Project - LHC experimental beam vacuum.


Title: LHC experimental beam vacuum upgrade in the Long Shutdown 2.

Description:
In the operation's framework the Large Hadron Collider and of its upgrade during the Long Shutdown 2 (LS2), you will be part of:

- Department Technology (TE) that provides the technologies specific to existing particle accelerators, facilities & future projects;
- Vacuum Surfaces and Coatings Group (TE-VSC), responsible for the design, construction, operation, maintenance and upgrade of high & ultra-high vacuum systems for Accelerators and Detectors;
- Beam Vacuum Operation Section (TE-VSC-BVO), in charge of the design, maintenance & operation of the beam vacuum system of all Accelerators and Detectors.

You will be involved in the experimental beam vacuum project, one of the key deliverables of the group during the LS2. The project contains a major upgrade of the LHC experimental beam vacuum systems of ALICE and CMS detectors in new optimized aluminium and beryllium vacuum beam pipes. During the upcoming period of 2019 and 2020, more than 15 new experimental beam pipes will be produced and tested at CERN vacuum surface laboratory. The LHC machine will then enter the Run 3 operational period during which the TE-VSC provides operational support, maintenance of the vacuum system and preparation for the next long shutdown.

You will take part in the vacuum commissioning in the LHC experimental caverns and participate in vacuum laboratory studies and validation. This will include testing of the new vacuum chambers and its mechanical interface by helium leak detection, bake-out, outgassing rate and pumping speed measurements and residual gas analysis. An important part of the job will be the synthesis and analysis of production data from different workshops and continuous update of manufacturing files and production drawings. The candidate will as well use the CAD /CAE skills to support the section by designing simple tools and performing both structural and vacuum simulation.

Background:
- Bachelor or Master degree in Mechanical, Material or Physics engineering,
- CAD skills (CATIA, Autodesk Inventor or SolidWorks),
- Strong communication skills, open, proactive, team worker,
- Objectives and quality oriented.
- Experience with design of high or ultra-high vacuum apparatus is a plus,
- Experience with production and quality chain is a plus,

Disciplines: Applied Physics, Mechanical Engineering, Material Science