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LCLS-II Status

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The new LCLS-II facility at the SLAC National Accelerator Laboratory is a significant addition to the LCLS-I FEL, designed to dramatically decrease data acquisition time by providing high repetition rate over a broad energy range. The new design consisting of a CW superconducting linac with bunch repetition rates of up to one MHz and beam power of several hundred kilowatts requires major enhancements to the LCLS-I controls system. LCLS-II will retain the system architecture based on EPICS while implementing additional technologies to meet the new requirements. This includes new designs for SC LLRF, timing system to allow MHz operation, data acquisition electronics for the beam position monitors and other beam diagnostic systems, and a new beam-based feedback facility. The high beam rate and power also necessitate faster beam abort mechanisms, requiring enhanced machine and personnel protection systems as well as a new radiation containment system. This talk will present an overview of the LCLS-II controls and discuss the design status of the critical systems including the development of a general purpose electronic system to serve as a common platform for several applications.

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