

Abstract Submitted  
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**A Platform for Quantum-State-Resolved Hydrocarbon Chemistry** GARY CHEN, University of California Los Angeles, TIANGANG YANG, UCLA, ARTHUR SUITS, University of Missouri, WESLEY CAMPBELL, ERIC HUDSON, University of California Los Angeles — We are working towards a new platform for quantum-state-resolved ion-molecule chemistry by utilizing a combination of cryogenic buffer gas cooling, laser-cooled ion sympathetic cooling, and integrated mass spectrometry in an RF Paul trap. Cold molecular species produced in a cryogenic buffer gas beam react with trapped atomic carbon ions. Since charged reaction products are also trapped, ion imaging and time of flight mass spectrometry are used to study the reaction rates and identify the products. We report results on the characterization of a cold water beam reacting with trapped, cooled ions. Product branching and rates between neutral water molecules and beryllium/carbon ions are observed.

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