

Abstract Submitted
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Photo-induced isomerization and chemical reaction dynamics in superfluid helium droplets JEREMY MERRITT, GARY DOUBERLY, ROGER MILLER, University of North Carolina-Chapel Hill — Near threshold photo-induced isomerization and photo-induced chemical reactions have long been sought after as sensitive probes of the underlying potential energy surface. One of the most important questions asked is how the initially bright quantum state couples to the reaction coordinate, and thus relates to energy transfer in general. Helium droplets have now allowed us to stabilize entrance channel clusters behind very small reaction barriers such that vibrational excitation may result in reaction. Through two examples, namely the isomerization of the 2 binary complexes of HF-HCN {Douberly et al. PCCP 2005, 7,463}, and the induced reaction of the gallium-HCN complex {Merritt et al. JPCA 2007, DOI:10.1021/jp074981e} we will show how the branching ratios for reaction and predissociation can be determined and the influence of the superfluid He solvent.

Jeremy Merritt
University of North Carolina-Chapel Hill

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