



Contribution ID: 75 Contribution code: **TUMR002**

Type: **Poster Presentation with Mini Oral**

Automated test execution framework for experiment control systems at LCLS

Tuesday 23 September 2025 15:03 (3 minutes)

At the Linear Coherent Light Source (LCLS), maintaining the health and correct configuration of the control system is essential to ensuring successful experimental operations. ATEF (Automated Testing and Evaluation Framework) supports this goal by enabling the development and execution of automated procedures to verify control system status before experiments begin.

ATEF focuses on pre-experiment validation of devices and controllers—ensuring they are correctly configured, network-visible, and responsive to control system commands. These verifications range from confirming process variable (PV) status and device communication to setting and reaching predefined setpoints.

By providing a framework to establish and routinely verify a configuration baseline, ATEF allows users and system integrators to ensure the control system is ready to commence operations.

This talk will present the design and use of ATEF at LCLS, explore real-world examples of its application, and highlight how it supports the broader goals of system integrity and experimental readiness.

Footnotes

Funding Agency

Manuscript formatting

Microsoft Word (docx)

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Session Classification: TUMR Mini-Orals (MC03, MC04, MC08)

Track Classification: MC03: Control System Sustainment and Management