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Inferring impact of stalk from measurements of fuel flows in OMEGA DT implosions with seeded asymmetries M. GATU JOHNSON, J. FRENJE, B. LAHMANN, F. SEGUIN, R. PETRASSO, MIT, B. APPELBE, J. CHITTENDEN, A. CRILLY, C. WALSH, IMPERIAL COLLEGE, K. ANDERSON, J. DELETTREZ, C. FORREST, V. GLEBOV, W. GRIMBLE, I. IGUMENSHCHEV, R. JANEZIC, J. KNAUER, O. MANNION, F. MARSHALL, T. MICHEL, C. STOECKL, LLE, B. HAINES, LANL — Low-mode asymmetries seed flows in the Inertial Confinement Fusion (ICF) implosions, which will manifest as modifications to the measured ion temperature (T_{ion}) and as energy shifts of the primary neutron spectra. The effects are important to understand to mitigate asymmetries and to more closely capture thermal T_{ion} used in performance metric calculations. Comparison of data from a recent OMEGA DT experiment with a seeded mode 2 in the laser drive and 3D Chimera simulations not including the capsule stalk mount indicated the importance of interplay of flows seeded by various asymmetry seeds, in particular, between flows seeded by the imposed mode 2 and the stalk mount. In this presentation, results from efforts to further elucidate the impact of the stalk will be discussed, including results from 3D xRAGE simulations including the stalk mount, and results from a mode 1 experiment executed with 40-μm target offsets at various angles to the stalk; T_{ion} asymmetry and directional flow measurements from these experiments allow in-depth analysis of the stalk impact. The results highlight the complexity of hot-spot dynamics, which is a problem that must be mastered to achieve ICF ignition. This work was supported in part by the U.S. DOE, NLUF and LLE.

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