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PO31 - LANSCE Fast Protect System Modernization

Tuesday, 12 September 2023 15:10 (20 minutes)

The LANSCE accelerator facility has been in operation for 51 years, and the Fast Protect System has been monitoring systems site-wide since the early 80's. The premise of Fast Protect is to provide machine protection by monitoring all critical devices at the facility on a pulse-by-pulse basis. In the event of a malfunction, beam is terminated prior to acceleration to minimize activation of beam line components. This discussion will focus on the redesign of that system, weighing off-the-shelf versus purpose-built hardware, running-in-parallel concept of system verification, phased approach to installation, and overall system improvements. I will also cover the nearly unlimited logic flexibility of a custom bare metal FPGA, future proofing aspects of the design, new system performance, and ability to accommodate future upgrades.

Presenter: SNYDER, Joseph (LANL)

Session Classification: Poster / Demo Sessions