Physics
AT QUEENS COLLEGE

Colloquium Notice

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Super-resolution imaging of plasmonic nanostructures

Noble metal nanoparticles can support localized surface plasmons, which lead to enhanced electromagnetic fields at the nanoparticle surface and allow for a host of surface-enhanced spectroscopies, such as surface-enhanced Raman scattering (SERS). While extensive theoretical calculations have been performed that predict how these enhanced electromagnetic fields are distributed on the nanoparticle surface, confirming these results using optical techniques is extremely challenging due to the diffraction limit of light. Because the metal nanoparticles are smaller than the wavelength of light, they appear as diffraction limited spots in optical images, obscuring the local electromagnetic field enhancements. This talk will describe recent efforts to use high resolution single molecule imaging techniques to measure how electromagnetic fields are locally enhanced on the surface of noble metal nanoparticles for applications in SERS. Single molecule spectroscopy allows us to beat the diffraction limit by over an order of magnitude, providing the necessary resolution to optically image electromagnetic field enhancements on noble metal nanoparticle surfaces.

Monday
February 29, 2016
Starts at 12:15 PM
Coffee at 12:00 PM
Physics Conference Room, SB B326