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Layered capsule implosions at 500 TW on the National Ignition Facility[1] SIEGFRIED GLENZER, Lawrence Livermore National Laboratory, NIF TEAM — We report on high-velocity implosions of inertial confinement fusion capsules filled with equimolar deuterium-tritium fuel. These experiments use more than 500 TW peak laser power and 1.8 MJ laser energy with the goal to observe signatures of alpha heating and significant 14.1 MeV fusion neutron yield. The experiments use 215 microns thick capsule ablators, 10% thicker than used in previous experiments, to mitigate effects of Rayleigh-Taylor instability growth. In addition, the laser pulse shape has been selected to avoid conditions with high levels of hydrodynamic mix. Hot spot and fuel pressure and mix analysis will be presented to indicate proximity to the ignition regime within the pressure-temperature phase space.

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