Abstract Submitted
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Quantum calculations of H2-H2 collisions in the cold and ultracols regimes[1] SAMANTHA FONSECA DOS SANTOS, STEPHEN LEEP, BALAKRISHNAN NADUVALATH, University of Nevada Las Vegas, GOULVEN QUEMENER, JILA, ROBERT FORREY, Penn State University, PHILLIP STANCIL, University of Georgia — Quantum scattering calculations of H_2 + H_2, both ortho-para and ortho-ortho cases, and HD + H_2 have been carried out at cold and ultracold temperatures using ab inito potential energy surfaces for the H_4 system developed by Hinde and Boothroyd and coworkers. The calculations were performed in the rigid rotor approximation using the MOLSCAT code as well as the vibrating rotor scheme implemented in the TwoBC code [1]. Elastic, inelastic and state-to-state cross sections obtained from our calculations are compared with available theoretical and experimental results. We also report preliminary results of differential cross sections for para-H_2 + para-H_2 collisions.

[1] R. V. Krems, TwoBC-quantum scattering program, University of Britsh Columbia, Vancouver, Canada (2006).

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