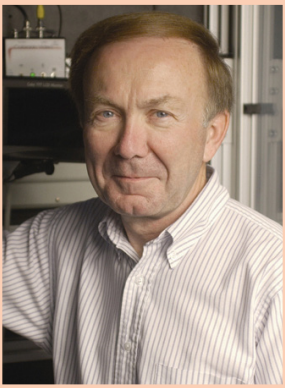

The Dan Edie Distinguished Lectureship was established through an endowment to honor his career in teaching, research, and service.

Dr. Edie's research interests include composite materials, rheology, fiber formation and carbon fiber processing. He has co-authored over 55 journal publications, 120 conference proceedings, and six patents.

Dr. Edie has graduated 13 doctoral students and 35 M.S. students. In addition, he developed courses in polymeric composite materials, polymer processing, finite element analysis and engineering polymers. In 1993, he was awarded the McQueen Quattlebaum Faculty Achievement Award by the College of Engineering, and the George D. Graffin Lectureship in carbon science and engineering by the American Carbon Society. In 1999, he was awarded the Clemson Alumni Award for Outstanding Achievement in Research, and in 2007 he was elected a Fellow of the American Carbon Society.

After receiving a B.S. in chemical engineering from Ohio University in 1965, Dr. Edie worked for NASA as a testing and operations engineer until 1969. That same year, he received an M.S. in applied mathematics from the University of Toledo. In 1972, Dan received a Ph.D. in chemical engineering from the University of Virginia and then worked for Celanese corporation as a senior research engineer. In 1975, Dan joined the chemical engineering faculty at Clemson.

By 1982, Dr. Edie was promoted to full professor, and from 1986 to 1987 he served as interim associate dean in the College of Engineering. In 1989, he was appointed the Dow Chemical Professor of Chemical Engineering. From 1994 to 1995, he served as chairman of the Department of Chemical Engineering. Dan was instrumental in the foundation of the NSF Center for Advanced Engineering Fibers and Films (CAEFF), serving as Center Director from 1998 to 2003. He retired in 2006, but remains active in the department working on research and Ph.D. committees.

The Dan Edie Distinguished Lectureship was established in 2017, making this year's lecture by Dr. Tony McHugh the inaugural lecture of the series. The Lectureship aims to enlighten and inspire students and faculty in the materials science, chemistry, and chemical engineering communities.

10 Years of Polymer Process Modeling Under the CAEFF: The EDIE Legacy

Dr. Anthony J. McHugh

November 9, 2017

2:00 PM - 3:00 PM

Watt Innovation Center, Clemson University
400 South Palmetto Blvd., Clemson, SC

The NSF Center for Advanced Engineering Fibers and Films (CAEFF) was established in 1998 at Clemson under the leadership of Professor Dan Edie. Its mission has been to focus on industrially-relevant research in the commercially important areas of polymer fiber and film manufacturing. The CAEFF also became an important source of intellectual stimulation for this speaker's research as it was for a number of others. This talk will present a discussion of our CAEFF studies that emphasized continuum-based models for fiber melt and dry spinning and film blowing. A critical element is incorporation of molecular rheological models to account for the phenomenon of oriented, flow-induced crystallization (FIC). The latter is responsible for the orders of magnitude increase in properties associated with these modes of processing. In addition to fitting and predicting the system dynamics, such models enable correlating fiber and film mechanical properties with processing conditions. The talk will also include a brief overview of recent experimental and modeling studies carried out elsewhere that incorporate details of the oriented crystalline morphology development that occurs in melt spinning and extrusion.

About Dr. McHugh

Professor Anthony McHugh earned his B.S. degree in chemical engineering from Cleveland State University (1966) and M.S. and PhD degrees in chemical engineering (1972) from the University of Delaware. He joined the chemical engineering department at Lehigh University in 1971, then moved in 1979 to the chemical engineering department at the University of Illinois in Urbana-Champaign. In 2003 he returned to Lehigh as department chair and is now the Ruth H. and Sam Madrid Professor of Chemical and Biomolecular Engineering. Professor McHugh's research activities have been in the general area of polymer science and engineering. He is the author or co-author of over 180 technical papers on a variety of subjects in polymer process modeling, the rheology, rheo-optics, and processing behavior of complex polymeric fluids, phase inversion of polymer solutions, and injectable drug delivery systems. He has been advisor to 46 masters and 35 PhD students. His research has been recognized by several awards including the Senior U.S. Scientist Award of the Alexander von Humboldt Foundation and the Alan Glanville Award of the Institute of Materials, Minerals and Mining. He is a Fellow of the American Institute of Chemical Engineers and a member of Sigma Xi Scientific Association.

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