

# ANALYSIS OF UNEXPLAINED OSCILLATIONS IN INTERMEDIATE-ENERGY ION-ATOM COLLISIONS<sup>1</sup>

*D. R. Schultz, C. O. Reinhold, P. S. Krstic*

Recent studies of collisions of ions with Rydberg atoms have revealed oscillations in the electron capture cross section associated with the number of swaps the electron undergoes between the target and the projectile during the collision. It is shown that signatures of this time-dependent phenomenon also exist classically in collisions of ions with ground-state atoms. Based on classical and quantum simulations, the conditions under which this phenomenon could be observed are analyzed. Results indicate that it should be characteristic of a wide range of reactions in ion-atom collisions.

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