

Abstract Submitted
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Production and Characterisation of a Cryogenic Water Beam for Ion-Molecule Chemistry GARY CHEN, TIANGANG YANG, University of California Los Angeles, ARTHUR SUITS, University of Missouri, WESLEY CAMPBELL, ERIC HUDSON, University of California Los Angeles — Despite the fact that chemical reactions between polar neutral molecules and ions in cold, dilute interstellar media are dominant, key properties, such as product branching ratios and reaction rates, are poorly understood. A grasp of these reaction values at cryogenic temperatures remains a challenge to current theory. Towards these goals, we have built a cryogenic beam source to be used in conjunction with a linear quadrupole trap and time of flight mass spectrometer to probe reactions between cold neutral molecules and trapped ions. We report the production and characterisation of a cryogenic water beam as well as observed water chemistry with both beryllium and carbon ions at low reaction temperatures.

Gary Chen
University of California Los Angeles

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