

Abstract Submitted
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Alignment and orientation dependence of collision induced dissociation¹ BEN BERRY, WANIA WOLFF², NORA G. JOHNSON, A. MAX SAYLER, B. GAIRE, M. ZOHRABI, J. MCKENNA, K.D. CARNES, I. BEN-ITZHAK, Kansas State University — A single collision between an H_2^+ or HeH^+ projectile (at \sim keV/amu) and an Ar atom leads predominantly to dissociative capture (DC) and collision-induced dissociation (CID). The CID process can be driven by an electronic or vibrational excitation - the latter typically occurring in close-encounter collisions. One interesting question we focus on is the dependence of these CID mechanisms on the alignment of the molecule relative to its velocity. Our experimental evidence for H_2^+ on Ar collisions suggests that CID is favored for perpendicular alignment. Using hetero-nuclear molecules, namely HD^+ and HeH^+ , we explore also the molecular-orientation dependence, i.e. is CID enhanced when the heavy or light nucleus is the one passing closer to the target atom?

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