

**Marino Xanthos** was Professor of Chemical, Biological and Pharmaceutical Engineering, Associate Provost for Graduate Studies, and Senior Technical Adviser to the Polymer Processing Institute (PPI) at NJIT until his passing in the summer of 2013. Dr. Xanthos earned a bachelor's degree in chemistry from the Aristotelian University of Thessaloniki and master's and Ph.D. degrees in chemical engineering from the University of Toronto, where he studied under Professor R. T. Woodhams.

After receiving his doctorate in 1974, he joined the research division of Martin Marietta Resources International, where he eventually rose to the position of Research, Development and Technical Services Manager. From 1980 to 1986,

he served as professor and later as director of Stevens Institute of Technology overseas International Programs Office Department of Polymer Science, Engineering and Technology, jointly operated with the Algerian Petroleum Institute. During the period of 1987 to 1995, he was the research director of the PPI and Stevens Research Professor. He was appointed professor of chemical engineering at NJIT in 1995, where he served until his passing as Director of the Polymer Engineering Center, Director of the Center of Processing of Plastics Packaging, Chairperson of the Executive Committee of the Materials Research Council, Senior Technical Adviser to the PPI at NJIT, and finally Associate Provost for Graduate Studies.

Dr. Xanthos was internationally recognized for his polymer blends, polymer composites and polymer foams expertise, and his studies on polymer modification through the use of functional particulate additives and reactive extrusion processes, which he also applied to the processing of pharmaceutical oral dosage forms. His research work and publications involved Ph.D. and master's students at NJIT and Stevens. He was also involved with PPI technical staff and industrial colleagues nationally and internationally in the solution of numerous important industrial problems.

Dr. Xanthos became a Fellow of the Society of Plastics Engineers (SPE) in 2003 and received the NJIT Board of Overseers Harlan J. Perlis Award that same year in recognition of his exemplary scholarship and outstanding research in the field of polymers. He served as the U.S. representative to the Board of the Polymer Processing Society since 2005. In 2010, he received the Heinz List Award in recognition of his outstanding achievements in reactive processing and devolatilization.

Dr. Xanthos deeply cared for and was a renowned mentor and adviser to his graduate and undergraduate students. For many years, he was the adviser and life force of the NJIT student chapter of the Society of Plastics Engineers.

This lecture series was established by his family, friends and colleagues to memorialize his accomplishments and love of his chosen field.

#### **Previous Lecturers:**

2017: David L. Kaplan, Department of Biomedical Engineering, Tufts University

2016: Thomas P. Russell, University of Massachusetts and Materials Sciences Division, Lawrence Berkeley National Laboratory

2015: Morton M. Denn, Benjamin Levich Institute, City College of New York

One of only 32 polytechnic universities in the United States, New Jersey Institute of Technology (NJIT) prepares undergraduate and graduate students and professionals to become leaders in the technologydependent economy of the 21st century. NJIT's multidisciplinary curriculum and computing-intensive approach to education provide technological proficiency, business acumen and leadership skills. NJIT has a \$1.74 billion annual economic impact on the State of New Jersey, conducts approximately \$140 million in research activity each year, and is a global leader in such fields as solar research, nanotechnology, resilient design, tissue engineering, and cybersecurity, in addition to others. NJIT is ranked #1 nationally by Forbes for the upward economic mobility of its lowest-income students and is among the top 2 percent of public colleges and universities in return on educational investment, according to PayScale.com.





Marino Xanthos Memorial Lecture 2018

### Karen L. Wooley

Departments of Chemistry, Chemical Engineering, and Materials Science & Engineering Texas A&M University



Wednesday, October 24, 2018

Moshe Kam Dean Newark College of Engineering New Jersey Institute of Technology

on behalf of the Marino Xanthos Memorial Lecture Committee

> requests the honor of your presence at the

### MARINO XANTHOS MEMORIAL LECTURE 2018

Functional Polymer Materials Designed for Advanced Applications and Sustainability

Karen L. Wooley Departments of Chemistry, Chemical Engineering, and Materials Science & Engineering Texas A&M University

> Wednesday, October 24, 2018 2:30 p.m.

> > Eberhardt Hall Room 112

RSVP to Sheryl Baker by Monday, October 15, 2018; sheryl.baker@njit.edu or 973-596-2314. For driving directions to NJIT, visit njit.edu/visit

## Abstract

With advances in the translation of nanoscience to nanotechnology comes the need to consider sustainable sourcing of the building blocks used to create the nanotechnological devices

while defining the functional performance application. Polymer chemistry can make important contributions to nanotechnology with the potential of impacting global needs, such as water-food-energy-health, and addressing the grand challenges that must be solved in the coming decades. In this lecture, recent advances will be presented on the integration of current approaches to the development of nanoscopic systems from natural products with the design of hybrid nanoscopic systems that are capable of pollutant sequestration and



magnetic recovery focused on environmental remediation and for drug delivery with selective therapeutic outcomes. Other promising applications will also be discussed.





# Karen L. Wooley



Traren L. Wooley is the W. T. Doherty-Welch Chair in Chemistry, N University Distinguished Professor and Presidential Impact Fellow at Texas A&M University, where she holds appointments in the Departments of Chemistry, Chemical Engineering and Materials Science & Engineering. She also serves as Director of the Laboratory for Synthetic-Biologic Interactions. Her academic training included undergraduate study at Oregon State University (B.S., 1988) and graduate study under the direction of Professor Jean M. J. Fréchet at Cornell University (Ph.D., 1993). She began an academic career as an Assistant Professor of Chemistry at Washington University in St.

Louis, Missouri, was promoted in 1999 to full professor with tenure, was installed in 2006 as a James S. McDonnell Distinguished University Professor in Arts & Sciences, in 2007 received an appointment in the School of Medicine, Department of Radiology and in July 2009, Karen relocated to Texas A&M University. Research interests include the synthesis and characterization of degradable polymers derived from natural products, unique macromolecular architectures and complex polymer assemblies, and the design and development of well-defined nanostructured materials. The development of novel synthetic strategies, fundamental study of physicochemical and mechanical properties, and investigation of the functional performance of her materials in the diagnosis and treatment of disease, as non-toxic anti-biofouling or anti-icing coatings, as materials for microelectronics device applications, and as environmental remediation systems are particular foci of her research activities. Recent awards include the American Chemical Society Award in Polymer Chemistry (2014), Royal Society of Chemistry Centenary Prize (2014), Fellow of the Royal Society of Chemistry (2014), Honorary Fellow of the Chinese Chemical Society (2014), Oesper Award (2015), Fellow of the American Academy of Arts and Sciences (2015), and both Distinguished Research and Teaching Achievement Awards from the Texas A&M University Association of Former Students (2016). Karen has served on the technical advisory boards and served in consulting capacities for several companies, from Fortune 500 companies to startups, and law firms. She is the co-founder and president of Sugar Plastics, LLC. Karen currently serves as an Associate Editor for the Journal of the American Chemical Society, among many other advisory roles within the broader scientific community.