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Characterizing the spatial resolution of scintillators for imaging applictions of laser-driven proton beams[1] HONGMEI TANG, BRANDON RUSSELL, ANATOLY MAKSIMCHUK, PAUL T. CAMPBELL, University of Michigan, MARIO J.-E. MANUEL, General Atomics, LOUISE WILLINGALE, University of Michigan — Laser driven proton beams are widely used in visualizing the electromagnetic fields in high-energy-density physics experiments. However, typical detectors for proton imaging, i.e. radiochromic film (RCF) and plastic-track (CR39) detectors, are single-use and unable to meet the needs of higher repetition-rate facilities. Scintillators are a viable substitute their reusability and prompt, easy data acquisition by imaging the emitted optical signal onto a CCD camera are both advantageous features for a rep-rated experiment. We perform experiments using the Tcubed laser system at the University of Michigan to diagnose the intrinsic spatial resolution of the scintillators based on resolution grids imprints on the proton beam.The signal-to-noise from the laser-driven experiment, where there is significant relativistic electron and x-ray flux, is compared with Cyclotron based data [1].A configuration where the magnified imprint of a mesh in the proton beam is used to demonstrate that scintillators are capable of comparable overall spatial resolution to RCF for applications in proton beam diagnosis and radiography applications. [1] M.J.-E. Manuel, *et al.*, Nucl. Inst. Meth. Phys. Res. A, **913**, 103 (2019).

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