

Seminar



The DSN-I Seminar Series is hosted by the Device Science and Nanofabrication Initiative. DSN-I Seminars target researchers in micro and nanofabrication technologies or devices, with the goal of strengthening the user community of the new Scaife Hall nanofabrication facility and other shared infrastructure.

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Extraordinary Optical Transmission of Nanoparticle and Composite Nanoparticle-Nanoaperture Arrays

Dave Waldeck

November 13, 2015 | 3:30 - 4:30 PM | Scaife Hall 125

Seminar abstract

The optical transmission spectra of nanoparticle arrays and nanoparticles embedded in transmission gratings are described and discussed as a platform for biochemical sensing. By using nanolithography (examples of both FIB and EBL generated structures are given) it is possible to create well-defined arrays of metal nanoparticles and to examine how their plasmonic response depends on geometry, period, and array symmetry. In this talk a number of different structures are examined and a platform that is compatible with micro- and nanofluidic assays is proposed.

Speaker bio

David H. Waldeck was born in Cincinnati, OH on September 5, 1956. He obtained a B.S. in chemistry from the University of Cincinnati in 1978 and a Ph.D. in chemistry from the University of Chicago in 1983. He was a postdoctoral fellow at the University of California Berkeley from 1983 to 1985. In 1985 he moved to the University of Pittsburgh as an Assistant Professor of Chemistry, and he is now Professor and Chair of the Department of Chemistry. David became a Fellow of the American Physical Society in 2004.

As a faculty member David has made important contributions in chemistry education. During his time in the Department, David has taught more than fifteen different courses in areas of chemistry and photonics at all levels, ranging from introductory general chemistry to advanced topics in physical chemistry. Currently he is co-teaching an advanced course entitled Special Topics in Chemistry: Models for Complex Materials, in conjunction with collaborators at Duke University and Carnegie Mellon University via videoconference technology. In the early 1990's, David began incorporating computational activities into the Physical Chemistry curriculum and later led the Department's 'Computing across the Chemistry Curriculum' initiative. Also, David is the co-author of a recent textbook on physical chemistry, Principles of Physical Chemistry with H. Kuhn and H. D. Foersterling (Wiley, 2009). David has mentored six postdoctoral students, twenty-one PhD students, three master's students, and numerous undergraduates during his time in Pittsburgh.

Seminar notes: Light snack and beverages will be served.