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Single Ionization of Atomic Hydrogen by 75 keV Proton Impact<sup>1</sup> AARON LAFORGE, KISRA EGODAPITIYA, JASON ALEXANDER, MICHAEL SCHULZ, Dept. of Physics, Missouri University of Science & Technology, Rolla, Mo, AHMAD HASAN, Dept. of Physics, UAE University, Abu Dhabi, United Arab, MARCELLO CIAPPINI, Institute of High Performance Computing, Singapore, MURTADHA KHAKOO, Dept. of Physics, California State University, Fullerton, CA — Doubly differential cross sections (DDCS) for single ionization of atomic hydrogen and triple differential cross sections (TDCS) for ionization of molecular hydrogen by 75 keV proton impact have been measured and calculated as a function of the projectile scattering angle and energy loss for the first time. In the case of atomic hydrogen, the data were compared to three theoretical models, each with a different treatment of the nuclear-nuclear interaction. Surprisingly, this comparison reveals that a classical treatment of the nuclear-nuclear interaction is in best agreement with the experimental data. Also, for  $v_{el\approx}v_{proj}$  the "post-collision interaction" (PCI) between the ejected electron and the outgoing projectile ion has a significantly larger effect on the angular distributions of the DDCS than theoretically predicted.

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