



Alexander A. Balandin named 2013 MRS Medalist for graphene thermal properties

The Materials Research Society has announced that the 2013 MRS Medal will go to Alexander A. Balandin, Founding Chair of the Materials Science and Engineering Program and Professor in the Department of Electrical Engineering at the University of California (UC)–Riverside. Balandin is cited for the “discovery of the extraordinary high intrinsic thermal conductivity of graphene, development of an original optothermal measurement technique for investigation of thermal properties of graphene, and theoretical explanation of the unique features of the phonon transport in graphene.” Balandin, who is also director of the Nano-Device Laboratory at UC–Riverside, will be recognized during the award ceremony at the 2013 MRS Fall Meeting in Boston.

In 2007, Balandin introduced the optothermal experimental technique for measuring thermal conductivity of atomically thin films. This technique, where the micro-Raman confocal spectrometer is used for measuring the local temperature and thermal conductivity, has been reproduced in many laboratories worldwide and applied to a variety of materials systems. In 2008, Balandin published a seminal paper with the report that graphene has extremely high intrinsic thermal conductivity. This discovery created the subfield of graphene thermal research.

The following year, Balandin and his group published theoretical papers where it became clear that the difference in thermal conductivity of graphene and graphite is related to the specifics of the low-energy phonon transport in these

systems. In 2010, Balandin and his co-workers carried out the first experimental demonstration of the evolution of heat conduction as the system dimensionality changes from two-dimensional (graphene) and explained it theoretically. The high thermal conductivity of graphene is important for proposed electronic applications of graphene. It also opens a new range of graphene applications in thermal management such as graphene-enhanced thermal interface materials and few-layer graphene heat spreaders.

Balandin received his MS degree in applied physics from the Moscow Institute of Physics and Technology (1991) and his PhD degree in electrical engineering from the University of Notre Dame (1996). Following his postdoctoral research at the University of California–Los Angeles, Balandin joined the UC–Riverside faculty in 1999 and founded the Materials Science and Engineering Program in 2006. He is a Fellow of the American Physical Society, The Institute of Electrical and Electronics Engineers, American Association for the Advancement of Science, the Optical Society of America, and the International Society for Optical Engineering. He is a recipient of the Pioneer of Nanotechnology Award for 2011.



David J. Srolovitz receives 2013 Materials Theory Award

The Materials Research Society has named David J. Srolovitz of the University of Pennsylvania as the recipient of the 2013 Materials Theory Award for his “decisive and highly influential contributions to the theory and simulation of microstructure, morphological evolution, mechanical be-

havior, and the structure and dynamics of interfaces.” Srolovitz will be recognized during the award ceremony at the 2013 MRS Fall Meeting in Boston. The Materials Theory Award, endowed by Toh-Ming Lu and Gwo-Ching Wang, “recognizes exceptional advances made by materials theory to

the fundamental understanding of the structure and behavior of materials.”

Srolovitz received his BS degree in physics from Rutgers University, and his MS and PhD degrees in materials science from the University of Pennsylvania. He recently joined the faculty at the University of Pennsylvania as the Joseph Bordogna Professor of Engineering and Applied Science in the Department of Materials Science and Engineering and in the Department of Mechanical Engineering and Applied Mechanics, after serving as the executive director of the A*STAR Institute of High Performance Computing in Singapore since 2009. Prior to this position he held senior faculty appointments at Yeshiva University, Princeton University, and the University of Michigan,