



Meyyappan is the chief scientist for Exploration Technology at NASA Ames Research Center in Moffett Field, Calif. He holds a PhD degree from Clarkson University, Potsdam. He has authored or co-authored more than 380 peer-reviewed journal articles, has presented more than 250 invited/keynote/plenary talks, and has given more than 250 seminars at universities. He is a Fellow of MRS, IEEE, ECS, AVS, IOP, AIChE, ASME, and the National Academy of Inventors. For his

contributions and leadership in nanotechnology, he has received numerous awards, including a Presidential Meritorious Award, NASA's Outstanding Leadership Medal, the IEEE Judith Resnick Award, the AIChE Nanoscale Science and Engineering Forum Award, the IEEE-USA Professional Achievement Award, the AVS Nanotechnology Recognition Award, and the AVS Plasma Prize.

For his sustained contributions to nanotechnology, Meyyappan was inducted into

the Silicon Valley Engineering Council Hall of Fame in 2009. He has received an Honorary Doctorate from the University of Witwatersrand, Johannesburg, South Africa, and Concordia University, Montreal, Canada. He holds 22 nanotechnology patents, many of which have been commercialized. He also has the only nanotechnology product flown to outer space: a nano-chemical sensor monitoring air quality in the crew cabin on the International Space Station.



Xu named MRS Outstanding Young Investigator

Sheng Xu, University of California, San Diego (UC San Diego), has received the Outstanding Young Investigator Award “for materials and device designs in biointegrated electronics and stretchable energy systems.” This award recognizes outstanding interdisciplinary scientific work in materials research by a young scientist or engineer. The recipient must also show exceptional promise as a developing leader in the materials area.

Xu received his BS degree in chemistry and molecular engineering from Peking University in Beijing, China, and his PhD degree in materials science and engineering from the Georgia Institute of Technology, where he was responsible for a large fraction of the programs on growth of ZnO and PbZrTiO₃, nanowires and their application in piezoelectric energy harvesters. In particular, he developed

low-temperature solution-phase chemistries for epitaxially grown oxide nanowire arrays and schemes for integrating them into capacitor-type structures designed for converting mechanical into electrical energy. These accomplishments brought him to the Department of Materials Science and Engineering at the University of Illinois at Urbana-Champaign, where he worked as a postdoctoral research associate.

Xu's presentation on “Soft Electronics for Noninvasive Health Care—From the Skin to Below the Skin” will discuss soft electronic devices that can acquire vital signs from the human body. Combined strategies of materials design and advanced microfabrication allow the integration of a variety of components and devices on a stretchable platform, resulting in functional systems with minimal constraints on the human body. In

his presentation, Xu will demonstrate a wearable multichannel patch that can sense a collection of signals from the human skin in a wireless mode. Additionally, integrating high-performance ultrasonic transducers on the stretchable platform adds a third dimension to the detection range of conventional soft electronics. Ultrasound waves can penetrate the skin and noninvasively capture dynamic events in deep tissues, such as blood pressure and blood flow waveforms in central arteries and veins.

Xu is currently an assistant professor in the Department of Nanoengineering at UC San Diego. His research group focuses on crystalline material growth for high-performance energy-harvesting devices and biointegrated electronics for health monitoring and human-machine interfaces. His research has been highlighted as “Groundbreaking Research in 2018” by *Forbes* and “12 innovations that will revolutionize the future of medicine” by *National Geographic*. He has received the *MIT Technology Review* 35 Innovators Under 35 Award, the NHLBI Technology Development Award, 3M Non-Tenured Faculty Award, International Union of Pure and Applied Chemistry Prize for Young Chemists, and the MRS Graduate Student Award.

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