



The Hebrew University Center
for Nanoscience & Nanotechnology



האוניברסיטה
העברית
בירושלים

Nano Seminar

Nonlinear Optical Properties of Metallic Nanostructures

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Abstract:

With current fabrication methodologies such as e-Beam lithography and Focused Ion Beam milling, nanostructures in general and metallic ones in particular can be produced with very high accuracy. Together with the observation of Extra-Ordinary-Transmission of light through sub-diffraction holes, the modern fabrication technologies opened up the field of nano-plasmonics, where the collective electronic excitations in the nanostructures give rise to new optical properties, linear as well as non-linear.

The interaction of light and matter on the nanoscale can be modelled and calculated by solving the electromagnetic wave propagation equations, thus enabling the prediction and understanding of the optical response of any such structure. Thus, CAD-CAM (Computer Aided Design -Computer Aided Manufacturing) is at the heart of the very active modern field of nanoplasmonics.

In this talk, I will review the general optical properties of nanostructures, nanoparticles as well as their complementary nanocavities. Based on the fundamental physics of the electromagnetic interaction, I will analyze the nonlinear optical response of such nanostructures to laser excitation, and will describe our experiments leading to full control of the amplitude and phase of the optical response of nanostructure arrays. Based on this understanding, we optimize the structures for specific nonlinear optical purposes, including enhanced nonlinear response, aberration corrected RGB lenses and nonlinear holography.

Gathering & Refreshments at 10:50

Please contact Alexandra Bannykh at 6584919 if you are interested in meeting the lecturer.

Tuesday, May 22nd 2018, 11:00 at the Seminar Hall
Los Angeles Building, entrance floor.