

## Isochoric heating of solid gold targets with the PW-laser-driven ion beams

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We present an end-to-end simulation for isochoric heating of solid gold targets using ion beams produced with the BELLA PW laser at LBNL: (i) 2D Particle-In-Cell (PIC) simulations are applied to study the ion source characteristics of the PW laser-target interaction at the long focal length ( $f/\#65$ ) beamline at laser intensities of  $\sim [5 \times 10]^{19} \text{ Wcm}^{-2}$  at spot size of  $\approx 52 \mu\text{m}$  on a CH target. (ii) In order to transport the ion beams to an EMP-free environment, an active plasma lens will be used. This was modeled [1] by calculating the Twiss parameters of the ion beam from the appropriate transport matrixes taking the source parameters obtained from the PIC simulation. Space charge effects were considered as well. (iii) Hydrodynamic simulations indicate that these ion beams can isochorically heat a 1 mm<sup>3</sup> gold target to the Warm Dense Matter state.

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