

Tuesday, September 28, 2:30 pm

Speaker: Tanya Zelevinsky

Institution: Columbia University

Title: High-precision physics and chemistry with ultracold molecules

Abstract: Techniques for controlling the internal quantum states and motion of atoms have led to extremely precise metrology and studies of degenerate gases. Extending such techniques to various types of molecules further enriches the understanding of fundamental physics, basic chemical processes, and many-body science. Samples of diatomic molecules can be created by binding laser-cooled atoms, or by direct molecular laser cooling. We explore both approaches and demonstrate high-precision metrology with an optical-lattice based molecular clock as well as chemistry in the highly nonclassical domain.