

# Biosensors for medical applications

## **Related titles:**

### *Biomaterials, artificial organs and tissue engineering* (ISBN 978-1-85573-737-2)

Biomaterials are materials and devices that are used to repair, replace or augment the living tissues and organs of the human body. The purpose of this wide-ranging introductory textbook is to provide an understanding of the needs, uses and limitations of materials used in the human body and to explain the biomechanical principles and biological factors involved in achieving the long-term stability of replacement parts in the body. This book examines the industrial, governmental and ethical factors involved in the use of artificial materials in humans and discusses the principles and applications of engineering of tissues to replace body parts. The approach necessarily incorporates a wide range of reference material because of the complex multidisciplinary nature of the fields of biomedical materials, biomechanics, artificial organs and tissue engineering. There is an accompanying CD-ROM providing supplementary information and illustrations to support the book.

### *Surfaces and interfaces for biomaterials* (ISBN 978-1-85573-930-7)

This book presents our current level of understanding on the nature of a biomaterial surface, the adaptive response of the biomatrix to that surface, techniques used to modify biocompatibility and state-of-the-art characterisation techniques to follow the interfacial events at that surface.

### *Shape memory alloys for biomedical applications* (ISBN 978-1-84569-344-2)

Shape memory metals are suitable for a wide range of biomedical devices, including applications in dentistry, bone repair, urology and cardiology. This book provides a thorough review of shape memory metals and devices for medical applications. The first part of the book discusses the materials, primarily Ti–Ni based alloys; chapters cover the mechanical properties, thermodynamics, composition, fabrication of parts, chemical reactivity, surface modification and biocompatibility. Medical and dental devices using shape memory metals are reviewed in the following section; chapters cover stents, orthodontic devices and endodontic instruments. Finally, future developments in this area are discussed including alternatives to Ti–Ni-based shape memory alloys.

Details of these and other Woodhead Publishing materials books can be obtained by:

- visiting our website at [www.woodheadpublishing.com](http://www.woodheadpublishing.com)
- contacting Customer Services (e-mail: [sales@woodheadpublishing.com](mailto:sales@woodheadpublishing.com); fax: +44 (0) 1223 832819; tel.: +44 (0) 1223 499140 ext. 130; address: Woodhead Publishing Limited, 80 High Street, Sawston, Cambridge CB22 3HJ, UK)
- in North America, contacting our US office (e-mail: [usmarketing@woodheadpublishing.com](mailto:usmarketing@woodheadpublishing.com); tel. (215) 928 9112; address: Woodhead Publishing, 1518 Walnut Street, Suite 1100, Philadelphia, PA 19102-3406, USA)

If you would like e-versions of our content, please visit our online platform: [www.woodheadpublishingonline.com](http://www.woodheadpublishingonline.com). Please recommend it to your librarian so that everyone in your institution can benefit from the wealth of content on the site.

Woodhead Publishing Series in Biomaterials: Number 45

# Biosensors for medical applications

---

Edited by  
Séamus Higson



Oxford   Cambridge   Philadelphia   New Delhi