

Abstract Submitted
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Narrow bandwidth Laser-Plasma Accelerator driven Thomson photon source development C.G.R. GEDDES, H.-E. TSAI, G. OTERO, X. LIU, J. VAN TILBORG, CS. TOTH, J.-L. VAY, R. LEHE, C.B. SCHROEDER, E. ESAREY, LBNL, A. FRIEDMAN, D.P. GROTE, LLNL, W.P. LEEMANS, LBNL — Compact, high-quality photon sources at MeV energies can be provided by Thomson scattering of a laser from the electron beam of a Laser-Plasma Accelerator (LPA). Recent experiments and simulations demonstrate controllable LPAs in the energy range appropriate to MeV sources. Simulations indicate that high flux with narrow energy spread can be achieved via control of the scattering laser pulse shape and laser guiding, and that undesired background bremsstrahlung can be mitigated by plasma based deceleration of the electron beam after photon production. Construction of experiments and laser capabilities to combine these elements will be presented, along with initial operations, towards a compact photon source system. Work supported by US DOE NNSA DNN RD and by Sc. HEP under contract DE-AC02-05CH11231.

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