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**Free-free transitions in the presence of a Debye potential and laser fields at very low incident electron energies** ANAND BHATIA, NASA/Goddard Space Flight Center — We study the free-free transition in electron-hydrogenic systems in the ground state and embedded in a Debye potential in the presence of an external laser field at very low incident electron energies. The laser field is treated classically while the collision dynamics is treated quantum mechanically. The laser field is chosen as monochromatic, linearly polarized and homogeneous. The incident electron is considered to be dressed by the laser field in a nonperturbative manner by choosing Volkov wave function for it. The scattering wave function for the incident electron on the target embedded in a Debye potential is solved numerically by taking into account the effect of electron exchange. We calculate the laser-assisted differential cross sections for free-free transition for absorption/emission of a single photon or no photon exchange. The results will be presented at the conference.

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