

EPICS Collaboration Meeting



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Accelerator Control Development at iThemba LABS: Road to EPICS and beyond

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iThemba Laboratories for Accelerator Based Science (LABS) was established in the 1980s to support the nuclear physics research community and to produce radioisotopes for nuclear medicine applications. This paper outlines the development of the iThemba LABS accelerator control system from mini-computers running RTE and CAMAC instrumentation, through to a system based on a LAN of PCs running OS/2 and in-house developed SABUS instrumentation. In the late 2000s the accelerator control system was migrated to the EPICS platform. Several drivers were developed to interface with the existing CAMAC and SABUS hardware. In 2015, in order to meet the changing technology and user requirements, iThemba LABS adopted EtherCAT as its new industrial communication standard. A number of software and tools have been developed and several hardware modules integrated and tested. A new web-based framework, React Automation Studio (RAS), was also developed in-house for operation of control systems. Many of these tools are being used at the new South African Isotope Facility (SAIF). Various applications, challenges and the ongoing and future developments using EPICS are presented.

Keywords: iThemba LABS, control system, CAMAC, SABUS, OS/2, EPICS, EtherCAT, RAS, SAIF

Topic

Other

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