Sigurd Wagner selected for 2017 David Turnbull Lectureship Award

The Materials Research Society's (MRS) David Turnbull Lectureship Award recognizes the career of a scientist who has made outstanding contributions to understanding materials phenomena and properties through research, writing, and lecturing, as exemplified by the late David Turnbull of Harvard University. Sigurd Wagner, Princeton University, has been selected to give the Turnbull Lecture at the 2017 MRS Fall Meeting in Boston. He is cited "for groundbreaking contributions to the science and technology of thin-film photovoltaics, amorphous silicon and flexible large-area electronics."

Wagner received his PhD degree in physical chemistry in 1968 from the University of Vienna, Austria. Following postdoctoral research at The Ohio State University, he worked from 1970 to 1978 at Bell Telephone Laboratories within their first silicon dynamic random-access memory project and then on devices of chalcopyrite-type semiconductors. In 1978, he joined the Solar Energy Research Institute (now NREL) in Golden, Col., as the founding chief of its Photovoltaic Research Branch. Since 1980, he has been a professor of electrical engineering at Princeton University; in 2015, he became professor emeritus and senior scholar.

Wagner is a Fellow of the American Physical Society and of the Institute of Electrical and Electronics Engineers, and is a corresponding member of the Austrian Academy of Sciences. He has been named the Alexander von Humboldt Foundation Senior Fellow, received the 2009 Nevill F. Mott Lecture Award, and the 2014 International Thin-Film Transistor Conference 10th Anniversary Prize.

His presentation will focus on the evolution of materials tools and how they have aided in our existence. The industrial revolution, crucially reliant on advances in materials, has moved billions of humans from poverty to plenty. With this revolution came an enormous expansion of our tools for studying, making, and using materials. Because materials have such reach over human activity, they inspire teamwork. Increasingly, the ease of collaboration and the many available tools are enabling and encouraging researchers to move back and forth among study, exploration, and application of materials. He will illustrate this through work with solids and liquids; research on electrical, optical, and mechanical properties; and making silicon memory, solar cells, microfluidic devices, flexible and stretchable electronic surfaces, and large-area sensor arrays.

Glenn H. Fredrickson receives 2017 Materials Theory Award

The Materials Research Society (MRS) has named Glenn H. Fredrickson, University of California, Santa Barbara, as the recipient of the 2017 Materials Theory Award "for pioneering the development of field-theoretic computer simulation methods and their application to investigate and design self-assembling polymers and soft materials." Fredrickson will be recognized at the 2017 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."

Over the past decade, Fredrickson and his group have shown that the complex-valued statistical field-theory models of classical fluids can be addressed through numerical simulation. Such "field-theoretic simulations" (FTSs) have an advantage over conventional particle-based computer simulations in a variety of situations, especially dense melts of high-molecular-weight polymers and systems with long-ranged interactions, such as polyelectrolytes. They are also well suited for multiscale simulations spanning nanometers to microns.

Fredrickson's presentation will introduce the construction of field-theory models of polymeric fluids and the FTS framework. Two application examples will be provided: the design of uniquely hard-tough-elastic thermoplastics, and the complexation behavior of oppositely charged polyelectrolytes. He will also discuss a "coherent states" representation of interacting polymers

https://doi.org/10.1557/mrs.2017.252 Published online by Cambridge University Press

that offers potential computational advantages. A structural similarity with bosonic quantum field theories suggests a powerful new FTS approach to probe super fluidity and other exotic collective phenomena in cold bosons.

Fredrickson received BS and PhD degrees in chemical engineering from the University of Florida and Stanford University, respectively. He was a member of the technical staff at Bell Laboratories from 1984 to 1990, and has been on the chemical engineering and materials faculties at the University of California, Santa Barbara, since that time. Fredrickson has advised a wide range of companies in the chemical and materials sectors and has served as chief technology officer of Mitsubishi Chemical Holdings Corporation during 2014–2017. He has received major research awards from the American Physical and Chemical Societies and the American Institute of Chemical Engineers, and was elected to the US National Academy of Engineering and the American Academy of Arts and Sciences.

Joanna Aizenberg selected as MRS Medalist for development of synthesis routes

Joanna Aizenberg, Harvard John A. Paulson School of Engineering and Applied Sciences, has received the 2017 Materials Research Society (MRS) Medal "for developing new synthesis routes inspired by biological principles for the fabrication of advanced complex multifunctional materials." Aizenberg will be recognized during the Awards Ceremony at the 2017 MRS Fall Meeting in Boston.

Aizenberg received her BS degree in chemistry from Moscow State University, and PhD degree in structural biology from the Weizmann Institute of Science. After spending nearly a decade at Bell Labs, she joined Harvard University, where she is the Amy Smith Berylson Professor of Materials Science, Professor of Chemistry and Chemical Biology, Director of the Kavli Institute for Bionano Science and Technology, and Platform Leader in the Wyss Institute for Biologically Inspired Engineering. She pursues multidisciplinary research that includes biomimetics, crystal engineering, and smart materials.

Aizenberg is an elected member of the American Academy of Arts & Sciences, American Philosophical Society, and American Association for the Advancement of Science; she is a Fellow of the American Physical Society, MRS, and an external member of the Max Planck Society. In 2015, she received the Ledlie Prize for the most valuable contribution to science made by a Harvard scientist. She has served on the MRS Board of Directors and on the Board of Physics and Astronomy of the National Academies.

In her presentation, she will discuss how liquids entrapped within and on a solid begin to exhibit unique behaviors, often providing the surrounding material with unprecedented properties. Recently, she introduced a new technology to create self-healing, antifouling coatings (so-called slippery, lubricant-infused porous surfaces [SLIPS]), which has given rise to a fast-developing area of materials research. These bioinspired coatings mimic slippery surfaces of a pitcher plant and outperform state-of-the-art materials in their ability to resist ice and microbial adhesion, repel various simple and complex liquids, prevent marine fouling, or reduce drag. Generalized design principles for creating stable, shear-tolerant SLIPS on glass, ceramics, polymers, fabrics, and metals, as well as their performance in condensers, heat exchangers, membranes, and medical devices will be discussed.

https://doi.org/10.1557/mrs.2017.252 Published online by Cambridge University Press