

Abstract Submitted  
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**Narrow bandwidth Thomson photon source development using Laser-Plasma Accelerators** C.G.R. GEDDES, S. STEINKE, H.-E. TSAI, LBNL, S.G. RYKOVANOV, Jena, J.-L. VAY, A. BONATTO, C. BENEDETTI, C.B. SCHROEDER, E. ESAREY, LBNL, A. FRIEDMAN, D.P. GROTE, LLNL, W.P. LEEMANS, LBNL — Compact, high-quality photon sources at MeV energies are being developed based on Laser-Plasma Accelerators (LPAs). Simulations are presented on production of controllable narrow bandwidth sources using the beam and plasma capabilities of LPAs. An independent scattering laser, combined with appropriate pulse shaping and laser guiding is important to realize high photon yield. Plasma optics are described to tailor beam divergence in cm-scale distances, reducing photon source bandwidth. The LPA can further be used to de-accelerate the electron beam after photon production to reduce undesired radiation. Combination of laser driven and beam driven deceleration is presented to reduce residual beam energy, as is important for a laboratory or field operable source. Design of experiments and laser capabilities to combine these elements will be presented, towards a compact photon source system.

Cameron Geddes  
LBNL

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