

Abstract Submitted
for the DAMOP08 Meeting of
The American Physical Society

AMO Instrumentation for the LCLS JOHN BOZEK, Stanford Linear Accelerator Center — The Linac Coherent Light Source (LCLS) x-ray free electron laser (FEL) facility at the Stanford Linear Accelerator Center (SLAC) is quickly nearing completion. When finished in summer 2009, the LCLS will produce ultra-fast pulses of x-rays with photon energies of 800 – 8000 eV, intensities $\geq 10^{13}$ ph/s and pulse durations of ≈ 150 fs, at a repetition rate of 120Hz. A suite of four instruments, including one dedicated to AMO science, are currently being designed for first experiments with the LCLS source. The design of the AMO instrument is in the final stages with construction to begin later this year. Included in the AMO instrumentation are optics to focus the LCLS beam to a waist of $\sim 2\mu\text{m}$, an experimental chamber with a supersonic pulsed gas jet, a set of five time-of-flight electron energy spectrometers, one of three ion spectrometers, and two x-ray fluorescence spectrometers, and a synchronized laser for pump-probe experiments. A downstream diagnostics chamber with instruments to measure the relevant parameters of each FEL pulse is also included. Plans for first experiments along with designs of the instrumentation will be presented. Guidance for experimental proposals for the LCLS will also be provided for prospective users.

John Bozek
Stanford Linear Accelerator Center

Date submitted: 31 Jan 2008

Electronic form version 1.4