

Abstract Submitted
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Electron Beam Diagnosis Using K-edge Absorption of Laser-Compton Photons¹ YOONWOO HWANG, Univ of California - Irvine, DAVID GIBSON, ROARK MARSH, Lawrence Livermore National Laboratory, CHRISTOPHER BARTY, TOSHIKI TAJIMA, Univ of California - Irvine — The mean energy, energy spread and divergence of the electron beam can be deduced from laser-Compton scattered X-rays filtered by a material whose K-edge is near the energy of the X-rays. This technique, combined with a spot size measurement of the beam, can be used to measure the emittance of electron bunches, and can be especially useful in LWFA experiments where conventional methods are unavailable. The effects of the electron beam parameters on X-ray absorption images are discussed, along with experimental demonstrations of the technique using the Compact Laser-Compton X-ray Source at LLNL.

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