ion-insertion reactions at the levels of electrons, ions, molecules, and particles using a bottom-up approach. They have pioneered the use of state-of-the-art *in situ* and *in operando* techniques, employing novel methods of transmission electron microscopy, synchrotron x-ray spectroscopy, and diffraction to study processes such as ion intercalation into battery electrodes and local structural changes at interfaces during redox reactions.

Chueh and his group utilize a wide range of solutions, vapor, and solid-state routes to create high-performance electrochemical devices, such as photoelectrochemical cells, fuel cells, electrolyzers, and metal-air batteries.

He received his BS degree in applied physics and his PhD degree in materials science from the California Institute of Technology. Chueh is recognized as a Top 35 Innovator under the Age of 35 by *MIT Technology Review*, he received the President Harry S. Truman Distinguished Postdoctoral Fellowship from Sandia National Laboratories, the BASF/Volkswagen Science Award for Electrochemistry, the Camille Dreyfus Teacher-Scholar Award, and an NSF Career Award.

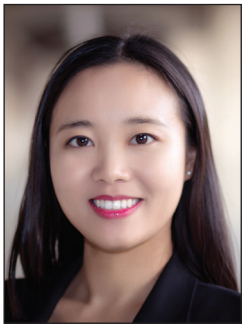
Wood named 2018 MRS Outstanding Young Investigator for work with transport processes

Vanessa Wood, Department of Information Technology and Electrical Engineering, ETH Zürich, has been named a 2018 Materials Research Society (MRS) Outstanding Young Investigator. Wood was cited "for innovative work in visualizing, quantifying, and explaining transport processes in materials and devices." She will receive the award Wednesday, April 4, at the 2018 MRS Spring Meeting in Phoenix and will present her talk Monday, April 2 at the PCC.

Wood currently heads the Laboratory for Nanoelectronics at ETH Zürich. The Laboratory investigates the potential of nanoscale materials in electronic devices at each point in the energy life cycle—collection, storage, and usage. Using a combination of experiment and theory, the group studies the fundamental electronic properties of materials and applies the findings to the rational design of devices that harness the novel form factors and properties provided by nano-sized materials.

Her research focuses on the development of analytical techniques to study the electronic and ionic transport in solution-processed structures composed of materials with nanoscale dimensions. The information gained from these studies is then applied to developing new materials and device architectures for optoelectronic and electrochemical energy-storage applications, such as LEDs, solar cells, and lithium-ion batteries.

Wood received her BSc degree in applied physics from Yale University and her PhD degree in electrical engineering from the Massachusetts Institute of Technology. She has earned the World Economic Forum Young Scientist Award, the BASF/Volkswagen Award for Electrochemistry, the Goldene Eule Teaching Award, the Intel Early Career Faculty Award, and is a TED Fellow, among other recognitions.



Banerjee and Xu to receive MRS Postdoctoral Awards

Arnab Banerjee, Oak Ridge National Laboratory, has received a Materials Research Society (MRS) Postdoctoral Award "for groundbreaking experiments providing evidence of topological excitations in a two-dimensional magnet, moving toward lossless qubits in quantum computing," and Jie Xu, Stanford University, has received the award "for applying polymer physics concepts to realize integrated, intrinsically stretchable transistors for skin electronics."

Banerjee received a BSc degree in physics from the Indian Institute of Technology and his PhD degree in physics from the University of Chicago. He led a team of researchers to make high-quality powder and single crystals of the graphene-like honeycomb insulator α-$RuCl_3$. He then performed various experiments to reveal that the ground state of α-$RuCl_3$ is close to a true quantum spin liquid ground state. He pioneered the field with experiments that resolved a controversy of stacking faults in these 2D materials.

Xu received a BS degree in chemistry and a PhD degree in polymer physics from Nanjing University. Her current work focuses primarily on developing new material chemistry concepts for next-generation stretchable electronics. She has been able to integrate a

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stretchable semiconductor into a stretchable integrated circuit. Xu also achieved roll-to-roll coating of a stretchable polymer semiconductor blend with a high degree of alignment of the polymer semiconductor nanostructure and enhanced charge-carrier mobility.

The MRS Postdoctoral Award recognizes scholars who show exceptional promise, which may include excellence in scientific research, leadership, advocacy, outreach, or teaching during their postdoc assignment. MRS acknowledges the Jiang Family Foundation and MTI Corporation for their generous support of this award.

Ramesh to present Kavli lecture during 2018 MRS Spring Meeting plenary session

Ramamoorthy Ramesh has been selected to present The Fred Kavli Distinguished Lectureship in Materials Science during the 2018 MRS Spring Meeting. He is the Purnendu Chatterjee Chair Professor of Physics and Materials Science at the University of California, Berkeley, and Associate Laboratory Director for Energy Technologies at Lawrence Berkeley National Laboratory.

Ramesh's presentation is titled "Electric Field Control of Magnetism." Complex perovskite oxides exhibit a rich spectrum of functional responses, including magnetism, ferroelectricity, highly correlated electron behavior, and superconductivity. The basic physics of such materials provide the ideal playground for interdisciplinary scientific exploration, with an eye toward real applications. Over the past decade, the oxide community has been exploring the science of such materials as crystals and in thin-film form by creating epitaxial heterostructures and nanostructures.

Among the large number of materials systems, a small set of materials exhibit multiple order parameters; these are known as multiferroics, particularly, the coexistence of ferroelectricity and some form of ordered magnetism (typically antiferromagnetism). The community has been able to demonstrate electric-field control of both antiferromagnetism and ferromagnetism at room temperature. Current work focuses on ultralow energy (1 attoJoule/operation) electric-field manipulation of magnetism as the backbone for the next generation of ultralow power electronics. In his presentation, Ramesh will describe the progress to date on this exciting possibility. The lecture will conclude with a summary of future research.

Ramesh earned his BS degree in chemistry from Madras University, India, and his PhD degree in materials science from the University of California, Berkeley, in 1987. At Berkeley, he pursues key scientific and technological problems in complex multifunctional oxide thin films, nanostructures, and heterostructures. His group demonstrated the existence of a large ferroelectric polarization in multiferroic $BiFeO_3$ films, in agreement with first-principle predictions. They also demonstrated electric-field control of antiferromagnetism as well as ferromagnetism, a critical step toward the next generation of ultralow power storage and spintronics devices that are completely electric-field controlled.

Ramesh has published extensively on the synthesis and materials physics of complex oxide materials. He is a Fellow of the American Physical Society, the American Association for the Advancement of Science, and the Materials Research Society. He has been recognized with a Humboldt Senior Scientist Prize, the American Physical Society David Adler Lectureship and the James McGroddy Prize, and the TMS Bardeen Prize. In 2014, he was recognized as a Thomson Reuters Citation Laureate in Physics for his work on multiferroics.

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