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Using Microstructured Targets to Determine Energy Distribution and Number of Hot Electrons in Laser Ion Acceleration Experiments FRANKI AYMOND, TAO WANG, ALEX AREFIEV, TODD DITMIRE, University of Texas at Austin — Laser ion acceleration via microstructured targets is an emerging field of much interest. 2D pic simulations (EPOCH) using grating like microstructured targets show not only the enhancement of hot electron temperature and number but also that by adjusting target geometry we are able to selectively control hot electron temperature and number. This allows one to pre-select ion energies and number in laser ion acceleration experiments, which is a crucial next step in feasibility of laser ion acceleration applications (including hadron cancer therapy, neutron beam generation and warm dense matter studies). In addition to simulated results, preliminary experimental data from the University of Texas's Ghost laser (10ˆ19 W/cm2) will also be presented.

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