Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

**Overview of A New 3D MMI Ray-Tracing Tool**[1] DYLAN CLICHE, ROBERTO MANCINI, University of Nevada, Reno, LESLIE WELSER-SHERRILL, MANOLO SHERRILL, Los Alamos National Laboratory — Inertial confinement fusion is one method used to obtain controlled thermonuclear burn through either direct or indirect ablation of a millimeter-scale capsule with the use of high-power lasers. Although there have been large strides made in understanding the physics involved in order to create reliable physics models and codes, simulations and experiments still show discrepancies. A factor in this mismatch is the asymmetry of the implosions that occur experimentally. The multi-monochromatic X-ray imager (MMI) is an instrument which gives spatially, spectrally, and temporally resolved arrays of narrow-band x-ray images which can be used to extract temperature, density, and mixing spatial profiles. A new 3D ray-tracing tool has been developed that allows for the designing and characterizing of MMI [D. T. Cliche and R. C. Mancini, Appl. Opt. **58**, 17 (2019)]. The tool also allows for the production of synthetic MMI data with a higher degree of fidelity previously obtained. This work was supported in part by Los Alamos National Laboratory (contract #472892).

[1]Los Alamos National Laboratory (contract 472892)

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Date submitted: 03 Jul 2019 Electronic form version 1.4