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The Mu2e experiment at Fermilab: TDAQ and slow control production systems installation

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The Mu2e experiment at the Fermilab will search for a charged-lepton flavor violating neutrino-less conversion of a muon into an electron in the field of an aluminum nucleus, with a sensitivity improvement by a factor of 10,000 over existing limits.

The Mu2e Trigger and Data Acquisition System (TDAQ) uses \emph{otsdaq} framework as the online Data Acquisition System (DAQ) solution.

Developed at Fermilab, \emph{otsdaq} integrates several framework components - an \emph{artdaq}-based DAQ, an \emph{art}-based event processing, and an EPICS-based detector control system (DCS), and provides a uniform multi-user interface to its components through a web browser.

Data streams from the Mu2e tracker and calorimeter are handled by the \emph{artdaq}-based DAQ and processed by a one-level software trigger implemented within the \emph{art} framework.

Events accepted by the trigger have their data combined, post-trigger, with the separately read out data from the Mu2e Cosmic Ray Veto system.

Mu2e's DCS is based on EPICS, an experimental industrial physics and control system. It is an open source platform for monitoring, control, alarms, and archiving.

A prototype of the TDAQ and the DCS systems has been built and tested over the last three years at Fermilab's Feynman Computing Center, and now the production system installation is underway. The talk will present their status and focus on the installation plans and procedures for racks, workstations, network switches, gateway computers,
DAQ hardware, slow controls implementation, and testing. It will also discuss the
network design and cabling, quality assurance plans and procedures for the trigger farm computers, and the system and software maintenance plans.

In-person participation

Yes

Primary authors: GIOIOSA, Antonio (Istituto Nazionale di Fisica Nucleare); BONVENTRE, Richard (LBL); DONATI, Simone (Istituto Nazionale di Fisica Nucleare); FLUMERFELT, Eric (University of Tennessee); HORTON--SMITH, Glenn (Kansas State University); MORESCALCHI, Luca (Istituto Nazionale di Fisica Nucleare); MURAT, Pavel (Fermilab); O'DELL, Vivian (Fermilab); PEDRESCHI, Elena (Istituto Nazionale di Fisica Nucleare); PEZZULLO, Gianantonio (Yale University); SPINELLA, Franco (Istituto Nazionale di Fisica Nucleare); UPLEGGER, Lorenzo (Fermilab); RIVERA, Ryan (Fermilab)

Presenter: GIOIOSA, Antonio (Istituto Nazionale di Fisica Nucleare)

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