Special Issue

Recent Trends in Distributed Optical Fiber Sensing Technology

Message from the Guest Editors

Distributed optical fiber sensing (DOFS) technology has attracted much attention for static and dynamic measurements. The optical mechanisms include Brillouin, Rayleigh and Raman scattering, as well as some interferometric approaches. Over the last decade, researchers have made great efforts to develop high-performance distributed fiber sensors by improving the spatial resolution, dynamic response, sensing distance, measurement accuracy, frequency response range, and so on. Performance-enhancing methods have included the use of optical frequency combs, pulse coding, smart optical amplification schemes, signal processing techniques, artificial intelligence, and many others. Meanwhile, DOFS technology has been adopted in a wide range of application fields, such as structural health monitoring, intrusion detection, pipeline monitoring, fire detection, traffic tracking, geological exploration, and so on.

- distributed optical fiber sensing
- optical fibers
- Rayleigh scattering, Raman scattering, and Brillouin scattering
- distributed monitoring

Guest Editors

Dr. Liyang Shao

Department of Electrical and Electronic Engineering, Southern University of Science and Technology, Shenzhen 518055, China

Dr. Feng Wang

Key Laboratory of Intelligent Optical Sensing and Manipulation, Ministry of Education, College of Engineering and Applied Sciences, Nanjing University, Nanjing 210023, China

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Sensors
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
sensors@mdpi.com

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Editor-in-Chief

Prof. Dr. Vittorio M. N. Passaro
Dipartimento di Ingegneria Elettrica e dell'Informazione (Department of Electrical and Information Engineering), Politecnico di Bari, Via Edoardo Orabona n. 4, 70125 Bari, Italy

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