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Dependence of Shock Timing on Coronal Parameters for OMEGA Direct-Drive Implosions D. CAO, T.R. BOEHLY, P.B. RADHA, D.N. POLSIN, S.P. REGAN, V.N. GONCHAROV, Laboratory for Laser Energetics, U. of Rochester — Accurate shock timing is essential to produce the desired isentrope or adiabat α, of an inertial confinement fusion implosion. However, plasma formation and its effects on shock timing are not fully understood, leaving an area of interest for improving shock-timing predictive capability. This study examines the shock-timing sensitivity of two key coronal feature parameters that can be potentially inferred experimentally: conduction-zone length D_{C} and coronal temperature T_{C}. The former includes the plasma formation rate and influences the time between laser incidence and shock formation at the ablation surface, while the latter can influence shock strength. A two-picket implosion was simulated that had plasma profiles developing differing D_{C} and T_{C} after the end of the first picket (the profiles were otherwise identical). After launching the 2nd picket, correlations between the subsequent shock-merger time and main shock speeds (i.e., the observables with the VISAR diagnostic) to D_{C} and T_{C} are then calculated and in future experiments will be validated to improve code-predictive capability. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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