Abstract Submitted
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Ultra-cold electron collisions with the N_2H radical[1] BRENDAN M. MCLAUGHLIN, School of Mathematics and Physics, Queen's University Belfast, ROBERT C. FORREY, Department of Physics, Penn State University, Berks Campus — Ultra-cold electron collisions with the N_2H radical are presented. Potential energy curves for both the neutral N_2H and anion N_2H^- molecules are calculated as a function of the N_2 - H bond length in the C_s symmetry point group, for perpendicular, colinear and bent geometry using a CAS-CI approximation. Ultra-cold electron scattering from the N_2H molecule are performed with the R- matrix method using a multi-state close-coupling approach to determine the scattering cross-sections as a function of the colliding electron energy. The autoionization linewidth (Γ) and resonance energies found near threshold in the elastic scattering cross sections are determined from the eigenphase sums as a function of stretching of the N_2 - H bond length, where the N_2 molecule is fixed at its equilibrium geometry. A complex potential is then constructed from the resonance parameters and used in the heavy particle dynamical calculations to determine the low energy electron detachment cross sections and rates. Further details will be presented at the meeting.

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