Record Nr.	UNINA9910453229503321
Titolo	Photonics for safety and security / / editors, Antonello Cutolo, University of Sannio, Italy, Anna Grazia Mignani, CNR - Institute of Applied Physics 'Nello Carrara,' Italy, Antonella Tajani, CNR, Italy
Pubbl/distr/stampa	New Jersey : , : World Scientific, , [2014] ©2014
ISBN	981-4412-97-X
Descrizione fisica	1 online resource (435 p.)
Altri autori (Persone)	CutoloAntonello MignaniAnna Grazia TajaniAntonella
Disciplina	621.365
Soggetti	Photonics Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	 Preface; Contents; 1. What is Photonics? B. Culshaw; 1. Introduction; 2. Photons - Waves or Particles?; 3. Manipulating Photons: Structures and Materials; 4. Photonics and Materials; 5. Some other Manifestations of Photonics; 6. Some Final Observations; References; 2. Structural Health Monitoring in Buildings, Bridges and Civil Engineering A. Martone, M. Zarrelli, M. Giordano and J. M. Lopez-Higuera; 1. Challenges for Structural Health Monitoring; 1.1. Implementation of SHM; 2. Optical Sensor for Structural Health Monitoring; 2.1. Strain Measurement using FBG Sensors 2.1.1. Temperature Compensation2.1.2. Multiplexing and Networking of FBG Sensors; 2.2. FBG-based Sensors; 2.2.1. Accelerometers; 2.2.2. Inclinometers; 2.3. Distributed Strain Sensing; 3. Applications of FBG in Structural Sensing; 3.1. Civil Construction; 3.2. Bridges; 3.3. Geodynamic; 4. OFS Market; Acknowledgments; References; 3. Remote Sensing Monitoring D. Riccio; 1. Introduction; 2. Global Monitoring for Environment and Security; 2.1. Land; 2.2. Water; 2.3. Atmosphere; 3. Space Segment; 3.1. Synthetic Aperture Radars; 3.2. Optical Sensors; 3.2. Radiometers; 3.3. Spectrometers

1.

	 3.4. Altimeters3.5. Scatterometers; 4. Conclusions; Acknowledgments; References; 4. Photonic Technologies for the Safeguarding of Cultural Assets C. Cucci and V. Tornari; 1. Introduction; 2. Optical Sensors and Optical Fibers-based Devices for Applications in Museums; 2.1. Introduction; 2.2. Colorimetric Passive Sensors for Museum Environments; 2.3. Optical Fibers-based Systems for the Safety and Control of Cultural Items; 3. The Use of Laser Interferometry in the Direct Impact Assessment of Museum Objects in Transit; 3.1. Introduction; 3.1.1. Impact in Structural Documentation Terms 3.1.2. Laser-Coherent Interferometry in Structural Documentation3.2. Impact Assessment Procedure; 3.3. Interferometry Principle; 3.4. Direct Impact Assessment in Brief; 3.5. Characteristic Examples; 3.5.1. Wooden Panel Paintings: Impact with Ageing; 3.5.2. Model Canvas Paintings: Accidental Impact; 3.5.3. Short-Term vs. Long-Term Impact; 4. Conclusions; Acknowledgments; References; 5. Raman Based Distributed Optical Fiber Temperature Sensors: Industrial Applications and Future Developments F. Di Pasquale, M. A. Soto and G. Bolognini; 1. Introduction; 2. Physical Mechanism and Theory 3. Industrial Applications3.1. Fire Detection; 3.2. Leakage Detection in Pipelines; 4. Advanced Raman DTS Solutions: Raman DTS using Single-Mode Fibers and Advanced Coding Techniques; 4.1. Optical Pulse Coding for RDTS Systems; 4.2. Cyclic Pulse Coding for RDTS Systems over Single-Mode Fibers; 4.3. Long-Range Coded RDTS with Meter Scale Spatial Resolution; 5. Conclusions; Acknowledgments; References; 6. Photonics for Detection of Chemicals, Drugs and Explosives A. Garibbo and A. Palucci; 1. Introduction; 2. Addressable Threats; 2.1. Biological and Chemical Warfare Agents; 2.2. Explosives
Sommario/riassunto	This volume aims to illustrate the state-of-the-art as well as the newest and latest applications of photonics in safety and security. The contributions from renowned and experienced Italian and international scientists, both from the academic and industrial community, present a multidisciplinary and comprehensive overview of this popular topic. The volume is self-contained and offers a broad survey of the various emerging technologies, as well as their applications in the real world. It spans from applications in cultural heritage, to environment, space, monitoring of coasts, quantum cryptogr