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Isochoric Heating of Reduced Mass Targets by Ultra-Intense Lasers as a Means of Creating Kilovolt Plasmas at Solid Densities[1] SCOTT WILKS, RICHARD KLEIN, STEVEN MOON, PRAVESH PATEL, BRUCE REMINGTON, RONNIE SHEPHERD, HYUN-KYUNG CHUNG, Lawrence Livermore National Laboratory, GIANLUCCA GREGORI, Rutherford Appleton Laboratory, UK, SOPHIA CHEN, U.C. San Diego, SIGFRIED GLENZER, STEPHANIE HANSEN, ANDREW MACKINNON, RICHARD SNAVELY[2], MIKE KEY, Lawrence Livermore National Laboratory — Recent results using a novel target design that allows material high temperature ($\sim$ 1 keV) solid density plasmas to be created using ultra-intense laser pulses will be presented. Targets composed of titanium and tamped with aluminum were irradiated with $\sim$ 100 Joule, 1 and 10 picosecond laser pulses. Significant increases in temperature over standard foil targets were observed. Using refined energy conservation arguments presented last year at this meeting, theoretical predictions of achievable temperatures are compared against temperatures inferred from experimental data. Predictions for plastic, titanium, and copper targets irradiated by a wide range of laser parameters will also be presented.

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