Physics & Astronomy Fall 2009 Colloquium

Thursday, 15 October

Time: 4:00pm **Location:** Brace 211
Refreshments: 3:30pm, Brace 201

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MOLECULES IN INTENSE LASER FIELDS

The development of ultrashort laser pulse technology has made possible the generation of intense light fields whose magnitudes exceed that of the Coulomb field within atoms and molecules. The advent of such pulses provide the opportunity to observe, image, and control the dynamics of electrons in such quantum systems in space and time on a sub-femtosecond and sub-Angstrom scale. In the talk I will show how this dynamics can be controlled via the oscillating electric field of a few-cycle laser pulse. As an example, results of numerical simulations exhibiting electron localization in the dissociating hydrogen molecular ion will be presentend. In the second part of the talk I will discuss how strong-field ionization can be used to probe molecular bond rupture via angular-dependent ion yields.