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Assessing options for improved implosion performance on the National Ignition Facility.[1] DANIEL CLARK, DEBRA CALLAHAN, DANIEL CASEY, OGDEN JONES, ANDREA KRITCHER, OTTO LANDEN, LAURENT MASSE, JOSE MILOVICH, PRAVESH PATEL, HARRY ROBEY, CHRISTOPHER WEBER, MICHAEL EDWARDS, Lawrence Livermore Natl Lab, CLIFF THOMAS, Laboratory for Laser Energetics — Indirect drive implosion experiments at the National Ignition Facility (NIF) continue to shed light on the degradation mechanisms that are limiting implosion yields. As understanding of these degradations and their relative importance becomes clearer, new designs can be proposed that address the current performance limiters. Based on our current understanding of recent NIF experiments, this talk surveys the design space in the neighborhood of NIF's best performing implosions in search of options for higher yield with minimal compromises to implosion stability or increased demands on the hohlraum. A few near-term options are identified that, when combined with modest upgrades to NIF's delivered power and energy, show promise for reaching yields in the several 100 kJ range.

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