

1. Record Nr.	UNINA9910784597803321
Titolo	Counterterrorist detection techniques of explosives [[electronic resource] /] / edited by Jehuda Yinon
Pubbl/distr/stampa	Amsterdam ; ; London, : Elsevier, 2007
ISBN	1-281-02637-9 9786611026370 0-08-054520-3
Descrizione fisica	1 online resource (455 p.)
Altri autori (Persone)	YinonJehuda
Disciplina	363.320946 662.2
Soggetti	Bombings - Prevention Explosives - Detection Terrorism - Prevention
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	Front Cover; Counterterrorist Detection Techniques of Explosives; Copyright Page; Table of Contents; Introduction; About the Editor; Contributors; Chapter 1 Detection of Explosives by Chemiluminescence; 1. Introduction; 2. Chemiluminescence systems in explosive analysis; 3. Using chemiluminescence as detection technology in security; References; Chapter 2 Detection of Explosives by Mass Spectrometry; 1. Introduction; 2. Mass spectrometry - principles of operation; 3. Detection of explosives by mass spectrometry methods; 4. Miniature and mobile mass spectrometers; 5. Conclusions; References Chapter 3 Explosives Detection Using Differential Mobility Spectrometry1. Introduction; 2. Background and principles of DMS; 3. Technology of DMS; 4. Studies of explosives by field asymmetric IMS; 5. Explosives determination with a micro-fabricated differential mobility spectrometer; 6. Fast GC with DMS; 7. The EGIS Defender: a commercial high-speed GC-DMS analyzer; 8. Next developments in DMS and IMS determinations of explosives; 9. Conclusions; Acknowledgments; References; Chapter 4 Electrochemical Sensing of Explosives; 1. Introduction; 2. Electrochemistry of explosive materials

3. Easy-to-use disposable electrode strips for explosives
 4. Real-time electrochemical monitoring;
 5. Lab-on-a-chip electrochemical detection of explosives;
 6. Conclusions; Acknowledgments; References;
 Chapter 5 Explosive Vapor Detection Using Microcantilever Sensors;
 1. Introduction; 2. Theory; 3. Apparatus; 4. PARC for analyte identification; 5. Results and discussion; 6. Conclusions; Acknowledgments; References;
 Chapter 6 Neutron Techniques for Detection of Explosives;
 1. Introduction; 2. Neutron techniques; 3. Practical issues; 4. Summary; References
 Chapter 7 Nuclear Quadrupole Resonance Detection of Explosives
 1. Introduction; 2. Basic NQR Physics; 3. NQR detection hardware; 4. Signal excitation methods; 5. NQR explosives detection; 6. Outlook; References;
 Chapter 8 X-ray Diffraction Imaging for Explosives Detection;
 1. Introduction and history of X-ray diffraction imaging; 2. Physical principles of XDI; 3. XRD characterization of explosives; 4. Tomographic imaging techniques; 5. Next-generation XDI; 6. Future outlook; Acknowledgments; References;
 Chapter 9 Detection of Explosives by Millimeter-wave Imaging;
 1. Introduction
 2. Background
 3. Millimeter-wave imaging system architectures and components; 4. Imaging system design considerations; 5. Millimeter-wave imaging systems and results; 6. Conclusion; Acknowledgments; References;
 Chapter 10 Laser-based Detection Methods of Explosives;
 1. Introduction; 2. Detection of explosives using laser-based vibrational spectroscopy; 3. Laser-induced breakdown spectroscopy (LIBS); 4. Other laser-based methods for explosive detection; References;
 Chapter 11 Detection of Explosives by Terahertz Imaging;
 1. Introduction; 2. Terahertz radiation; 3. Terahertz imaging techniques
 4. Interferometric imaging with terahertz

Sommario/riassunto

The detection of hidden explosives has become an issue of utmost importance in recent years. While terrorism is not new to the international community, recent terrorist attacks have raised the issue of detection of explosives and have generated a great demand for rapid, sensitive and reliable methods for detecting hidden explosives. Counterterrorist Detection Techniques of Explosives covers recent advances in this area of research including vapor and trace detection techniques (chemiluminescence, mass spectrometry, ion mobility spectrometry, electrochemical methods and micromechanical sensors,