

Abstract Submitted
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Multiple Differential Cross Sections for Dissociative Ionization of Molecular Hydrogen by 75 keV Proton Impact KISRA EGODAPITIYA, SACHIN SHARMA, AARON LAFORGE, MICHAEL SCHULZ, Department of Physics, Missouri University of Science and Technology, Rolla, MO, AHMAD HASAN, Department of Physics, UAE University, Abu Dhabi, United Arab Emirates — Double differential cross sections (DDCS) were measured for fixed projectile energy losses as a function of the scattering angle for ionization accompanied by dissociation of molecular hydrogen by 75 keV proton impact. Earlier DDCS for non-dissociative ionization have been measured. There, an oscillating pattern in DDCS was observed. We recently demonstrated that for such an oscillating pattern to be present the width of the projectile wave packet must be larger than the atomic separation of the hydrogen molecule, i.e. the projectile beam must be coherent. This particular experiment was also carried under similar conditions and indeed an oscillating pattern was observed. However when compared with the non-dissociative case, doubling of the oscillation frequency was observed. Possible causes for these will be discussed.

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