

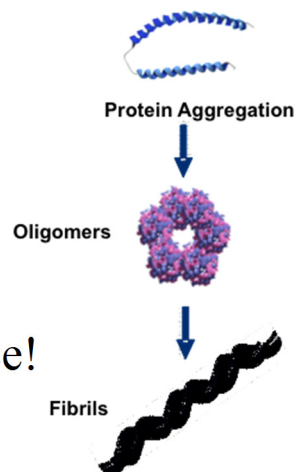


# ACS Seminar at the Bar

Friday, March 9<sup>th</sup> from 6:00 – 8:00

13 Celsius - 3000 Caroline St

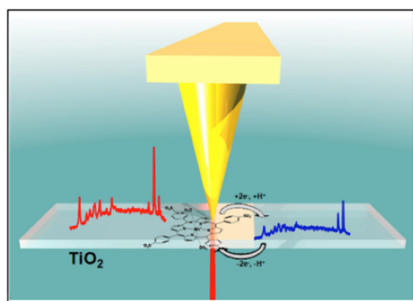
Join us on the patio for some wine and science!



## Raman Spectroscopy: From Principles to Practical Applications

Dmitry Kurouski - Department of Biochemistry and Biophysics, Texas A&M University

Raman spectroscopy (RS) is a label-free, non-invasive, non-destructive analytic technique that provides information about chemical structure. Raman scattering can be enhanced by gold or silver nanoparticles (NPs) via localized surface plasmon resonances (LSPRs), which are induced on the NPs surface by electromagnetic radiation. This spectroscopic approach, known as surface-enhanced Raman spectroscopy (SERS) allows for single-molecule detection. Nanoparticles can be grown at the apex of an atomic force microscopy (AFM) or scanning tunneling microscopy (STM) scanning probe. If this probe is positioned above the sample of interest and illuminated with electromagnetic radiation, the nanoparticle enhances the Raman signal from molecules located directly under it. The advantage of this methodology, known as tip-enhanced Raman spectroscopy (TERS), is that the probe position can be precisely controlled over the substrate's surface. Consequently, a chemical map with nanometer spatial resolution can be acquired by collecting TER spectra at different regions of the analyzed specimen. In this talk, I will demonstrate how RS, SERS and TERS can be used in various research areas ranging from biochemistry and electrochemistry to forensics and material science.



<https://biochemistry.tamu.edu/people/kurouski-dmitry/>

Cash bar. Contact Catherine [cafaler@gmail.com](mailto:cafaler@gmail.com) for details or suggestions.

