



Randall Goldsmith

Title: *“What can single molecules do for you?”*

Abstract:

Making measurements on individual molecules can be viewed as the ultimate limit of chemical sensitivity, and allows a unique perspective on the nano-world. I will present an introduction of the basics of single-molecule spectroscopy, including the types of unique measurements it enables and the critical instrumentation. I will then discuss the limits of the technique, and how the Goldsmith laboratory at the University of Wisconsin Madison is pushing those limits with new technology, enabling measurements as varied as observations of molecular palladium catalysts, ion channels, and conductive polymers. The talk will touch on elements of nanophotonics, physical/analytical chemistry, and inorganic chemistry and molecular design.