

Abstract Submitted
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Inelastic Scattering of Electrons by Black Hole Atoms¹ M.S. PINDZOLA, F. ROBICHEAUX, Auburn University — Electron-impact inelastic scattering processes involving black hole atoms are calculated by direct solution of the general relativistic Klein-Gordon equation. In Eddington-Finkelstein coordinates for the space-time metric, the Hamiltonian is non-singular, complex, and non-Hermitian. Bound states of electrons and black holes with masses ranging from 3.8×10^{12} kg to 7.6×10^{13} kg are found by matrix solution of the time-independent Klein-Gordon equation. Absorption effects on inelastic scattering of electrons by black hole atoms are investigated by comparing solutions of the time-dependent Klein-Gordon equation with and without general relativistic corrections to the Newtonian gravitational potential.

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Michael Pindzola
Auburn University

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