THEORY OF IONIZATION IN ION-ATOM COLLISIONS: SPECTRA OF EJECTED ELECTRONS[1]

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A Galilean invariant theory of atomic collisions is constructed for straight-line trajectories of nuclei with arbitrary impact parameters. The theory is based on Sturmian expansions in Fourier space, and provides an exact description of excitation and ionization processes for a wide range of collision velocities. Advantages of Sturmian sets over conventional eigenstates are emphasized. Detailed spectra of electrons ejected in head-on ion–atom collisions are calculated.

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