

Abstract Submitted
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Bremsstrahlung measurements for fast electron characterization at OMEGA EP HIROSHI SAWADA, UCSD, PRAVESH PATEL, CLIFF CHEN, HARRY MCLEAN, MIKE KEY, LLNL, TOSHINORI YABUUCHI, FARHAT BEG, UCSD, KRAMER AKLI, RICHARD STEPHENS, GA, WOLFGANG THEOBALD, PHILIP NISON, CHRISTIAN STOECKL, U. of Rochester — Fast electrons in 1-3 MeV energy range are required for efficient core heating in Fast Ignition concept. An experiment to infer the fast electron spectrum from the bremsstrahlung x rays has been performed at the OMEGA EP using two pulse lengths, 1 ps at 150 J and 10 ps at 1000 J. The EP beam with the intensity of $\sim 5 \times 10^{18}$ W/cm² was focused normal onto a planar Al target with a buried Cu layer. The bremsstrahlung x-ray emission was measured with a stack of image plates and differential filtering at the front and rear sides. The Cu K α from the tracer layer was measured using an absolutely calibrated HOPG crystal spectrometer. Preliminary results show that the measured laser-to-electron conversion efficiency and energy spectrum are similar at 1 and 10 ps shots. A detailed data analysis and consequences on FI will be presented. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344 and DE-FG-02-05ER54834 (ACE).

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