

**Special Session on**

**“Industrial Cyber-Physical Systems: Applications, Challenges and Trends”**

**Organized by**

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**Call for Papers**

Today we see that the rapid proliferation of Information Communication Technologies (ICT) in industry is transforming industrial environments into multifaceted systems featuring tight coordination between the physical and computational elements, resulting in the formation of the so-called Industrial Cyber-Physical Systems (ICPS). Digitalization and interconnection of machines, products, services, enterprises, and humans are expected to generate significant opportunities and benefits, assuming the risks and challenges are properly addressed (A. W. Colombo et al., 2017, p.6, doi: 10.1109/MIE.2017.2648857). These challenges are imposed by different industrial technologies applied in ICPS, such as wireless technologies, cloud/fog communication and computing, and heterogeneous computing for big data analysis, to meet the ultrahigh reliability and ultralow latency requirements as well as security and safety in mission-critical automation and control systems, be it robotic networks and discrete manufacturing or process automation. Therefore, this special session is targeted at researchers and industrialists to present and discuss research work related to innovative approaches, theory and methodology of applying the above advancing technologies in industrial domains.

**Topics of the Session:**

Topics of interest include, but are not limited to:

- Concepts, methodology and solutions for ultra-reliable and low latency ICPS
- Enhanced industrial network architectures, including the convergence of wired and wireless networks, heterogeneous systems, etc.
- Cloud, edge and fog computing for ICPS, including resource management, network slicing, etc.
- Relay, D2D, Cloud-RAN and cooperative networks for industrial applications
- Big data analysis for ICPS real-time control
- Virtualization of physical components in cloud-ICPS
- Emerging 5G technology for ICPS
- Industrial wireless sensor and actuator network for monitoring and control
- Measurements and channel modelling for various industrial environments
- Modeling, simulations and validation of ICPS
- Energy-efficient data transmission for ICPS
- Application-driven cross-layer optimization of communication layers
- Security/privacy solutions for ICPS
- Microarchitecture design on heterogeneous processor/system