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**Optimized Ion Energy Profiles for Heavy Ion Direct Drive Targets**[1] MICHAEL J. HAY, Lawrence Berkeley National Laboratory, JOHN J. BARNARD, L. JOHN PERKINS, Lawrence Livermore National Laboratory, B. GRANT LOGAN, Lawrence Berkeley National Laboratory — Recent 1-D implosion calculations [1] have characterized pure-DT targets delivering gains of 50-90 with less than 0.5 MJ of heavy ion direct drive. With a payload fraction of 1/3, these low-aspect ratio targets operate near the peak of rocket efficiency and achieve $\sim$10% overall coupling efficiencies (vs. the 15-20% efficiencies analytically predicted for less stable, higher-aspect ratio targets). In Ref. 1, the ion energy is ramped directly from a 50 MeV foot pulse to a 500 MeV main pulse. In this paper, we instead tune the ion energy throughout the drive to closely match the beam deposition with the inward progress of the ablation front. We will present the ion energy and intensity time histories that maximize drive efficiency and gain for a single target at constant integrated drive energy. [1] L. J. Perkins, B. G. Logan, J. J. Barnard, and M. J. Hay. "High Efficiency High Gain Heavy Ion Direct Drive Targets," *Bulletin of the American Physical Society*, vol. 54: DPP, Nov. 2009.

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