

Abstract Submitted  
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**Comparison of scintillators for single shot imaging of laser accelerated proton beams** NATHAN COOK, Stony Brook University — The application of intense laser pulses incident on specialized targets provides exciting new means for generating energetic beams of protons and ions. Recent work has demonstrated the utility of these beams of particles in a variety of applications, from inertial confinement fusion to radiation therapy. These applications require precise control, and subsequently precise feedback from the beam. Imaging techniques can provide the necessary shot-to-shot characterization to be effective as diagnostics. However, the utility of imaging methods scales with the capability of scintillating materials to emit well characterized and consistent radiation upon irradiance by a charged particle beam. We will discuss three candidates for an ideal diagnostic for MeV range protons and light ions. CsI:Tl<sup>+</sup> and Al<sub>2</sub>O<sub>3</sub>:Cr<sup>3+</sup> are two inorganic scintillators which exhibit excellent response to hadrons in this energy range. They are compared with the combination diagnostic micro-channel plate with a P43 phosphor screen, which offers advantages in refresh rate and resolution over direct exposure methods. Ultimately we will determine which candidate performs optimally as part of a robust, inexpensive diagnostic for laser accelerated protons and light ions.

Nathan Cook  
Stony Brook University

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