Sample Project: Innovative Optical Fibre Sensors for relative humidty monitoring

Code	PH2394
Programme	TRAIN-PTES
Department	PH
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Title

Innovative Optical Fibre Sensors for relative humidty monitoring

Description

 Fibre Optic Sensors (FOS) are at the forefront of modern sensing technology, providing unparalled capabilities of long distance distributed and punctual sensing, insensitivity to electromagnetic noise and resistance to radiation. Two generation of innovative FOS sensors for relative humidty are being developed in the Detector Technolgy group of the Physiscs Department. The first one, based on polyimide-coated FBG sensors, has completed the laboratory characterization phase and has now as a world-permiere 72 sensors installed in the the CMS experiment for a long-term on-field investigation in a very complex environment. The second one, based on oxide-coated LPG sensors, is in a more preliminary development phase, but show to have the potential to outperform the previous one.

 The Trainee will be have the opportunity to work on both the generations and to integrate a multi-cultural team bringing together specific expertises on humidity measurement, laboratory calibration, photonics, optical signal analysis, material science and thin film engineering, data acquisition, signal processing, etc... He will take part in all the activities of the team, experiencing both the life of an R&D laboratory and the one of a complex experimental environment like the one of CMS. He/she will be supervised by experienced engineers and by advanced doctoral students.

Skills

Low and High Frequency Engineering: Photonic. Material Science: Thin solid films. Networks and Systems: Micro systems engineering, Optical information networks. Theory of Electrical Engineering: Signal processing Environmental monitoring

Disciplines

Electrical Engineering, Material Science

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