High peak current acceleration of narrow divergence ions beams with the BELLA-PW laser

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— We present a parameter study of ion acceleration driven by the BELLA-PW laser. The laser repetition rate of 1Hz allowed for scanning the laser pulse duration, relative focus location and target thickness for the first time at laser peak powers of above 1 petawatt. Further, the long focal length geometry of the experiment (f/65) and hence, large focus size provided ion beams of reduced divergence and unprecedented charge density.

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