

Dionne named 2017 MRS Outstanding Young Investigator for innovative new materials and methods

Jennifer A. Dionne, associate professor of materials science and engineering at Stanford University, has been named a 2017 Materials Research Society (MRS) Outstanding Young Investigator. Dionne was cited “for innovating new materials and methods to visualize and control nanometer-scale optical, electronic, and chemical processes *in situ*.” She will be presented with the award at the 2017 MRS Spring Meeting in Phoenix, Ariz.

Dionne’s presentation will describe new techniques that enable *in situ* visualization of chemical transformations and light–matter interactions with nanometer-scale resolution. In particular, she will focus on (1) ion-induced phase transitions; (2) optical forces on enantiomers; and (3) nanomechanical

forces using unique electron, atomic, and optical microscopies. First, she will explore nanomaterial phase transitions induced by solute intercalation to understand and improve materials for energy-storage applications. Then, she will discuss optical tweezers that enable selective optical trapping of nanoscale enantiomers, with the ultimate goal of improving pharmaceutical and agrochemical efficacy. Finally, she will present new nanomaterials for efficient and force-sensitive upconversion. These optical force probes exhibit reversible changes in their emitted color with applied nano- to micro-Newton forces.

Dionne received her PhD degree in applied physics at the California Institute of Technology and BS degrees in physics and systems and electrical engineering

from Washington University in St. Louis. Prior to joining Stanford, she was a postdoctoral researcher in chemistry at UC Berkeley.

Dionne’s group develops new nano and optical materials for applications ranging from high-efficiency energy conversion and storage to bioimaging and manipulation. This has led to the demonstration of negative refraction at visible wavelengths, design of optical tweezers for nano-specimen trapping, demonstration of a metamaterial fluid, and synthesis of high-efficiency and active upconverting materials. Most recently, she has developed *in situ* techniques to visualize chemical transformations and light–matter interactions with nanometer-scale spatial resolution.

Dionne is the recipient of the Adolph Lomb Medal, Sloan Foundation Fellowship, the Presidential Early Career Award for Scientists and Engineers, and the inaugural Kavli Early Career Lectureship in Nanoscience, and was recently featured on Oprah’s list of “50 Things that will make you say ‘Wow!’” She is a recipient of the National Science Foundation CAREER Award, the Air Force Office of Scientific Research Young Investigator Award, and TR-35 (*MIT Technology Review* “35 Innovators under 35”).



Madsen to receive MRS Impact Award

Lynnette D. Madsen, National Science Foundation (NSF), will receive the inaugural Materials Research Society (MRS) Impact Award “in recognition of her effectiveness in exemplifying technical leadership, advancing diversity,

fostering mentoring and communicating persuasively to influence both large and small institutions.” This award honors outstanding individuals who have displayed excellence in science communication, education, advancing diversity,

mentoring, or community engagement, which reflect the Society’s pursuit to advance materials science and technology to improve the quality of life.

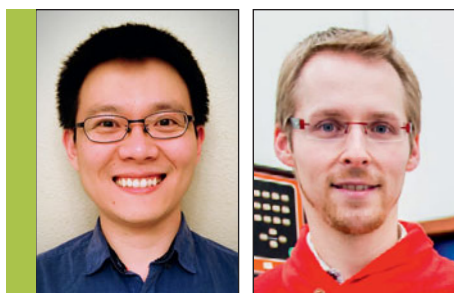
Madsen has worked at NSF as a program director in materials research since 2000. Additionally, she has completed three detail assignments at NSF dealing with international efforts with Africa, increasing the advancement of women in academic careers, and strategic human capital analysis and planning. She has led new co-operative activities with European researchers in materials; has been part of the driving force in program development and initiatives in nanotechnology, manufacturing, and sustainability; and has maintained an active independent research program.

Previously, she was on the faculty at Linköping University and held a visiting/adjunct faculty position at Carnegie Mellon University. Earlier, she spent a decade working in industry in Canada. She has had support from industry (ABB, Siemens, and Nortel Networks) for her research and consulting.

