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Addition of Implicit Monte Carlo Radiation Transport and Validation of 3D Hydrodynamics in *DRACO*[1] MILAD FATENEJAD, U. of Wisconsin - Madison, TIMOTHY COLLINS, Laboratory for Laser Energetics, U. of Rochester, GREGORY MOSES, U. of Wisconsin - Madison, PATRICK MCKENTY, Laboratory for Laser Energetics, U. of Rochester — We will describe two new advancements which have been made to the *DRACO* Lagrangian radiation-hydrodynamics code. First, the 3D hydrodynamics module has been validated using analytic formulas; second, we have added Implicit Monte Carlo (IMC) radiation transport in 2D r-z geometry. Previous results demonstrated the ability to model 3D Richtmyer-Meshkov (RM) instabilities [Fatenejad and Moses, *Bull. APS* 51, 209(2006)] using *DRACO*. New results validate simulations of the growth of 3D RM and Rayleigh-Taylor (RT) instabilities via comparisons with theoretical growth rates and 2D calculations. The IMC model now implemented in *DRACO* was originally developed by Fleck and Cummings [*JCP* 8, 313(1971)]. The IMC code is validated using comparisons with diffusion theory and numerical results presented in the original paper. Finally, comparison of a 2D symmetric direct drive target implosion using IMC to an identical simulation using no radiation transport and diffusion theory will be presented.

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