1. Record Nr. UNINA9911020099103321

Titolo	Forensic analysis on the cutting edge : new methods for trace evidence analysis / / Robert D. Blackledge, editor
Pubbl/distr/stampa	Hoboken, NJ, : J. Wiley & Sons, c2007
ISBN	9786610935239 9781280935237 1280935235 9780470166932 0470166932 9780470166901 0470166908
Descrizione fisica	1 online resource (490 p.)
Altri autori (Persone)	BlackledgeRobert D
Disciplina	363.25/62
Soggetti	Forensic sciences Criminal investigation
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	Forensic Analysis on the Cutting Edge; Contents; Preface; Foreword; Contributors; 1. All that Glitters Is Gold!; 1.1 What Is Glitter?; 1.2 The Ideal Contact Trace; 1.2.1 Nearly Invisible; 1.2.2 High Probability of Transfer and Retention; 1.2.3 Highly Individualistic; 1.2.4 Quickly and Easily Collected, Separated, and Concentrated; 1.2.5 Easily Characterized; 1.2.6 Computerized Database Capability; 1.3 Characterization Methods; 1.3.1 Color; 1.3.2 Morphology; 1.3.3 Shape; 1.3.4 Size; 1.3.5 Specific Gravity; 1.3.6 Thickness; 1.3.7 Cross Section; 1.3.8 Infrared Spectra 1.3.9 Raman Microspectroscopy1.3.10 Scanning Electron Microscopy/Energy Dispersive Spectroscopy; 1.4 Glitter as Evidence in Criminal Cases; References; 2. Forensic Analysis of Automotive Airbag Contact-Not Just a Bag of Hot Air; 2.1 History of Airbags; 2.2 How Do Airbags Work?; 2.3 Types of Forensic Evidence to Look for; 2.4 Airbag Case Reports and Examples; 2.5 Changes that Are Occurring; 2.6 Final Discussion; References; 3. Ink Analysis Using UV Laser Desorption Mass

Spectrometry; 3.1 Introduction; 3.2 The Instrumentation; 3.3 The Analyte Target Molecules
3.4 LDMS for the Analysis of Dyes in Pen Inks3.5 Related Applications; 3.6 LDMS Analyses that "Don't Work"; 3.7 Conclusions; Acknowledgments; References; 4. Condom Trace Evidence in Sexual Assaults: Recovery and Characterization; 4.1 Introduction; 4.1.1 Forensic Significance; 4.1.2 Production, Sale, and Use of Condoms; 4.1.3 Condom Production; 4.2 Examination for Condom Residue Traces; 4.3 Forensic Evaluation of the Substances and Examinations; 4.4 Case Studies; References; 5. Latent Invisible Trace Evidence: Chemical Detection Strategies; 5.1 Introduction; 5.2 Latent Bloodstain Detection
5.3 Fingerprint Detection with Near-Infrared Dyes5.4 Pepper Spray Detection; 5.4.1 Pepper Spray Detection Using Near-Infrared Fluorescent Dyes; 5.4.2 Pepper Spray Detection Using Chemical Derivatization; References; 6. Applications of Cathodoluminescence in Forensic Science; 6.1 Introduction; 6.2 Theory; 6.2.1 Luminescence Terminology; 6.2.2 Electron Source; 6.2.3 Cathodoluminesence; 6.2.4 Limitations; 6.3 Instrumentation; 6.3.1 Electron Source; 6.3.2 Microscope; 6.3.3 Camera; 6.3.4 Spectrometer; 6.3.5 SEM-CL; 6.4 Techniques and Forensic Considerations; 6.4.1 Instrumental Conditions 6.4.2 Sample Preparation and Preservation6.4.3 Image Collection; 6.4.4 Spectral Collection; 6.4.5 Luminescence Fading; 6.4.6 Sample Alteration; 6.5 Luminescent Minerals; 6.5.1 Calcium Carbonate Group; 6.5.2 Feldspar Group; 6.5.3 Quartz; 6.5.4 Accessory Minerals; 6.6 Forensic Applications; 6.6.1 Screening and Comparison; 6.6.2 Identification; 6.6.3 Authentication; 6.6.4 Provenance; 6.7 Geological Samples: Soil and Sand; 6.8 Anthropogenic Materials; 6.8.1 Cement and Concrete; 6.8.2 Slag, Fly Ash, and Bottom Ash; 6.8.3 Glass; 6.8.4 Paint; 6.8.5 Duct Tape; 6.9 Conclusions and Outlook
Acknowledgments

Sommario/riassunto

This title brings forensic scientists and chemists up-to-date on the latest instrumental methods for analysing trace evidence, including mass spectrometry, image analysis, DIOS-MS, ELISA characterization, statistical validation, and others.Illustrates comparative analysis of trace evidence by both old and new methods.Explains why some newer methods are superior to older, established methods.Includes chapters on analysis of DNA, ink, dyes, glitter, gun powder traces, condom trace evidence, footwear impressions, toolmark impressions, surveillance videos, glass particles, and dirt