

Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Collision Induced Dissociation for 1.5 keV/amu HeH⁺ Impact on Argon¹ KEVIN CARNES, NORA G. JOHNSON, J.R. Macdonald Laboratory, Department of Physics, Kansas State University, A. MAX SAYLER, Kansas State University, DAG HATHIRAMANI, ITZIK BEN-ITZHAK, J.R. Macdonald Laboratory, Department of Physics, Kansas State University — Collision induced dissociation [CID, e.g. HeH⁺ + Ar -> H⁺ + He] is measured for 1.5 keV/amu HeH⁺ on argon using 3D momentum imaging techniques and compared to similar measurements with H₂⁺. Unlike H₂⁺, HeH⁺ dissociation is dominated by vibrationally excited rather than electronically excited CID. This difference is explained in terms of the larger energy gap between the ground and excited states in HeH⁺. An asymmetry in dissociation channels between H⁺ and He⁺ products is also observed and explained in terms of the potential energy curves.

¹This work was supported by the Chemical Sciences, Geosciences, and Biosciences Division, Office of Basic Energy Science, U.S. Department of Energy.

Kevin Carnes
J.R. Macdonald Laboratory, Dept of Physics, Kansas State University

Date submitted: 23 Jan 2009

Electronic form version 1.4