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Stability of Tamped Spherical Heavy Ion ICF Targets[1] MATTHEW TERRY, JOHN PERKINS, Lawrence Livermore National Laboratory — The deeply penetrating nature of heavy ion beams makes for unique opportunities in the design of ICF targets. In this talk we describe the design of a target that takes advantage the long range and Bragg peak-like deposition profile of heavy ion beam to drive an implosion contained within a dense, high-Z tamper. The targets consist of spherical shells of DT ice, plastic, and a thin gold tamper. The design uses two different mechanisms to provide pressure to drive the implosion. Early in time, the heavy ion beams volumetrically heat the plastic layer, whose tamped expansion compresses the fuel. As the pusher blows down, the drive transitions to radiation driven ablation with the gold tamper now acting as a spherical hohlraum. This paper will discuss the stability properties of these targets. These tamped targets can be driven at large (>350 eV) radiation temperatures, which should provide good ablative stabilization of shell perturbations. However, the pusher phase may (since there will be no ablative stabilization) seed provide substantial RT seeds.

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