Physics Colloquium
Atomic Physics with Polyatomic Molecules

David Patterson
Harvard University, Massachusetts

Abstract: Cold molecules are rich quantum structures with a variety of potential applications, including fundamental physics tests, platforms for quantum information processing, and a wide variety of real-world analysis applications. To date, the tools developed and used by the AMO physics community have struggled with large molecules: cooling and internal state control of polyatomic molecules lags far behind that of diatomics, which are now routinely manipulated at the single quantum state level. As an example, no neutral molecule with more than 5 atoms has been trapped, despite the rich physics opportunities presented by such systems. I will be presenting recent progress in developing tools to detect and manipulate such molecules, including sensitive mixture analysis techniques, chiral detection and separation, and progress towards a general method of trapping larger polyatomic molecules such as benzonitrile (C6H5CN).

Friday, March 20, 2015
4:00-5:00 pm
Goudsmit Conference Room, LP 208