

Abstract Submitted  
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**Secondary electron production from ion precipitation at Jupiter: simultaneous and non-simultaneous target and projectile processes in collisions of  $O^{q+} + H_2$  ( $q=0-8$ )**<sup>1</sup> HEMAN GHARIBNEJAD, NIST - Natl Inst of Stds Tech, DAVID SCHULTZ, University of North Texas, THOMAS CRAVENS, University of Kansas — With the goal of improving the modeling of the effects of secondary electrons produced by energetic ion precipitation in Jupiter’s atmosphere, we compute inelastic processes that occur simultaneously on the projectile ( $O^{q+}$ ,  $q=0-8$ ) and target ( $H_2$ ). Here projectile and target electron transitions, such as single ionization, are replaced by processes that include both non-simultaneous and simultaneous electronic transitions on the target and projectile. These include, for example, single ionization, single ionization with simultaneous single projectile excitation, single ionization with double projectile excitation, single ionization with single projectile stripping, and single ionization with double projectile stripping. Using this set of simultaneous processes, we show, via Monte Carlo ion transport simulation, that improved representation of the energy deposition, measured by the stopping power, is obtained as compared to solely relying on non-simultaneous processes.

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