Model electron impact ionization from highly excited states of hydrogen-like ions TURKER TOPCU, FRANCIS ROBICHEAUX, Auburn University — We present results from fully quantal and classical Monte Carlo calculations of the electron impact ionization of hydrogen-like ions within a simple two-dimensional model. We study the ionization probability from the ground state and highly excited states as function of incident energy, charge of the ion, and principle quantum number. The motivation is to investigate the correspondence between the quantal and classical ionization probabilities as the principal quantum number of the initial state increases. The quantal calculation was carried out by direct time propagation of the Schrodinger equation using a split operator method. The two dimensional s-wave model potential was chosen to have the form $V(r_1, r_2) = -Z/r_1 - Z/r_2 + 1/(r_1 + r_2)$.

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