

Low Level RF Workshop 2022



9-13 Oct 2022, Brugg-Windisch, Switzerland



Contribution ID: 73

Type: **Poster**

MATLAB Scripts for RF Commissioning at the LANSCE LINAC

Wednesday, October 12, 2022 3:03 PM (1 minute)

The linear accelerator (LINAC) at the Los Alamos Neutron Science Center (LANSCE) consists of Pre-buncher, Main-Buncher, low-energy beam transport (LEBT), four 201.25-MHz Drift Tube Linacs (DTLs) and forty-four 805-MHz Coupled Cavity Linacs (CCLs). As a part of the upcoming LANSCE Modernization project, low-level RF (LLRF) systems of four 201-MHz DTLs and twenty-six 805-MHz SCLs are digitized. Hence the network-based control of the cavity field and RF commissioning are possible. Each LLRF and high-power RF (HPRF) systems have many process variables (PVs) located on different computer control screens provided by the Extensible Display Manager (EDM). Several MATLAB m-scripts have been developed to efficiently process the necessary PVs while auto-start, amplitude/phase calibration, gain tuning of the cavity field feedback controllers, gain and phase tuning of the beam feedforward controllers, and high power RF trip recovery, processes are configured and validated. This paper addresses the sequence of RF commissioning of the LANSCE LINAC from the time of RF-turn-on to beam feedforward control and its relevant EDMs and MATLAB m-scripts.

Primary authors: ARCHULETA, Aaron (Los Alamos National Laboratory); CASTELLANO, Lawrence (Los Alamos National Laboratory); PROKOP, Mark (Los Alamos National Laboratory); VAN ROOY, Paula (Los Alamos National Laboratory); KWON, SUNGIL (Los Alamos National Laboratory, AOT Division); TORREZ , Phillip (Los Alamos National Laboratory)

Presenters: VAN ROOY, Paula (Los Alamos National Laboratory); KWON, SUNGIL (Los Alamos National Laboratory, AOT Division)

Session Classification: Poster Session

Track Classification: Low Level RF Workshop 2022