



Sample Project: Thin films coatings to mitigate multipacting in LHC focusing magnets

Code	TE4062
Programme	FCT
Department	TE
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Date Created	15-JUN-15
Date updated	19-JUN-15

Title

Thin films coatings to mitigate multipacting in LHC focusing magnets

Description

In the framework of the operation the Large Hadron Collider and of its injectors, you will be part of :

the Department Technology (TE) that provides the technologies specific to existing particle accelerators, facilities & future projects;

the Group Vacuum Surfaces and Coatings (TE-VSC), responsible for the design, construction, operation, maintenance and upgrade of high & ultra-high vacuum systems for Accelerators and Detectors;

the Section Surface Chemistry and Coatings (TE-VSC-SCC), in charge of the thin film coatings, surface treatments, surface and chemical analysis for all CERN accelerator applications.

The trainee will participate in the activities related to thin films with low secondary electron yield in the framework of the upgrade of the vacuum system in the LHC close to the experimental areas. The aim of the upgrade is to prepare the LHC to cope with beams of higher intensity as foreseen for the High Luminosity project. This implies to reduce the electron cloud effect in the triplet regions and hence to decrease the thermal load on the cryogenic system. The activity includes R&D to tune the coating system to the constraints of the beam-pipe geometry and enable to deposit the thin film in situ without dismantling the section of the LHC machine.

Master Degree in Physics or Material Science with knowledge and possibly experience in vacuum technology and thin film coating.

Skills

Vacuum technology: experience in operating laboratory ultra-high-vacuum systems; Thin films: knowledge of the basic principles of PVD thin films coating;

Disciplines

Applied Physics, Chemistry/Chemical Engineering, Material Science