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Magnetic Field Measurement in Laser-Plasma Interaction via Relativistic Electron Deflectometry NOBUHIKO NAKANII, HIDEAKI HABARA, KAZUO A. TANAKA, Osaka University, TOSHINORI YABUUCHI, HIROSHI SAWADA, BHOOSHAN S. PARADKAR, MINGSHENG WEI, FARHAT N. BEG, UC San Diego, RICHARD B. STEPHENS, General Atomics — In laser matter interactions, whether it is with a short pulse laser or a long pulse laser, magnetic fields are produced which can affect the energy transport in the target. So characterization of these fields is important. Recently, protons are used for magnetic field measurements. We report a theoretical study to assess use of relativistic electrons for the detection of magnetic field. Electrons are produced in short pulse laser matter interactions. In this modeling rad-hydro code h2d was used to produce magnetic field by a long laser pulse ($\sim 10^{14}$W/cm^2) due to the thermoelectric effect. The probe electron beam was produced using a hybrid particle-in-cell code LSP. Results show that the field and their shape can be characterized by the deflection of the electron beam. Results will be discussed at the meeting. Work supported by Research Fellowship of the JSPS, and by the Dept. of Energy under contract DE-FG-02-05ER54834.

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