



## Biophotonics for medical applications [

Meglinski, Igor

Woodhead Publishing is an imprint of Elsevier, 2015

Monografía

Biophotonics for Medical Applications presents information on the interface between laser optics and cell biology/medicine. The book discusses the development and application of photonic techniques that aid the diagnosis and therapeutics of biological tissues in both healthy and diseased states. Chapters cover the fundamental technologies used in biophotonics and a wide range of therapeutic and diagnostic applications. Presents information on the interface between laser optics and cell biology/medicine Discusses the development and application of photonic techniques which aid the diagnosis

<https://rebiunoda.pro.baratznet.cloud:38443/OpacDiscovery/public/catalog/detail/b2FpOmNlbGVicmF0aW9uOmVzLmJhcmF0ei5yZW4vMTc3ODE0NDk>

**Título:** Biophotonics for medical applications [Recurso electrónico] edited by Igor Meglinski

**Editorial:** Cambridge, UK Woodhead Publishing is an imprint of Elsevier 2015

**Descripción física:** 1 recurso electrónico

**Mención de serie:** Woodhead Publishing series in biomaterials n. 82 Science Direct e-books

**Nota general:** Incluye índices

**Contenido:** Front Cover; Biophotonics for Medical Applications; Copyright; Contents; Contributors; Woodhead Publishing Series in Biomaterials; Part One: Materials, technologies, and processes; Chapter 1: Multimodal diffuse optical imaging for biomedical applications; 1.1. Introduction; 1.1.1. Light interaction with biological tissue; 1.1.2. Multimodal approaches in optical imaging; 1.2. Optical imaging platforms for multimodal imaging; 1.2.1. Optical imaging instrumentation; 1.2.2. Multimodal optical platforms; 1.2.2.1. Optical-MRI platforms; 1.2.2.2. Optical-CT platforms; 1.2.2.3. Optical-US platforms 1.2.2.4. Fusion of optical imaging with PET 1.3. Theoretical considerations; 1.3.1. Forward modeling methods; 1.3.2. Multimodality optical imaging and use of structural priors; 1.4. Clinical applications of multimodal optical imaging; 1.5. Future perspectives in multimodal optical imaging; References; Chapter 2.3. Potential applications 2.3.1. Switchable wettability on photoresponsive surfaces; 2.3.2. Optical switches; 2.3.3. Optobioelectronic devices; 2.3.4. Biocatalysts; 2.3.5. Biosensors; 2.3.6. Biomedical engineering; 2.4. Conclusions and future trends; References; Chapter 3: Optical fibres and sensors for biomedical applications; 3.1. Optical fibres; 3.1.1. Geometry and refractive index; 3.1.2. Propagation; 3.1.3. Fabrication and materials; 3.1.4. Optical fibre sensor technologies; 3.1.4.1. Intensity-modulated sensors; 3.1.4.2. Phase-modulated sensors; 3.1.5. Micro/nanofibres 3.1.6. Photonic crystal fibres 3.2. Optical fibre sensors; 3.2.1. Biomolecular sensors; 3.2.2. Cellular microenvironment sensors; 3.2.3. Temperature sensors; 3.2.4. pH sensors; 3.2.5. Gas sensors; 3.2.5.1. Oxygen sensors; 3.2.5.2. Carbon dioxide sensors; 3.2.6. Blood flow sensors; 3.2.7. Pressure

sensors; References; Chapter 4: Laser processing of medical devices; 4.1. Introduction; 4.2. Laser cutting; 4.2.1. Introduction; 4.2.2. CO2 laser cutting of metals; 4.2.3. CO2 laser cutting of non-metals; 4.2.4. Nd:YAG laser cutting; 4.2.5. Fibre laser cutting; 4.2.6. Ultrafast lasers 4.2.7. Materials and applications 4.3. Laser drilling; 4.3.1. Introduction; 4.3.2. Pulsed Nd:YAG laser drilling; 4.3.3. Other laser drilling processes; 4.4. Micromachining; 4.4.1. Introduction; 4.5. Surface texturing; 4.5.1. Introduction; 4.5.2. Formation of textured surfaces; 4.6. Conclusions; References; Part Two: Applications in therapeutics and diagnostics; Chapter 5: Biomedicine with surface enhanced Raman scattering (SERS); 5.1. Introduction; 5.2. Surface enhanced Raman scattering; 5.3. Theory of surface enhanced Raman scattering; 5.3.1. Electromagnetic SERS (EM-SERS) enhancement

**Detalles del sistema:** Forma de acceso: World Wide Web

**ISBN:** 9780857096746 0857096745 9780857096623

**Autores:** Meglinski, Igor

---

### **Baratz Innovación Documental**

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- informa@baratz.es