Contribution ID: **110** Contribution code: **TUPD097** Type: **Poster Presentation**

Vacuum monitoring and controls acceptance testing for LCLS-II HE cryomodules at SLAC

Tuesday 23 September 2025 16:00 (1h 30m)

The LCLS-II High Energy (LCLS-II HE) upgrade at SLAC National Accelerator Laboratory involves the delivery and long-term storage of superconducting cryomodules, manufactured at partner laboratories and shipped to SLAC. To maintain their performance, these cryomodules must preserve ultra-high vacuum (UHV) conditions prior to installation. Upon arrival, each unit undergoes a comprehensive controls acceptance test to validate instrumentation functionality, including sensor accuracy, signal integrity, and system connectivity. To ensure vacuum integrity during extended storage, a vacuum monitoring system was developed to continuously track cold cathode gauge pressure, integrated into the EPICS control system for real-time data, alarms, and archiving. Despite using a single gauge per cryomodule, the system enables early detection of vacuum degradation with minimal hardware. This paper outlines the acceptance testing, vacuum monitoring system design, and operational experiences, along with data trends, alarm scenarios, and lessons learned to improve future cryomodule storage practices.

Footnotes

Funding Agency

Author: CHILLARA, Rohini Sri Priya (SLAC National Accelerator Laboratory)

Co-authors: WILSON, Andrew (SLAC National Accelerator Laboratory); LAI, Chinh Duc (SLAC National Accelerator Laboratory); WHITE, Dominique A (SLAC National Accelerator Laboratory); SARAF, Shweta (SLAC National Accelerator Laboratory); HUANG, Ziyu (SLAC National Accelerator Laboratory)

Presenters: CHILLARA, Rohini Sri Priya (SLAC National Accelerator Laboratory); HUANG, Ziyu (SLAC National Accelerator Laboratory)

Session Classification: TUPD Posters

Track Classification: MC08: Diverse Device Control and Integration