Accelerator Physics and Technology Seminar

First Results of AUP Nb3Sn Quadrupole Horizontal Tests

Maria Baldini, FNAL

Date: Tuesday, July 16
When: 4:00 pm CDT
Where: Hornet's Nest (WH8XO) and Zoom

Abstract: The Large Hadron Collider will soon undergo an upgrade to increase its luminosity by a factor of ~10 [1]. A crucial part of this upgrade will be replacement of the NbTi focusing magnets with Nb3Sn magnets that achieve a ~50% increase in the field strength. This will be the first ever large-scale implementation of Nb3Sn magnets in a particle accelerator. The High-Luminosity LHC Upgrade, HL-LHC, is a CERN project with a world-wide collaboration. It is under construction and utilizes Nb3Sn Magnets (named MQXF) as key ingredients to increase tenfold the integrated luminosity delivered to the CMS and ATLAS experiments in the next decade. The HL-LHC AUP is the US effort to contribute approximately 50% of the low-beta focusing magnets and crab cavities for the HL-LHC. This talk will present the program to fabricate the Nb3Sn superconducting magnets. We are reporting the status of the HL-LHC AUP project and presenting the results from horizontal tests of the first fully-assembled cryo-assembly.