

Beyond 5G Advanced Manufacturing

Theme: Embedded sensors and actuators facilitate real-time monitoring and closed-loop control of large-scale cyber-physical systems (CPS) or Internet of Things (IoT) systems. Real-time coordination of CPS/IoT systems, from monitoring system performance, collecting and processing multi-dimensional data, to taking actions on managing all associated devices is a challenging task because the system performance varies with temperature, working environment, internal uncertainties and external disturbances in each specific industrial equipment. By taking the advantages of 5G technology, it is possible to improve real-time accuracy over geographically diverse IoT-enabled sensors and actuators.

Developing innovative data streaming mode and associated technology for managing cyber-physical systems may revolutionize the design, synthesis, production methods and manufacture processes in advanced manufacturing, such as robotics, CNC machines, contactless machining, automated vehicle, rechargeable batteries.

This special issue will call for innovative solutions to narrow the gaps between 5G and advanced manufacturing and identifying the associated challenges, and guiding researchers to bridge the gaps.

Potential topics of interest include, but are not limited to:

- 5G cloud and cloud-edge collaborative computing
- Cyber-physical systems
- Streaming data for 5G-enabled systems
- Federation Learning
- Edge Computing
- Cryptographic library
- AI and high precision technologies
- Machine learning and optimization
- 3D printing and surface reconstruction
- Real-time control of industrial systems uncertainties (both internal and external)
- High Performance Computing (HPC) for modeling, simulation and analysis
- Advanced robotics and other intelligent production systems
- Mechanical and mechatronics
- Remote sensing and applications
- Sustainable green energy and technologies
- Innovative new batteries and battery management technology
- Distributed control and distributed model predictive control
- Advanced approaches for smart actuators and data processing
- Security and dependability for communication networks
- Virtual reality and augmented reality
- Consensus

Manuscript Preparation and Submission

Follow the guidelines in “Information for Authors” in the IEEE Transaction on Industrial Informatics <http://www.ieee-ies.org/pubs/transactions-on-industrial-informatics>. Please submit your manuscript in electronic form through Manuscript Central web site: <https://mc.manuscriptcentral.com/tii>. On the submitting page #1 in popup menu of manuscript type, select: SS on **Beyond 5G Advanced Manufacturing**

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Regular manuscript length is 8 pages.

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 discretion.

Timetable:	Deadline for manuscript submissions	November 30, 2021
	Expected publication date (tentative)	July 2022

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