Distributed Fiber Sensors and Applications

Overview

Distributed sensing of strain is a key requirement in several applications including structural health monitoring of aerospace vehicles, bridges, oil pipelines, and dams, as well as real-time power monitoring. Optical sensors, which are based on the sensitivity of the optical density of materials to changes in strain and temperature, are preferred for such applications since they are non-invasive, immune to electromagnetic interference and non-destructive. They provide for localized probing and efficient modulated light collection, are able to bend around corners, and amenable to array sensing. Fiber sensors based on resonant interactions are quite attractive since the strain information is encoded in the frequency domain, which is impervious to noise.

In this course, we will introduce the fundamentals of distributed fiber sensing and then go into depth covering advanced topics such as Brillouin Optical Time Domain Analysis (BOTDA) and Brillouin Optical Correlation Domain Analysis (BOCDA). The target audience for this course is research scholars, and engineers/scientists from Government laboratories.

Dates for the Course	**17th October 2016 -28th October 2016**
Host Institute	**IIT Madras**
No. of Credits	**2**
Maximum No. of Participants	**40**
You Should Attend If…	▪ You are an engineer working in the area of sensors ▪ You are a masters/research student wishing to pursue research in the area of optical sensors or allied areas ▪ You are a faculty in an academic institution teaching/wishing to pursue research in the area of optical sensors or allied areas
Course Registration Fees	The participation fees for taking the course is as follows: **Student Participants:** Rs.2000 **Faculty Participants:** Rs.6000 **Government Research Organization Participants**: Rs.10000 **Industry Participants:** Rs.20000 **Please register at http://www.gian.iitkgp.ac.in/** The above fee is towards participation in the course, the course material, and computer use for tutorials and assignments. **Mode of payment: Demand draft in favour of "Registrar, IIT Madras" payable at Chennai** The demand draft is to be sent to the Course Coordinator.
Accommodation	The participants may be provided with hostel accommodation, depending on the availability, on payment basis. Request for hostel accommodation may be submitted through the link: http://hosteldine.iitm.ac.in/iitmhostel

Course Faculty

Prof.Luc Thevenazis a Professor at the Swiss Federal Institute of Technology (EPFL) in Lausanne, Switzerland since September, 2008. At EPFL on different postdoctoral positions since 1988. Research in fibre optics and optical signal processingfor the development of new frontiers in sensing and communications. Leading one of the major groups in the world on distributed fibre optics sensors and a pioneer group in laser diode spectroscopy. He is a pioneer and specialist about slow & fast light in optical fibres. https://people.epfl.ch/luc.thevenaz

Prof Balaji Srinivasan is a faculty in the Department of Electrical Engineering, Indian Institute of Technology Madras, Chennai. His research interests include optical fiber sensors and fiber lasers. https://www.iitm.ac.in/info/fac/balajis

Deepa Venkitesh is an Associate Professor in the Department of Electrical Engineering, Indian Institute of Technology Madras Chennai. Her research interests include nonlinear optics, optical signal processing and fiber lasers. https://www.iitm.ac.in/info/fac/deepav.

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