

Civil Engineering Graduate Seminar

SPEAKER

Dr. Gregory M. Odegard

Associate Professor, ME-EM, Michigan Tech



Dr. Odegard is an associate professor in the Department of Mechanical Engineering—Engineering Mechanics at Michigan Technological University. Odegard was a researcher at NASA Langley Research Center in Hampton, Virginia, from 2000 to 2004, when he joined the faculty at Michigan Tech. He has received numerous awards, including the Ralf R. Teetor Educational Award in 2011, the Ferdinand P. Beer and E. Russell Johnston Jr. Outstanding New Mechanics Educator Award in 2008, the Michigan Tech Outstanding Graduate Mentor Award in 2008, the Boeing/SDM Best Paper Award in 2005, and the SAMPE Outstanding Graduate Student Award in 1998. Odegard has authored or coauthored forty-three technical journal articles and four book chapters, and has been involved in ninety-one conference presentations. According to Google Scholar, his publications have been cited nearly 1,200 times in the technical literature. His research has been funded by NASA, the Air Force Office of Scientific Research, the National Science Foundation, the National Institutes of Health, Mayo Clinic, and Titan Tires. Odegard currently serves as the chair for two committees: the Materials Technical Committee of the American Institute of Aeronautics and Astronautics, and the Structures and Materials Technical Committee of the American Society of Mechanical Engineers.

Molecular Modeling of Polymers and Nanocomposites

Polymer-based composites and nanocomposite materials have the potential to provide significant increases in specific stiffness and specific strength relative to current materials used for many engineering structural applications. To facilitate the design and development of polymer nanocomposite materials, structure-property relationships must be established that predict the bulk mechanical response of these materials as a function of the molecular- and micro-structure. The objective of this research is to establish an accurate and efficient approach for using computational modeling to develop structure-property relationships for polymer-based systems. A combination of molecular dynamics and micromechanical modeling methods has been used to predict the mechanical response of high-performance polymers, nanoparticle/polymer composites, SWNT/polymer composites, and SWNT arrays. An overview of this research will be presented along with the results from specific material systems.

Time & Venue

4-5 pm, Feb. 2nd

Dow 624, public welcome

MichiganTech