

Abstract Submitted
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MeV Mono-Energetic Gamma Ray Compton Scattering Source R&D¹ FRED HARTEMANN, LLNL, FELICIE ALBERT, SCOTT ANDERSON, SAM CHU, RICK CROSS, CHRIS EBBERS, DAVID GIBSON, MIKE MESSERLY, VLAD SEMENOV, MIRO SHVERDIN, CRAIG SIDERS, DENNIS MCNABB, CHRIS BARTY, LLNL, ARNOLD VLIEKS, SAMI TANTAWI, SLAC — A precision, tunable gamma-ray source driven by a compact, high-gradient X-band linac is currently under development at LLNL. High-brightness, relativistic electron bunches produced by the linac interact with a Joule-class, 10 ps laser pulse to generate tunable γ -rays in the 0.5-2.5 MeV photon energy range via Compton scattering. The source will be used to excite nuclear resonance fluorescence lines in various isotopes; applications include homeland security, stockpile science and surveillance, nuclear fuel assay, and waste imaging and assay. The source design, key parameters, and current status are presented.

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Fred Hartemann
LLNL

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