

The LCLS-II Upgrade, XFEL Pulse Energy Diagnostics and X-ray Pump-Probe Experiments

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The Linac Coherent Light Source (LCLS) X-ray Free Electron Laser (XFEL) began operations in 2009. The LCLS-II upgrade based on a superconducting linac has increased the repetition rate to 93 kHz at photon energies from 200 eV to 3.5 keV. X-ray power meters are being used to determine the pulse energies at the instruments. X-ray pump-probe techniques have been used to examine ultrafast phase transitions in magnesium oxide and sodium chloride.