

Abstract Submitted  
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**Noble gas quenching of rovibrationally excited H<sub>2</sub>**<sup>1</sup> BRADLEY C. HUBARTT, N. BALAKRISHNAN, Department of Chemistry, University of Nevada Las Vegas, LUKE OHLINGER, ROBERT C. FORREY, Department of Physics, Penn State University, Berks Campus — Collisions between noble gas atoms and hydrogen molecules are investigated theoretically by solving the time-independent Schrödinger equation. Various initial states of the molecule are considered and the calculations are performed for each system over a large range of collision energies. Cross sections for quenching of rovibrationally excited states of H<sub>2</sub> are reported for Ar and Kr colliders and comparisons are made with previous calculations involving He. Trends in the energy dependence for the heavier systems are very similar, including resonance behavior, which suggests that the dynamics involving heavy noble gas atoms are less sensitive to the fine details of the potential.

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