



Handbook of Optical Sensors

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Handbook of Optical Sensors provides a comprehensive and integrated view of optical sensors, addressing the fundamentals, structures, technologies, applications, and future perspectives. Featuring chapters authored by recognized experts and major contributors to the field, this essential reference:

- Explains the basic aspects of optical sensors and the principles of optical metrology, presenting a brief historical review
- Explores the role of optical waveguides in sensing and discusses sensor technologies based on intensity and phase modulation, fluorescence, and plasmonic waves
- Describes wavefront sensing, multiphoton microscopy, and imaging based on optical coherence tomography
- Covers optical fiber sensing, from light guiding in standard and microstructured optical fibers to sensor multiplexing, distributed sensing, and fiber Bragg grating
- Offers a broad perspective of the field and identifies trends that could shape the future, such as metamaterials and entangled quantum states of light

Handbook of Optical Sensors is an ideal resource for practitioners and those seeking optical solutions for their specific needs, as well as for students and investigators who are the intellectual driving force of optical sensing.

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Review

"... an extremely useful reference source for optical sensor designers and for those who apply these types of sensors."

?John J. Shea, *IEEE Electrical Insulation Magazine*, November/December 2015

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?*Optics & Photonics News*, May 2015

"... a valuable resource tool for both researchers and industrialists alike seeking to update their knowledge and understanding of the principles behind optical sensing and the diversity of fibre optic sensor systems. It further serves to highlight the potential of optical sensing technology to meet the ever-increasing needs of society for monitoring and control in diverse areas ranging from medical applications to environmental monitoring and industrial process control."

?Prof. George Stewart, Centre for Microsystems and Photonics, Department of Electronic and Electrical Engineering, University of Strathclyde, Glasgow, Scotland

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?David A. Jackson, FInstP, FOSA, Emeritus professor of applied optics, School of Physical Sciences, University of Kent, Canterbury, UK

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"... provides a comprehensive and integrated view of optical sensors, addressing the fundamentals, structures, technologies, applications, and future perspectives. ... The 28 authors of these chapters are recognised experts in their areas of research and are major contributors to this field. Therefore, the book offers a broad perspective of the field and identifies trends that could shape the future, such as metamaterials and entangled quantum states of light. This is an ideal resource for practitioners and those seeking optical solutions for their specific needs, as well as for students, researchers, engineers, and technicians in all these fields."

?J. Albaigés, CID-CSIC, Barcelona, Spain, from *International Journal of Environmental Analytical Chemistry*, 2015

About the Author

José Luís Santos earned his licenciatura in physics and Ph.D from the University of Porto, Portugal,

benefiting from a collaboration with the University of Kent at Canterbury, UK. He is currently a professor of physics in the Physics and Astronomy Department of the Faculty of Sciences of the University of Porto. He is also a researcher with the INESC TEC-Centre for Applied Photonics (formerly INESC Porto/Optoelectronics and Electronic Systems Unit). His main area of research is optical fiber sensing, with a focus on interferometric- and wavelength-encoded devices. He has authored/coauthored over 200 scientific articles and coauthored 5 patents.

Faramarz Farahi earned his BS from Sharif University of Technology, Tehran, Iran; MS from Southampton University, UK; and Ph.D from the University of Kent at Canterbury, UK. He is currently a professor at the University of North Carolina at Charlotte, USA, where he is a member of the Center for Optoelectronics and Optical Communications and the Center for Precision Metrology, and has been the chair of the Department of Physics and Optical Science. Dr. Farahi has over 25 years of experience in the field of optical fiber sensors and devices, has authored/coauthored over 200 scientific articles and texts, and holds 10 patents.

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