



## Cahill to receive MRS Innovation in Materials Characterization Award

David Cahill, Willett Professor and Head of the Department of Materials Science and Engineering at the University of Illinois at Urbana-Champaign (UIUC), is being honored with the Materials Research Society (MRS) Innovation in Materials Characterization Award “for developing transformative methods for characterizing the thermal transport properties of materials and their interfaces using time-domain thermoreflectance and related approaches.” He will receive the award at the 2018 MRS Spring Meeting in Phoenix, Ariz. The award is endowed by Gwo-Ching Wang and Toh-Ming Lu.

Time-domain thermoreflectance (TDTR), as implemented and refined by Cahill over the past decade, has become a standard method for accurate quantification of the thermal conductivity of thin

films/layers and small samples of materials, and thus has been a critical aspect of the growing discipline of nanoscale thermal transport. TDTR is used in dozens of laboratories around the world and is having a critical impact on industry, particularly within magnetic recording.

Cahill’s group studies the basic science of thermal transport in materials, with a particular emphasis on the exchange of thermal energy at solid–solid and solid–liquid interfaces. They recently developed powerful methods of characterizing nanoscale thermal transport using the ultrafast laser metrology of precisely controlled thin-film multilayers and suspensions of metallic nanoparticles. His current research focuses on developing an understanding of thermal transport at the nanoscale; the development of new

methods of materials processing and analysis using ultrafast optical techniques; and advancing a fundamental understanding of interfaces between materials and water.

Cahill received his BS degree in engineering physics from The Ohio State University and his PhD degree in physics from Cornell University in 1989. His doctoral work concerned lattice vibrations of disordered solids. Before joining the faculty at UIUC, he worked at IBM Watson Research Center, where he conducted research on metal–semiconductor interfaces. Cahill received the Yeram S. Touloukian Award from the American Society of Mechanical Engineers in 2015, was named a University Scholar by the University of Illinois in 2001, and a Willett Professor of Engineering by the College of Engineering in 2005. He is a Fellow of the American Vacuum Society, the American Physical Society, and the Materials Research Society. He has published approximately 300 articles and is on the editorial boards of *Applied Physics Letters* and the *Journal of Applied Physics*.

Cahill will be recognized at the Awards Ceremony and will present his talk on Wednesday, April 4 at the Phoenix Convention Center (PCC).



## Mooney to receive Mid-Career Researcher Award for pioneering contributions in biomaterials

The Materials Research Society (MRS) has named David Mooney, Robert P. Pinkas Family Professor of Bioengineering and Core Faculty Member, Wyss Institute for Biologically Inspired Engineering at Harvard University, to receive the Mid-Career Researcher Award “for pioneering contributions to the field of biomaterials, especially in the incorporation of biological design principles into materials

and the use of biomaterials in mechanobiology, tissue engineering and therapeutics.” Mooney will be recognized during the Awards Ceremony Wednesday, April 4 at the PCC, and will present his talk (Symposium X presentation) Thursday, April 5 during the 2018 MRS Spring Meeting in Phoenix, Ariz.

Mooney’s research is driven by the question of how mammalian cells receive information from the materials

in their environment. By utilizing the tools of cell and molecular biology, he studies the mechanisms by which chemical (e.g., specific cell adhesion molecules) or mechanical signals (e.g., cyclic strain) are sensed by cells, and alters their proliferation and specialization to either promote tissue growth or destruction.

Mooney uses the results from these studies to design and synthesize new biomaterials that regulate the gene expression of interacting cells for a variety of tissue-engineering and drug delivery projects. Current projects focus on therapeutic angiogenesis, regeneration of musculoskeletal tissues, and cancer therapies.

Mooney received his BS degree in chemical engineering from the University of Wisconsin–Madison, and his PhD degree in chemical engineering from the