

## "Industrial Wireless Sensor Networks"

**The Theme:** Both existing industrial systems and new emerging industrial applications require intelligent and low-cost industrial automation solutions to improve the productivity, safety, and efficiency of such systems. The collaborative intelligence and low-cost nature of industrial wireless sensor networks (IWSNs) brings several advantages over traditional wired industrial monitoring and control systems, including flexibility, self-configuration, rapid deployment, and an inherent intelligent processing capability. To this end, IWSN-based automation systems are increasingly taking advantage of the opportunities presented by information and communication technologies (ICT) to offer new and more effective functions and solutions. The specific constraints of the industrial automation domain on the other hand lead to new requirements towards the dependability – especially reliability, safety and security – of the ICT applied.

This Special Section is focused on the development, adoption and application of wireless sensor networks for the industrial environment with its unique requirements. Topics include, but are not limited to, the following research themes and technologies:

- Architectures, Protocols and Algorithms for Industrial Wireless Sensor Networks (IWSNs),
- Quality-of-Service (QoS) Issues and Network Management In IWSNs,
- Performance Evaluations and Simulations of IWSNs,
- Energy Management and Harvesting in IWSNs,
- RF Measurements and Channel Modelling in Industrial Environments,
- Resource Management and Scheduling in IWSNs,
- Cognitive Communications for Industrial Applications,
- Hardware Developments and Platforms for IWSNs and their Impact on Communication Protocols,
- Network Integration in Industrial Automation Systems (Heterogeneous Networks, Wired/Wireless) ,
- Security and reliability of IWSN applications,
- Advances in technologies for implementing IWSNs, e.g. RFID,
- Standards and Regulations for IWSNs,
- Field Tests and Pilot Projects.

The use of industrial wireless sensor networks opens up new application areas. Examples include, but are not limited to:

- ✓ Smart Manufacturing, Web-of-Things in the Factory Line,
- ✓ Home and Building Automation,
- ✓ Management of Infrastructure, such as Utilities and Road Networks,
- ✓ Intelligent Vehicle/Transport Systems, such as Traffic/Congestion Management,
- ✓ Safety and Security,
- ✓ Assisted Living/Citizen Well-being
- ✓ Smart Grids and Smart Metering.

Papers discussing new application areas and the resulting developments at the interface of information and communication technologies and these application environments are welcome. Results obtained by simulations must be validated by experiments or analytical results.

**Manuscript Preparation and Submission:** Follow the guidelines in “Information for Authors” in the IEEE Transaction on Industrial Informatics <http://tii.ieee-ies.org/>. Please submit your manuscript in electronic form through the Manuscript Central web site: <http://mc.manuscriptcentral.com/tii>. On the submitting page #1 in the popup menu of manuscript type, select: SS on Wireless Sensor Networks

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Extended versions of papers previously published in conference proceedings may be eligible for consideration if conditions listed in <http://tii.ieee-ies.org/o/PC.pdf> are fulfilled. Before submitting manuscript check the review criteria (<http://tii.ieee-ies.org/o/RC.pdf>) and other information (<http://tii.ieee-ies.org/o/DI.pdf>)

**Note:** The recommended papers for the section are subject to final approval by the Editor-in-Chief. Some papers may be published outside the special section at the EIC’s discretion.

**Timetable:**                      **Deadline for manuscript submissions**                      **December 1, 2012**

### Guest Editors:

**Gerhard P. Hancke**, Department of Electrical, Electronic and Computer Engineering, University of Pretoria, Pretoria, South Africa.

Tel: +27-12-420-3736; Fax: +27-12-3625000; E-mail: [g.hancke@ieee.org](mailto:g.hancke@ieee.org)

**V. Çağrı Güngör**, Department of Computer Engineering, Bahcesehir University, Beşiktaş, İstanbul, Turkey.

Tel: +90-212-381-0896; Fax: +90-212-381-0550; Fax: [cagri.gungor@bahcesehir.edu.tr](mailto:cagri.gungor@bahcesehir.edu.tr)

**Gerhard P. Hancke**, Information Security Group, Royal Holloway, University of London, Egham, United Kingdom.

Tel: + 44 1784 414922; Fax: +44 1784 430766; E-mail: [ghancke@ieee.org](mailto:ghancke@ieee.org)

**Editor-in-Chief:** **Bogdan M. Wilamowski**, <http://tii.ieee-ies.org/> [eic.tii@gmail.com](mailto:eic.tii@gmail.com) Tel: +1-334-844-1629 Fax: +1-334-844-1888  
Director of Alabama Nano/Micro Science and Technology Center, Auburn University, 200 Broun Hall, AL 36849-5201, USA.