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Angular distributions of collision induced dissociation: Dependence on kinetic energy release[1] KEVIN CARNES, BEN BERRY, J.R. Macdonald Laboratory, Department of Physics, Kansas State University, WANIA WOLFF, Instituto de Fisica, Universidade Federal do Rio de Janeiro, Brazil, NORA G. JOHNSON, A. MAX SAYLER, BISHWANATH GAIRE, MOHAMMAD ZOHRABI, JARLATH MCKENNA, ITZIK BEN-ITZHAK, J.R. Macdonald Laboratory, Department of Physics, Kansas State University — Collisions between molecular-ion projectiles and atomic targets at energies of a few keV/amu lead predominantly to dissociative capture (DC) and collision-induced dissociation (CID). The CID process can be driven by electronic or vibrational excitation. The angular distribution of electronic CID, defined as the dissociation yield versus the angle between the molecular dissociation axis and the beam direction, is predicted by theory [Green and Peek, Phys. Rev. **183**, 166 (1969)] to depend on the internuclear distance R at the time of collision. That distance in turn can be related to the kinetic energy release of the dissociation. We examine this dependence for a range of molecular ions (H_2^+, HD^+, and HeD^+) and targets (He, Ne, and Ar) at collision energies of a few keV/amu.

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