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Laser Generated Ion Beams in the Context of Sandia's HEDP Mission[1] MATTHIAS GEISSEL, BRIGGS ATHERTON, GUY BENNETT, AARON EDENS, PATRICK RAMBO, JENS SCHWARZ, Sandia National Laboratories, ERIK BRAMBRINK, LULI - Ecole Polytechnique — First experiments were performed at the 100 TW target area of the Z-Petawatt laser characterizing ion beam emission from laser irradiated solid density targets. These experiments addressed radiography and fast ignition concepts to be applied at the Z- Accelerator facility at Sandia National Laboratories. Cu, Al and Au targets were used for Target-Normal-Sheath- Acceleration of protons and heavier ions. Proton energies up to 30 MeV were measured, and the dependence of ion spectra on varying laser parameters was studied. An imaging proton spectrometer was used to investigate the acceleration due to field-enhancement effects at the target edge (edge emission). The usage of imaging plates was successfully introduced for charged particle beam analysis and compared to CR39 detector results.

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