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Shock-ignited, sub-MJ, green-light, direct-drive, ICF targets potentially fieldable on the NIF[1] KAI N. LAFORTUNE, L. JOHN PERKINS, LAURENT DIVOL, Lawrence Livermore National Laboratory — Shock ignition holds the potential for greatly increasing fusion yields and facilitating robust, direct-drive, sub-MJ targets[1]. NIF's current polar-weighted drive geometry, although optimized for indirect drive, can potentially be used for polar, direct-drive experiments. Because shock-ignition decouples the compression and ignition phases of target assembly, targets have reduced sensitivity to hot-electrons, and thus using the NIF at the second-harmonic wavelength of 526 nm may potentially be advantageous. Rad-hydro-burn simulations using HYDRA of shock-ignited, direct-drive targets using NIF's drive geometry, requiring less than 1 MJ of second-harmonic drive energy to achieve gains of up to 100 are studied. 1-D scoping studies have been performed to outline the source and target requirements. The robustness of the targets is explored with 2-D stability studies and examination of laser plasma instabilities. [1] R.Betti, C.Zhou, L.J.Perkins, K.Andrson, "Shock Ignition of Thermonuclear Fuel with High Areal Density", Phys Rev. Lett 98, No. 15 (2007)

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