

# ON THE UNEXPECTED OSCILLATION OF THE TOTAL CROSS SECTION FOR EXCITATION IN $\text{He}^{2+} + \text{H}$ COLLISIONS<sup>1</sup>

*D. R. Schultz, C. O. Reinhold, and P. S. Krstić*

Recent calculations and measurements have revealed unexpected oscillations of the total cross section for excitation in low- to intermediate-energy  $\text{He}^{2+} + \text{H}$  collisions. A physical explanation of this behavior is given here stemming from analysis of classical trajectory Monte Carlo simulations, molecular orbital close coupling calculations, and solution of the time-dependent Schrödinger equation on a numerical lattice. These results indicate that the observed behavior should be characteristic of a wide range of reactions in ion-atom collisions.

---

1. Abstract of published paper: *Phys. Scr.* **T73**, 217 (1997).