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Fabrication of Fill Tube Targets to Study Shadowing and Compositional Effects on Inertial Confinement Fusion Implosion Characteristics[1]
C.A. FREDERICK, General Atomics — Target design for the National Ignition Facility requires either a SiO2 or CH fill tube to fill the confinement capsule with DT fuel. To study the effects of diameter and composition of the fill tube on the implosion of the capsule, surrogate fill tube targets were fabricated. Multiple fill tubes were placed on one capsule to maximize data during NIF relevant experiments at the Z-Pinch Facility at Sandia National Laboratory. Targets were fabricated with three or four fill tubes on the equator of the capsule. SiO2 and CH (as well as capsules with just SiO2) fill tubes were placed on the same capsule with diameters ranging from 10-45 m. In order to attach the tubes, blind holes were first drilled in the capsules using an excimer laser system. All targets were characterized using an x-ray tomography system.

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