Youngstown State University Chemistry Seminar Program - Winter 2006

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Our 10th Seminar of 2005-6

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"Lost in Configuration Space: Probing Novel Reaction Mechanisms with High Resolution Imaging"

Abstract

Ion imaging techniques have emerged as a powerful means of investigating elementary atomic and molecular interactions. Recent developments have led to extraordinary velocity resolution and opened the door to a range of applications. We will introduce these techniques and show two distinct applications: in the first, we present a study of the dissociation of formaldehyde to CO + H_2 that reveals a new "roaming atom" reaction mechanism that avoids the region of the transition state entirely. Our second example probes vibrationally-mediated photodissociation of ions with a new multimass imaging mass spectrometer.