DEPARTMENT OF CHEMISTRY & CHEMICAL BIOLOGY

November 9, 2018
SMLC 102
4:00 p.m.

SPECTROSCOPY IN INHOMOGENEOUS ELECTRIC FIELDS

PRESENTED BY:
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Over the last few years we have developed new theories and computational methods for understanding vibrational spectroscopy of molecules near metal surfaces. Specifically we have developed a new computational toolbox for simulating surface-enhanced vibrational spectroscopy in inhomogeneous electric field. This kind of spectroscopy relies on the strong localized electric near-field at the surface of plasmonic metal nanoparticles. Our work has shown that it is possible to resolve intricate molecule vibrations with atomic resolution, which requires that the near-field is confined to a few Angstroms. Under these conditions the traditional selection rules breaks down and simulations are required for understanding the spectroscopy. Here we will discuss our latest developments in understanding surface-enhanced vibrational spectroscopy in inhomogeneous electric fields.