Abstract Submitted
for the SHOCK13 Meeting of
The American Physical Society

Prospects for achieving high dynamic compression with low energy
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Washington — Laser driven dynamic compression experiments may, in materials
with picosecond equilibration times, be possible with orders of magnitude less drive
energy than currently used. As we show, the compression energy for geometrically
similar experiments varies as the third power of the time scale of compression. For
materials which equilibrate and can be characterized on picosecond time scales, the
compression energy can be orders of magnitude smaller than the 1–100 ns scale
time scale of many current experiments. The use of substantially lower compression
energy is a great practical advantage in such experiments, potentially enabling the
observation of extreme states of matter with table top scale laser systems. We dis-
cuss prospects for realizing this scheme in practice. This work was performed under
the auspices of the U.S. Department of Energy by Lawrence Livermore National
Laboratory under Contract No. DE-AC52-07NA27344 with Laboratory directed
Research and Development funding (11ERD039), as well as being based on work
supported as part of the EFree, an Energy Frontier Research Center funded by the
U.S. Department of Energy, Office of Science, Office of Basic Energy Sciences under
Grant No. DESC0001057.