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Low energy electron scattering from N_2H molecules BRENDAN M. MCLAUGHLIN, School of Mathematics and Physics, QUB, ROBERT C. FORREY, Department of Physics, Pennsylvania State University at Berks — Electron collisions with the N_2H radical are an important constituent of understanding electron detachment in low energy H^- + N_2 collisions. Potential energy curves for both the neutral N_2H and anion N_2H^- molecules are calculated in C_s symmetry for perpendicular, colinear and bent geometry using valence-CI and CASSCF approximations. Low energy electron scattering from the N_2H molecule are carried out using the R-matrix approach to determine the elastic scattering cross-section as a function of the colliding electron energy. Resonance energies and the autoionization linewidth (Γ) found in the elastic scattering cross sections are determined as a function of the 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. Results for isotopic replacement of H^- by D^- have also been obtained for this cold molecular complex. Further details will be presented at the meeting.

Brendan M. McLaughlin
School of Mathematics and Physics, QUB

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