

IEEE Sensors Journal

Special Issue on Optical Fiber Sensors

The IEEE Sensors Journal announces a special issue on optical fiber sensors in 2008.

Fiber optic sensing technology continues to be the subject of significant research endeavor investigating both the phenomena which can be utilized in sensing and the applications of techniques established within the laboratory. The ongoing interest is stimulated at the basic level by an ever increasing portfolio of technologies through which light may be caused to interact with the physical, chemical or biological conditions which surround it. In parallel the applications oriented research, in areas from bioscience to structural monitoring to environmental assessment, has specifically highlighted one or more of the unique benefits which fiber sensor technology offer. These include the ability to operate over long interrogation distances, complete immunity to electro magnetic interference, intrinsic safety and a very versatile range of measurand to lightwave transduction techniques. Further, as the technology enters application the research becomes ever more interdisciplinary, embracing issues such as self diagnosis and recalibration, sensor integration and data fusion, network architectures, packaging, system robustness and long term reliability.

This special issue on optical fiber sensors will contribute toward encapsulating recent exciting developments in the incorporation of new transduction mechanisms to the guided wave format whilst in parallel covering the continually expanding world of field trials and application assessments.

Optical fiber sensors continue to represent the core of the Special Issue, but the scope has been expanded to reflect growing new applications, new techniques and material interactions of fiber optic technology especially in the life sciences. Relevant topics include, but are not limited by:

- **Physical and Mechanical Sensors:**
Temperature, Pressure, Strain, Vibration, Acceleration, Flow, Rotation, Displacement.
- **Sensors for Electromagnetic Phenomena:**
Magnetic field, Electric field, Current, Voltage.
- **Chemical, Environmental, Biochemical and Medical Sensors:**
Spectroscopic techniques, Environmental monitoring, Instrumentation for the life-sciences, Biophotonics, In vivo applications, OCT.
- **Interferometric & Polarimetric Sensors:**
Gyroscopes, Hydrophones, Geophones, Magnetometers, Acoustic Sensor Arrays.
- **Distributed Sensing:**
Time, Frequency and coherence domain reflectometry, Rayleigh, Raman and Brillouin detection techniques, Sensing cable designs.
- **Multiplexing and Sensor Networking:**
Topologies and theories, Multiplexing techniques, System applications studies.
- **Passive & Active Devices for Photonic Sensing:**
Sources, Detectors, Modulators, Specialty fibers, Integrated optics devices, Fiber gratings, MEMS, Micro-optic components.
- **New Concepts for Photonic Sensing:**
2D and 3D photonic crystals, Hollow core fibers. Photonic crystal fibers
- **Nanophotonics:**
Nanomaterials and nano-optical devices, Metamaterials, Diffractive optics.
- **Signal Processing applied to Optical Fiber Sensors:**
Genetic Algorithms, Neural Networks, Data fusion, Pattern Recognition, Classification analysis, Statistical Methods.
- **System Applications and Field Trials:**
Including metrology; Process control, Avionics, Condition and environmental monitoring.
- **Smart Structures and Smart Materials:**
Surveillance networks for buildings, Monitoring for material fatigue, Stress monitoring of aircrafts, Smart materials.

We are inviting specialists in sensing from academia and industry to submit their latest research results as high quality journal paper manuscripts. Solicited and invited papers shall undergo the standard IEEE Sensors Journal peer review process. All manuscripts must be submitted on-line, via the *IEEE Manuscript Central*TM, see <http://sensors-ieee.manuscriptcentral.com>. Upon submission, authors should select the "2008 Optical Fiber Sensors Special Issue" Manuscript Type instead of "Regular Paper" as well as indicate in the Author Comments section that it is intended for the special issue. Authors for this Special Issue are encouraged to **suggest names of potential reviewers** for their manuscripts in the space provided for these recommendations in *Manuscript Central*. For manuscript preparation and submission, please follow the guidelines in the *Information for Authors* at the IEEE Sensors Journal web page, <http://www.ieee.org/sensors>.

Deadlines:

- Manuscript Deadline: **August 1, 2007**
- Acceptance Notification: November 1, 2007
- Final Manuscript due: January 15, 2008
- Tentative publication date: May, 2008

Guest Editors:

- Prof. B. Culshaw, University of Strathclyde, b.culshaw@eee.strath.ac.uk
- Prof. J.M. Lopez Higuera, University of Cantabria, higuera@teisa.unican.es
- Prof. A. Cusano, University of Sannio, a.cusano@unisannio.it
- Prof. I.R. Matias, Public University of Navarra, natxo@unavarra.es