



Contribution ID: 39

Type: **Regular Talk (15min)**

## **An ATCA Based Accelerator Controls & RF Detector Platform**

*Tuesday, September 20, 2016 4:15 PM (15 minutes)*

SLAC is currently developing an upgrade of its Linac Coherent Light Source (LCLS) that will be at the forefront of X-ray science. This upgrade will replace the first 1KM of its existing accelerator tunnel with a superconducting 1Mhz accelerator requiring a major upgrade to the existing control infrastructure. This new control system moves operations and computations previously performed in software and EPICs into FPGA firmware capable of operating at 1Mhz. SLAC has developed an ATCA based control platform to facilitate this high rate control operation.

The high rate and power of the new LCLS-2 accelerator requires a control platform that is powerful and flexible, supporting a core set of accelerator systems which must operate at the full 1Mhz rate of the accelerator beam. These High Performance Systems (HPS) include Machine Protection System (MPS), Beam Position Monitors (BPMs) and the core timing distribution system for the accelerator and associated detectors.

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**Session Classification:** EPICS Collaboration Meeting

**Track Classification:** Hardware, Driver/Device support