Madsen has published two books, three book chapters/sections, and 99 articles; has been awarded three patents; and has delivered more than 100 invited talks. She

has served as a panelist for the National Research Council and as a Trustee for the American Vacuum Society (AVS), and currently serves as an Advisory Board member for the Rosalind Franklin Society and on the Board of Directors for The American Ceramic Society (ACerS). She has a BAsC degree in electrical engineering and a BA degree in psychology from the University of Waterloo, a MEng degree in electronics from Carleton University, and a PhD degree in materials

science from McMaster University. Madsen's other recognitions include those by NSF (two Director Awards), The Minerals, Metals and Materials Society (Ellen Swallow Richards Diversity Award), ABET (Claire L. Felbinger Award for Diversity), ACerS (Fellow), the University of Waterloo (Engineering Achievement Medal), Society of Hispanic Professional Engineers (Junipero Serra Award), and AVS (Excellence in Leadership Recognition).



Zi and Conings to receive MRS Postdoctoral Awards

Yunlong Zi, Georgia Institute of Technology, has received a MRS Postdoctoral Award “for pioneering research to improve the efficiency and wider applicability of mechanical energy harvesting systems” and Bert Conings, Hasselt University, has received the award “for innovation in hybrid perovskite photovoltaics, addressing fabrication, lifetime, and toxicity

issues.” The MRS Postdoctoral Award recognizes postdoctoral scholars who show exceptional promise, which may include excellence in scientific research, leadership, advocacy, outreach, or teaching during their postdoc assignment.

Zi received a B.Eng. degree in materials science and engineering from Tsinghua University, China, and a PhD degree in physics from Purdue University. Zi's

postdoctoral research focuses on high-efficiency mechanical energy harvesting through triboelectric nanogenerators (TENG), TENG-triggered high-voltage applications, and self-powered systems.

Conings received a MS degree in applied physics from Eindhoven University of Technology, The Netherlands, and a PhD degree from Hasselt University, Belgium. Recent research includes understanding the origins and implications of grain size in hybrid perovskite films and solar cells, and electro-optical investigation of hybrid perovskites with improved film formation properties toward up-scalable and stable solar cells.

MRS acknowledges the Jiang Family Foundation and MTI Corporation for their generous contribution to support this award.

7th International Conference on Hard X-Ray Photoelectron Spectroscopy to be held September 11–15 in the United States <https://sites.google.com/a/lbl.gov/haxpes2017>

The 7th International Conference on Hard X-Ray Photoelectron Spectroscopy (HAXPES) will be held September 11–15, 2017, in Berkeley, California, USA. Co-chairs are Charles Fadley of the University of California, Davis, and Lawrence Berkeley National Laboratory, USA; Zahid Hussain of Lawrence Berkeley National Laboratory, USA; and Piero A. Pianetta of Stanford University/SLAC National Accelerator Laboratory, USA.

HAXPES brings together researchers from a variety of fields, from fundamental condensed matter and atomic and

molecular physics to more applied surface and interface studies of catalysis, energy and IT device- and process development, and environmental research. HAXPES involves photon energies in the multi-keV range above ~2 keV, but the conference also encourages presentations involving complementary photoemission measurements at lower energies, as well as other x-ray-based techniques.

The conference features a single session of oral presentations and three poster sessions. The five plenary speakers are Michael Bedzyk of Northwestern

University, USA; Hendrik Bluhm of Lawrence Berkeley National Laboratory, USA; Ralph Claessen of the Julius-Maximilians-Universität Würzburg, Germany; Tien-Lin Lee of Diamond Light Source, United Kingdom; and Maria Novella Piancastelli of Uppsala University, Sweden. There are 18 additional invited speakers.

The abstract submission deadline is June 15. More information can be accessed from the conference website at <https://sites.google.com/a/lbl.gov/haxpes2017> or by email at haxpes2017@gmail.com. □