

IEEE Sensors Journal

Special Issue on Photonic Crystal-Based Sensors

The IEEE Sensors Journal announces a special issue on photonic crystal-based sensors in 2009. The well-established field of optical fibers has recently experienced a revival triggered by the demonstration of fibers based on innovative structures and/or materials. One of the major players among these new fibers are photonic crystal fibers (PCFs), also known by the more general name of microstructured optical fibers (MOFs). The fabrication of these new structured waveguides has enabled the realization of fibers with unprecedented characteristics opening new research areas, both fundamental and applied.

PCFs combine the main advantages of standard optical fibers (the ability to operate over long interrogation distances, complete immunity to electro magnetic interference, intrinsic safety, potential low cost due mass production, small volume and weight, possibility of distributed sensing etc) with new and exciting possibilities created by the presence of thin and long air channels that run all the way along the length of the fiber. Not only can their optical properties be tailored much more widely, but also their acoustic and mechanical properties. Incorporating passive and active materials within the holes allows them to interact strongly with the optical mode, opening up new possibilities for monolithic and all-fiber chemical, biological and others sensors. Tapering and gratings in the fibers extend these possibilities.

This special issue on photonic crystal-based sensors will contribute toward encapsulating new exciting developments in this multidisciplinary and active research field. Relevant topics related with **sensing applications** include, but are not limited by:

- **Chemical, Biological, Biochemical, Environmental, Medical, Refractive index and Gas Sensors**
- **Pressure, Temperature, Strain, Vibration, Electric and Magnetic fields, Voltage and Electric Current sensors**
- **Sensors based on gratings in PCF (FBG and LPG)**
- **Tailoring the fiber acoustic and mechanical properties**
- **Integration of passive and active materials within the fiber**
- **Design of new fibers**
- **Fiber fabrication:** practical realization of new structured fibers
- **Non-silica PCFs:** soft-glasses and polymers PCFs
- **Solving practical problems:** splicing, filling, lateral access etc.
- **PCF tapering and coating**
- **Nano-photonics:** PCFs with nano-materials or nano-features

We invite the community working with sensing applications of photonic crystal and microstructured optical fibers to submit their latest research results as high quality journal paper manuscripts. Contributed 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://mc.manuscriptcentral.com/sensors>. Upon submission, authors should select the "**2009 Photonic Crystal-Based 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/sj>

Deadlines:

- **Manuscript Submission: June, 2009**
- Notification of Acceptance: September, 2009
- Final Manuscript due: October, 2009
- Tentative publication date: January, 2010

Guest Editors:

- Prof. **C.M.B. Cordeiro**, State Univ. of Campinas, cmbc@ifi.unicamp.br
- Prof. **M.V. Andrés**, University of Valencia, miguel.andres@uv.es
- Dr. **M.C. J Large**, University of Sydney, m.large@usyd.edu.au
- Prof. **I R. Matias**, Public University of Navarra, natxo@unavarra.es