

LCLS-II-HE LLRF

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Abstract

The LCLS-II-HE project is a high energy upgrade of the existing LCLS-II superconducting LINAC at SLAC which will increase its baseline energy from 4 GeV to 8 GeV. A new LINAC section L4 will be added with 23 new high gradient cryomodules, 184 SRF cavities, tested to a mean gradient of 22 MV. The LLRF system to control the new cavities will be comprised of 46 HE LLRF rack systems, each outfitted with an updated version of the LCLS-II LLRF system. While average cavity gradient is increased in the new cryomodules, the LLRF field control requirements will remain the same as LCLS-II, i.e., RF regulation within 0.01%, 0.01 deg rms amplitude and phase and resonance control regulation of the cavity frequency $< 1\text{Hz}$. With rich experience from LCLS-II, we present the incorporated lesson learned, planned updates and progress of HE LLRF.

Authors: Jing Chen, Andy Benwell, Jorge Diaz, Andre McCollough, Sonya Hoobler, Larry Doolittle, Shreeharshini Dharanesh Murthy

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Primary authors: Mr MCCOLLOUGH, Andre (SLAC); BENWELL, Andy (SLAC); Mr CHEN, JING (SLAC National Accelerator Laboratory); DIAZ CRUZ, Jorge (SLAC); DOOLITTLE, Larry (LBNL); MURTHY, Shreeharshini Dharanesh (Lawrence Berkeley National Laboratory); HOOBLER, Sonya (SLAC National Accelerator Laboratory)

Presenter: Mr CHEN, JING (SLAC National Accelerator Laboratory)

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