

Abstract Submitted
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New Features of Radiation-Hydrodynamics Code HELIOS IGOR GOLOVKIN, JOSEPH MACFARLANE, VIKTORIYA GOLOVKINA, SUBODH KULKARNI, Prism Computational Sciences, Inc. — HELIOS is a 1-D magneto-radiation-hydrodynamics code designed to study the hydrodynamic evolution of plasmas in planar, cylindrical, or spherical geometries. Applied energy sources include laser or particle beams, external radiation sources, or electrical currents (in cylindrical geometry). HELIOS-CR is an enhanced version of HELIOS which includes the option to simulate the dynamics of non-LTE plasmas using an inline collisional-radiative (C-R) model. Radiation transport models include flux-limited diffusion and multi-angle short characteristics method. We will discuss major features of HELIOS as well as recently developed angle-dependent radiation boundary conditions. Time-, angle-, and photon-energy-dependent radiation drive for this model can be computed with 3-D view factor code VISRAD.

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