

Analytical Chemistry Seminar

Tuesday, January 30, 2024
3:30 p.m. ~ WTHR 320

"Chemical Identification of Single Adatoms Using Tip Enhanced Raman Spectroscopy"



Saptarshi Paul

Graduate Student, Purdue University

Abstract:

Abstract: Tip-Enhanced Raman Spectroscopy (TERS) is an innovative analytical method that allows the observation and characterization of materials at the nanoscale with remarkable precision. TERS combines scanning probe microscopy (SPM) and Raman spectroscopy. While SPM techniques excel in topographic characterization with atomic spatial resolution, they lack chemical sensitivity. On the other hand, optical spectroscopic techniques like Raman can determine chemical bonds but lack spatial resolution. TERS addresses these challenges by merging the chemical specificity of Raman spectroscopy with the high spatial resolution of SPM. It is widely employed in studying surface reactions, enabling the identification and mapping of single adatoms with high spatial resolution and single bond sensitivity. This distinctive feature of TERS renders it a valuable tool in the fields of heterogeneous catalysis and surface engineering.

Bio: Saptarshi Paul

I commonly go by "Rishi" in Purdue. I am originally from Kolkata, India. After completing my master's from IIT Kanpur (India), I joined Purdue University in the Fall of 2022. Currently, I am a 2nd year PhD student in Jeffrey Dick's group where I am studying electrodeposition of nanoparticles from aqueous nanodroplets.