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## Laser-driven Ion Acceleration from pre-expanded thin foils.

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Laser-Ion acceleration typically uses thin foils as targets, where the density is typically a few hundred times the critical density ( $n_c$ ). Targets with just a few times  $n_c$  constitute an interesting target system for laser plasma acceleration. Unfortunately, these densities are hard to achieve in experiment. In this poster we present an exploding foil experiment, where we pre-expand a thin foil via a dedicated pre-pulse ( $10^{15}$  W/cm<sup>2</sup>) prior to the interaction with the main pulse ( $10^{20}$  W/cm<sup>2</sup>). A Nano-second probing beam in combination with a streak camera is used to diagnose the state of the Plasma during expansion. This experiment is still ongoing and our aim is to diagnose the optimum plasma density for ion acceleration for preliminary results to be presented.

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