

Abstract Submitted
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X-Ray Spectrum Reconstruction using an Attenuating Filter Pack¹ ALEXANDER LAUT, HAI-EN TSAI, TOBIAS OSTERMAYR, ROBERT JACOB, LIONA FAN-CHIANG, OCEAN ZHOU, CAMERON GEDDES, CARL SCHROEDER, ERIC ESAREY, Lawrence Berkeley National Laboratory, BELLA CENTER TEAM² — A technique to reconstruct the energy distribution of 1-10 MeV X-Rays produced by the Thomson backscattering of laser-plasma accelerator driven electrons upon a powerful laser pulse will be presented. By using an attenuator filter pack, the relative photon transmission signals can be estimated from a pixelated scintillator output and combined to deduce primary spectrum characteristics of the emitted radiation. Performed on a shot-to-shot basis and supported with electron distribution data from a magnetic spectrometer, this technique can be used to provide real-time feedback of the backscattering interaction. Analytic proof of concept will be shown, and an experimental design and limitations will be discussed.

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