



# Development of a pulsed DC discharge plasma source for the AWAKE experiment

Project code	72
Supervisor	Alban Sublet
Department	TE

## Title

Development of a pulsed DC discharge plasma source for the AWAKE experiment

## Description

The Vacuum Surface and Coating (TE/VSC) group is taking care of the surface and chemical analyses, thin film coatings by PVD, basic plasma studies and simulations and surface finishing as a CERN-wide support in development and operation of accelerators. Together with IST-Lisbon and the TE/VSC group at CERN, participate in the development, integration and installation of a pulsed DC discharge plasma source (2.5 to 5 m long) at CERN for the AWAKE experiment. Consider critical safety aspects for the electrical circuits and the discharge cell. In addition, study different electrodes designs/geometries, and electrical circuit schemes for the striking and heating of the discharge. Implement and operate plasma diagnostics to assess the electron density and temperature along the discharge, together with the AWAKE collaboration team working on the helicon plasma cell.

## Functions and Training Value

Getting acquainted with high density/low temperature plasma discharges, pulsed power supplies and plasma diagnostics. Work within the CERN vacuum group team and AWAKE collaboration members. Communicate advancement of the project in team and collaboration meetings.

## Qualifications/Skills

Physicist and/or Electrical engineer with academic level (Master or PhD). Candidate capable to work independently, flexible, with background in plasma physics and/or electrical engineering, vacuum, material and surface science.