

Abstract Submitted
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AMO Science with fsec x-ray pulses at the LCLS JOHN BOZEK¹,
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— The Linac Coherent Light Source (LCLS), a linac-drive x-ray free electron laser
(XFEL), is currently under construction at the Stanford Linear Accelerator Center
(SLAC) with funding from the Office of Basic Energy Sciences, U.S. Department of
Energy. When completed in 2008, the LCLS will provide $10^{12} - 10^{13}$ x-ray photons
at energies from 800–8000 eV in 230 fsec pulses at 120 Hz with unprecedented flux
and brightness. This regime of power and energy is completely unexplored in atomic,
molecular and optical sciences (AMOS) and is expected to provide many new discov-
eries in light-matter explorations. An AMOS facility at the LCLS is being designed
to capitalize on the unique high flux, high field and high temporal resolution of the
x-ray pulses generated by the light source. A brief overview of the LCLS facility will
be presented along with a description of the AMO research capabilities envisioned.
An AMOS working group comprised of many researchers at several institutions has
contributed to the design parameters for the instrumentation under design.

¹Linac Coherent Light Source

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