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Stability and Performance of a Direct-Drive, 1-MJ, Wetted-Foam Target Design T.J.B. COLLINS, P.W. MCKENTY, P.B. RADHA, V.N. GONCHAROV, S. SKUPSKY, Laboratory for Laser Energetics, U. of Rochester — Wetted-foam, high-gain, direct-drive targets designs have been proposed for use on the National Ignition Facility by, among others, S. Skupsky *et al.*[1] These designs take advantage of the increased absorption provided by the higher-atomic-number elements in the mixture of "wetted" foam and deuterium–tritium (DT), which allows greater coupling of the laser to the target. One of these designs has been scaled and retuned with one-dimensional simulations to 1 MJ. We will show a stability analysis of this design performed using two-dimensional simulations. The sources of nonuniformity taken into account from the laser include power imbalance between beams and imprint of single-beam nonuniformities on the target. Target nonuniformities modeled include surface finish and inner-surface DT ice roughness. The relative impacts of these four sources of instability and their effects on target performance will be described, as well as scaling of target performance. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-92SF19460.

[1]S. Skupsky *et al.*, in *Inertial Fusion Sciences and Applications 2001*, edited by K. Tanaka *et al.* (Elsevier, Paris, 2002), p. 240.

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