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# Call for Papers

Announcing a Special Issue of the IEEE

JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS on

## Photonics for Industry 4.0

**Submission Deadline: February 1, 2021**

**Hard Copy Publication: November/December 2021**

**Light Sciences and Technologies** (**Photonics**) will play a relevant role in the envisioned Smart Factory of the fourth Industrial revolution (Industry 4.0). The IEEE Journal of Selected Topics in Quantum Electronics (JSTQE) invites manuscript submissions in **Photonics for Industry 4.0** which **concerns with the automatic collection of data from machines, processes, applications, and transforming that data into immediate insights.** Design, simulation, fabrication equipment and processes, on-line failure detection, quality control, safety and security, and storage, among others, must be all integrated in a factory system. Smart factories must be driven by intelligence on demand.

The ***IEEE Journal of Selected Topics in Quantum Electronics*** (JSTQE) invites manuscript submissions in the area of **Light Based Technologies for Industry 4.0**. Areas of interest include (but are not limited to):

- **A)** **Light Based Advanced Communications for Industry 4.0:** 1-**Devices, Subsystems, Systems and Networks based on Optical technologies** (for low-latency and low-jitter local-area and wide-area networking; for accommodating large numbers of small end-users; architectures enabling autonomy and security in Industry 4.0 applications; highly reliable optical communication systems and networks for robust and safe manufacturing environments). 2-**Microwave Photonics.** 3-**Reliable and High-Speed Optical Wireless** technologies such as **LiFi.** 4-**Hybrid-Technology Communication Systems and Networks** (e.g. optical/wireless).
- **B)** **Light Based Sensing for Industry 4.0:** 5-**Non Image Based Sensors** and **Sensor Networks** (using optical fiber and optical/optoelectronic integrated technologies; laser, spectroscopic, fluorescence/colorimetric, plasmonic and wireless light based sensors). 6-**Image-Based Sensors** (sensors that use images to detect and/or to measure measurands). 7-**Smart Sensors** (light based sensors supplying actuation signals in the electric domain). 8-**Sensor Fusion** (integration of multiple sensors to reduce the amount of uncertainty and improve the reliability of devices, systems or processes). 9-**Other Photonic Based Sensors** for Industry 4.0.
- **C)** **Light Based Advanced Manufacturing.** Material welding and material treatments for **Digital Laser Advanced Manufacturing:** 10-**Laser Additive and Subtractive** advanced fabrication (3D two-photon polymerization, isomerization; multiphoton lithography, printing hybrid devices by laser, selective laser sintering, laser subtractive manufacturing, laser forward transfer). 11-**Laser Materials Advanced Treatments** (surface functionalization, refraction index custom functionalization on/in optical materials, materials welding, laser-based hybrid processing, modeling of laser-material processes for quantitative prediction of critical parameters). 12-**Emerging Ultrafast Laser Technologies and Systems** for advanced fabrication.
- **D)** **Transversal Topics for Photonics in Industry 4.0:** 13- **Hybrid Optical Technologies** combining communications with metrology, sensing, or materials processing. 14- **Automation and the Role of the Cloud** in light-based technologies. 15-**Artificial Intelligence**, AI, for optical communications, sensors, sensor networks, and advanced manufacturing. 16-**Augmented Reality**, AR, for Industry 4.0.

The **Primary Guest Editor** for this issue is **Prof. José Miguel López-Higuera**, *University of Cantabria, Spain*. The **Guest Editors** are: **Dr. Peter Winzer**, *Past IEEE/OSA JLT Editor in Chief, USA*; **Prof. Tong Sun**, *City University, London, UK*; **Prof. Wei Jin**, *The Hong Kong Polytechnic University, China*; **Prof. Alberto Piqué,** U.S. Naval Research Laboratory, USA*, USA*; **Prof. Carlos Molpeceres Alvarez,** *Laser Centre of UPM, Spain*. The deadline for submission of manuscripts is **February 1, 2021**. Hardcopy publication of the issue is scheduled for **November/December 2021.**

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**For inquiries, please contact: IEEE Photonics Society, JSTQE Editorial Office. Chin Tan Lutz. Phone: 732-465-5813, Email: c.tanlutz@ieee.org**
The following documents located at http://mc.manuscriptcentral.com/jstqe-pho are required during the mandatory online submission.

PDF or MS Word manuscript (double column format, up to 12 pages for an invited paper, up to 8 pages for a contributed paper). Manuscripts over the standard page limit will have an overlength charge of $220.00 per page imposed. Biographies of all authors are mandatory, photographs are optional. See the Tools for Authors link:
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