Abstract Submitted
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**Time- and space- resolved pyrometry of dense plasmas heated by laser accelerated ion beams**[1] GILLISS DYER, REBECCA ROYCROFT, EDDIE MCCARY, CRAIG WAGNER, XUEJING JIAO, ROTEM KUPFER, University of Texas, Austin, D. CORT GAUTHIER, WOOSUK BANG, SASIKUMAR PALANIYAPPAN, PAUL A. BRADLEY, CHRISTOPHER HAMILTON, MIGUEL A. SANTIAGO CORDOBA, ERIK L. VOLD, LIN YIN, JUAN C. FERNANDEZ, BRIAN J. ALIBRIGHT, Los Alamos National Laboratory, TODD DITMIRE, BJORN MANUEL HEGELICH, University of Texas, Austin — Laser driven ion sources have a variety of possible applications, including the rapid heating of matter to dense plasma states of several eV. Recent experiments at LANL and The University of Texas have explored ion heating in the context of mixing at high-Z / low-Z plasma interfaces, using different laser-based ion acceleration schemes. Quasi-monoenergetic and highly directed Al ions from ultra-thin foils were used in one set of experiments, while TNSA accelerated protons from an F/40 focused petawatt laser were used in the other. Using spatially and temporally resolved streaked optical pyrometry we have gained insight into the degree and uniformity of heating from various configurations of ion source and sample target. Here we present data and analysis from three experimental runs along with hydrodynamic modeling of the heated targets and geometric considerations.

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