

# *Elucidating the Physicochemical Properties of Isolated Clusters.*



**W. Scott HOPKINS**  
University of Waterloo, CANADA

Between bulk materials and molecular systems lies a grey area for chemistry and physics. Bridging this gap is a major theme in modern science. The drive to develop technologies that make use of quantum-confined species and nanostructured materials is spurred by a myriad of possible innovations in topics ranging from tailored nanocatalysis through to quantum-cluster energy storage. A rigorously characterized, quantum-state resolved picture of the evolution of nanocluster properties would provide a much needed underpinning for the applied directions in this field of research. To this end, we employ modern computational methods to map cluster potential energy landscapes, then we test our calculations experimentally with advanced spectroscopic and chemical dynamic techniques. This seminar will present some of our recent work on microsolvated clusters and will discuss the role of microsolvation in differential mobility spectrometry, an emerging ion chromatography technology.