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High-Volume and -Adiabat Capsule ("HVAC") Ignition with Layered Gas-filled Capsules in Advanced Hohlraums[1] PETER AMENDT, DARWIN HO, RYAN NORA, YUAN PING, VLADIMIR SMALYUK, Lawrence Livermore Natl Lab — Hohlraum designs using rugby [1] and diamond ("Frustraum" [2]) shapes may enable capsule absorbed energies of 0.5 MJ or more, compared with 0.2 MJ in nominal-sized capsules instandard cylinders. Such an increase in results in more margin to preheat and allows high-adiabat implosions to ignite. Integrated hohlraum simulations show that 3-mm scale DT gas-filled capsules or SYMCAPS may generate 0.1 MJ of yield. Introducing a DT fuel layer into a SYMCAP driven by a 2-shock drive may achieve fuel adiabats >5 and allow a *volume* ignition mode to occur - in contrast to hot-spot ignition and propagating burn at low adiabat. Such an alternative ignition mode has lower fuel convergence, less sensitivity to anomalous preheat mechanisms and strengths, and is more robust to hydrodynamic instability. The disadvantage of volume ignition is less yield, mostly due to less fuel loading. Such a platform may enable controlled experiments on the NIF to understand hot-spot ignition thresholds while first establishing a base-camp for volume ignition and energy gains of up to several. [1] P. Amendt *et al.*, PoP **14,** 056312 (2007); M. Vandenboomgaerde *et al.*, PRL **99**, 065004 (2007); Y. Ping *et al.*, Nature Physics (https://doi.org/10.1038/s41567-018-0331-5). [2] P. Amendt *et al.*, PoP, to appear.

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