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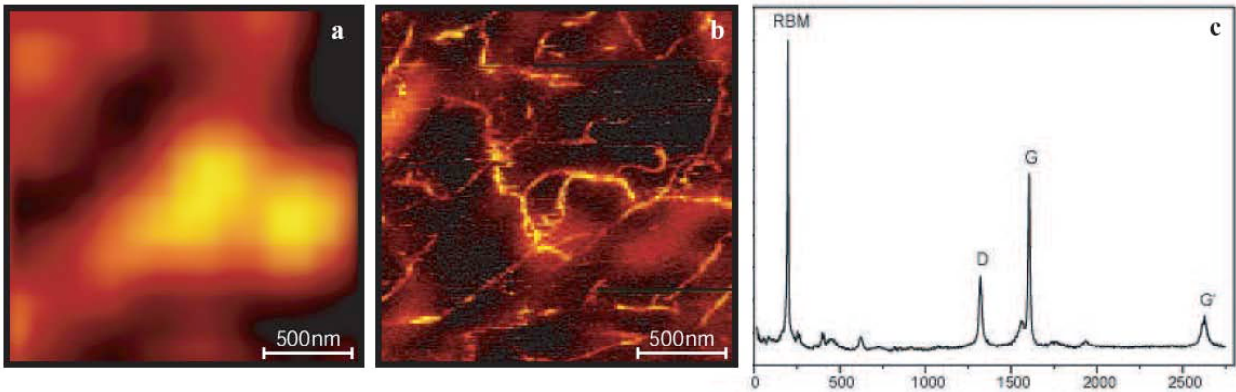
College of Science

Chester F. Carlson

Center for **IMAGING** SCIENCE

Seminar Series

Imaging and Spectroscopy with Optical Antennas



Lukas Novotny

Head, Nano-Optics Research Group

Institute of Optics

University of Rochester

4pm, Wed., Dec. 13, 2006

Auditorium of the Center for Imaging Science

In optics, lenses and mirrors are used to redirect the wavefronts of propagating optical radiation. Due to diffraction, propagating radiation cannot be localized to dimensions much smaller than the optical wavelength. Borrowing concepts developed for the radiowave and microwave regime, antennas are used to localize optical radiation to scales much smaller than the wavelength of light. A high-resolution, hyperspectral image is recorded. This approach has been applied to map out phonons and excitons in individual single-walled carbon nanotubes (SWNT) with a resolution of 10nm.

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Speaker Bio

Lukas Novotny is head of the Nano-Optics Research Group at the Institute of Optics, University of Rochester. He received his Ph.D. from the Swiss Federal Institute of Technology (ETH) in Switzerland. His thesis was in close collaboration with the IBM Research Laboratory and dealt with theoretical problems in near-field optics. He later joined the Pacific Northwest National Laboratory, WA, USA, where he worked in the Chemical Structure and Dynamics Group. In 1999 he joined the faculty of the Institute of Optics at the University of Rochester. He developed a course on nano-optics which was taught several times at the graduate level and which forms the basis of a textbook titled "Principles of Nano-Optics (Cambridge, 2006)". His general interest is in nanoscale lightmatter interactions ranging from questions in solid-state physics to biophysical applications.