

Analytical opacity formulas for ICF elements

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Abstract-

Opacity calculations for targets used in inertial confinement fusion (ICF) needs sophisticated atomic physics models, assuming a large number of configurations and transitions to simulate the plasma. Depending on the degree of accuracy for calculations of targets for ICF, some hydrodynamic-radiation codes use multifrequency opacities or well mean opacities. In this work, using a sophisticated atomic physics code for LTE opacity calculations, that provides well multifrequency opacities or mean opacities, useful analytical opacity formulas for several single elements used in ICF have been generated, giving both Rosseland and Planck mean opacities as a function of the plasma parameters.

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