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Development of the Pushered Single Shell Experimental Platform on NIF JAY SALMONSON, EDUARD DEWALD, FRANK GRAZIANI, STEPHAN MACLAREN, JESSE PINO, JOSEPH RALPH, RYAN SACKS, VLADIMIR SMALYUK, ROBERT TIPTON, Lawrence Livermore National Laboratory — The goal of the Pushered Single Shell (PSS) experimental campaign is to study mix of partially ionized ablator material into the hotspot. To do this we use a uniformly Si doped plastic capsule, the inner few microns of which can be doped with a few percent Ge. To diagnose mix, we use separated reactants [1]; deuterating the inner Ge-doped layer, CD/Ge, while putting Tritium into the Hydrogen capsule fill gas. Mix is then inferred by measuring the neutron yields from DD, DT, and TT reactions. In order to accentuate the cooling of the hot-spot due to Bremsstrahlung radiation when Ge is present, we required high hot-spot ion temperatures: ˜3 keV. This, in turn, requires a fast, symmetric implosion. Using the Two-Shock campaign [2] as a starting point, we increased the capsule radius by ˜25% to 844 μm and the peak laser power by over 10% to 475 TW. We also used a low, 0.3 mg/cc, He fill in the hohlraum to maintain control over implosion symmetry. This paper will describe the sequence of keyhole, 1DConA, 2DConA, and Symcap experiments we performed over the last year to tune the PSS implosions. We were successful in achieving our design goals; the PSS is the fastest CH capsule implosion in the laboratory, with peak velocity ˜400 μm, a round hot-spot, with hotspot P2 = 0 within errors, and a hot-spot ion temperature ˜3.5 keV. This work was performed under the auspices of the Lawrence Livermore National Security, LLC, (LLNS) under Contract No. DE-AC52-07NA27344 [1] D.C. Wilson et al. Physics of Plasmas **18**, 112707 (2011) [2] S.F. Khan et al. Physics of Plasmas **23**, 042708 (2016)

Jay Salmonson
Lawrence Livermore National Laboratory

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