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Guest Editor for this issue of *MRS Bulletin*

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ogy in 1991. From 1992 to 2009, he served on the faculty of the University of California, San Diego. Yu's research is directed broadly toward the characterization, understanding, and application of physical phenomena and of material and device properties at nanometer to atomic length scales. His current interests include photovoltaics and other technologies for energy generation; scanning probe microscopy; plasmonic and related nanophotonic structures; and solid-state nanoscience and nanotechnology generally. He has been the recipient of a National Science Foundation CAREER Award, the Office of Naval Research Young Investigator Award, the Alfred P. Sloan Research Fellowship, and the University of California, San Diego, Electrical and Computer Engineering Graduate Teaching Award. He currently serves as a member and Associate Chair of the Defense Advanced Research Projects Agency (DARPA) Defense Sciences Research Council.

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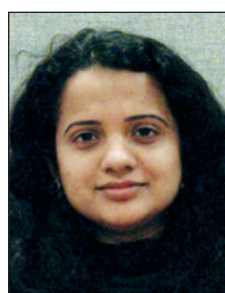
devices, and computational electromagnetism.

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Peumans is an assistant professor of electrical engineering at Stanford University and deputy director of the Center for Advanced Molecular Photovoltaics. He is interested in low-cost photovoltaics, light management in solar cells, solar thermal systems, large-area electronics, and biomedical electronics. Peumans also is the recipient of a National Science Foundation CAREER award.



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nanotechnology, specifically in the area of nanostructure surface treatment.

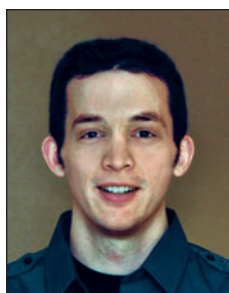


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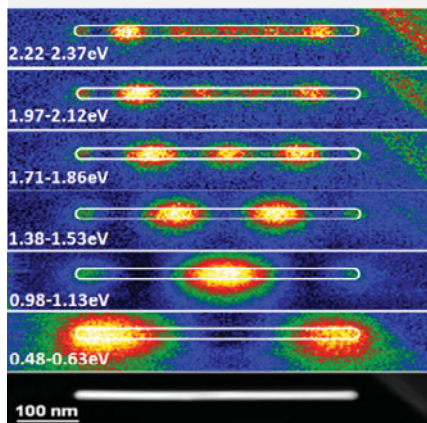
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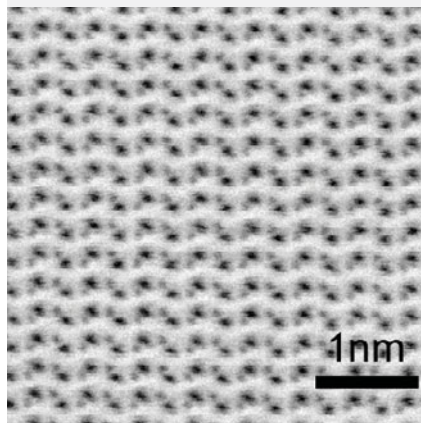
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STEM/EELS map of low energy loss region of Ag nano-antenna using a monochromator. The relationship between the spatial and energy distribution is measured down to 0.55 eV.

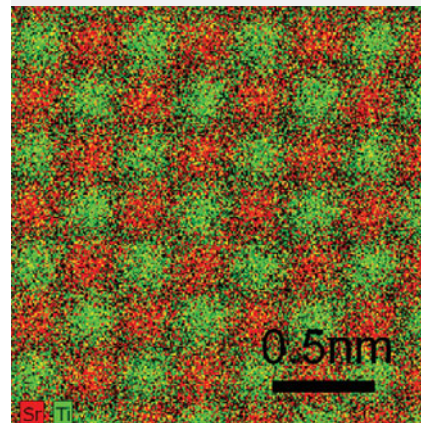
Courtesy of D. Rossouw, M. Couillard, J. Vickery, E. Kumacheva, G.A. Botton. Also in NanoLetters, 29 March 2011, dx.doi.org/10.1021/nl200634w

Atomic imaging of light elements



Angular brightfield STEM imaging (ABF) on GaN in [11-20] projection. The Ga and N dumbbell distance can be resolved atomically (raw data).

Atomic chemical mapping by EDX



Composite strontium and Titanium image extracted from the Sr-L and Ti-K EDS signal 256 x 256 pixels, 10 ms dwell time/pixel (raw data).

Sample courtesy of C. Jia, The Ernst-Ruska Centre for Microscopy and Spectroscopy with Electrons, Germany



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