

Abstract Submitted
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Kinematically complete studies of collisions between simple molecular ions and neutral gas targets¹ NORA G. JOHNSON, A.M. SAYLER, BEN BERRY, WANIA WOLFF, B. GAIRE, M. ZOHRABI, J. MCKENNA, K.D. CARNES, I. BEN-ITZHAK, J.R. Macdonald Laboratory, Department of Physics, Kansas State University — Collision-induced dissociation, dissociative capture, and target ionization (with or without projectile fragmentation) from few keV molecular ions impinging on various gas targets have been studied using a coincidence 3D momentum imaging technique. The newly installed apparatus employs a cold target jet configuration within a longitudinal spectrometer allowing for imaging of the molecular fragments, including neutrals and molecular ions that survive hard collisions, as well as the recoil ion on a single detector. Such detection capabilities enable kinematically complete studies for the dissociative capture channel and near-kinematically complete studies of all other channels. The results of, for example, 3 keV $\text{H}_2^+ + \text{Ar}$ collisions will be presented.

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