Hollow Core Fibres in Radiation Environment Study

A doctoral position is opened in the field of radiation effects on optical fibres within the “Fibre Optics and Cabling” section of the Electrical Engineering Group at CERN. The PhD will focus on studying the response to radiation of a selection of novel hollow core fibres (HCF) in terms of their radiation induced attenuation (RIA) as well as transmission properties. Such fibres, which inherently show a high radiation resistance, might have multiple applications both in communication and sensing systems at high energy physics facilities.

After an initial theoretical study to get familiar with both HCF and radiation effects on optical fibres, the student will be involved in the design and implementation of an optical fibre setup allowing for testing of HCF under irradiation. Defining the test conditions as well as interpreting the results of the measurements, will be part of the PhD candidate’s duties. Based on the results, the student shall contribute in identifying specific HCF applications at the CERN facilities, by integrating at the same time the practical aspects of the fibre installation onsite.

The candidate should have a solid background in fibre optics. Experience with hollow core fibres or with radiation effects on glass or optical fibres would be a plus. The student shall be willing to conjugate purely research activities with some practical activities onsite, finalized at fibre deployment. The student is expected to start at the beginning of 2021.

If you are interested in the project and would like to have more information, please contact Dr. Iacopo Toccafondo (iacopo.toccafondo@cern.ch). The general information about the Doctoral Student Programme at CERN can be found here: https://jobs.smartrecruiters.com/CERN/743999714832860-doctoral-student-programme