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**Hydrodynamic and diffusive mixing in ICF implosion modeling**[1]
ALEXANDER AMES, Univ of Wisconsin, Madison, CHRIS WEBER, ANDY COOK, Lawrence Livermore National Lab — Inertial confinement fusion requires efficient spherical compression of a deuterium-tritium gas mixture by a shock-driven implosion. The performance of the implosion is limited by several phenomena, including differential acceleration of deuterium and tritium ions, and mixing due to the Richtmyer-Meshkov and Rayleigh-Taylor instabilities. The MIRANDA radiation hydrodynamics code at LLNL has recently incorporated multi-species diffusion and multi-group radiation transport models. This enables modeling of the impact of diffusive mixing on the fuel, as well as investigation of ablative Rayleigh-Taylor instability growth and resultant hydrodynamic mixing using single-group and multiple-group radiation drives.

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