



Contribution ID: 89

Type: Poster

MCO Strategy to Maintain High Level of Reliability for Control Systems Electronics

Wednesday, October 18, 2017 4:00 PM (1h 30m)

SOLEIL control system is running for 10 years on accelerators and beamlines. It has been designed with an object-oriented architecture both for software and hardware. Electronics devices have been standardized by functionalities allowing to build the control system with a “LEGO” approach. These electronics connected to the Tango framework are mainly based on industrial off-the-shelf devices: Siemens PLC, cPCI industrial computer and motion controller Galil or DeltaTau. Over the last 10 years of operation, these systems have proven their reliabilities. The MCO strategy based on a continuous upgrade of the systems allows us to maintain with agility and flexibility the control system. This approach permits us to operate safely while improving performances of the electronics. This poster will describe the strategy of the controls group working on preventive maintenance they are in charge, for about 7000 devices in operation, the method to continuously upgrade these systems based on the same technology. A focus will be done on the challenge we are facing to renew the technology which becomes out of date while maintaining the same level of reliability for operation.

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Session Classification: 11- Poster Session

Track Classification: Accelerator Control