

Abstract Submitted
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Single- and two-center interference effects in fully differential cross sections for dissociative capture in 75 keV p H₂ collisions¹ MICHAEL SCHULZ, BASU LAMICHHANE, THUSITHA ARTHANAYAKA, Missouri Univ of Sci Tech, AHMAD HASAN, uae university, JUAN REMOLINA, SHEN LI, Missouri Univ of Sci Tech — We have measured fully differential cross sections (FDCS) for dissociative capture in 75 keV p + H₂ collisions for coherent and incoherent projectiles. Data were obtained for a kinetic energy release of 1 eV, so that only vibrational excitation in the H₂⁺ ion contributes to dissociation. The FDCS were analyzed for various molecular orientations (relative to the transverse momentum transfer direction q_x) as a function of the scattering angle. In the ratio between the coherent and incoherent FDCS for a molecular orientation perpendicular to q_x a structure was observed, which is due to single-center interference. For a parallel orientation a structure of different shape is observed, which is due to a combination of single- and two-center interference. Furthermore, the data provide an additional independent confirmation that differences between coherent and incoherent cross sections are not merely due to the experimental resolution.

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