<<纳米技术手册>>

图书基本信息

书名：<<纳米技术手册>>

13位ISBN编号：9787560339535

10位ISBN编号：7560339530

出版时间：2013-1

出版时间：哈尔滨工业大学出版社

作者：布尚 编

<<纳米技术手册>>

内容概要

作者简介

编者：（美国）布尚（Bharat Bhushan）

<<纳米技术手册>>

书籍目录

章节摘录

 插图： 47.1.3 Introduction to BioMEMS／BioNEMS BioMEMS／bioNEMS are increasingly used in commercial and defense applications（see,e.g.,（47.54—61））.They are used for chemical and biochemical analyses（biosensors）in medical diagnostics（e.g.,DNA,RNA,proteins,cells,blood pressure and assays,and toxin identification）（47.61,62）,tissue engineering（47.63-65）, and implantable pharmaceutical drug delivery（47.66-68）.Biosensors,also referred to as biochips,deal with liquids and gases.There are two types of biosensors.A large variety of biosensors are based on micro—nanofluidics（47.61,69—71）.Micronanofluidic devices offer the ability to work with smaller reagent volumes and shorter reaction times,and perform analyses of multiple types at once.The second type of biosensors includes micro—nanoarrays which perform one type of analysis thousands of times（47.72-75）. A chip,called lab—on—a—CD,with micro—nanofluidic technology embedded on the disk can test thousands of biological samples rapidly and automatically（47.69）.An entire laboratory can be integrated onto a single chip,called a lab—on—a-chip（47.61,70,71）.Silicon—based disposable blood—pressure sensor chips were introduced in early 1990s by GE NovaSensor for blood—pressure monitoring （≈25 million units in 2004）.A blood-sugar monitor,referred to as GlucoWatch,was introduced in 2002.It automatically checks blood sugar every 10min by detecting glucose through the skin,without having to draw blood.If glucose is out of the acceptable range,it sounds an alarm so the diabetic patient can address the problem quickly.A variety of biosensors,many using plastic substrates,are manufactured by various companies including CLARA,Agilent Technologies,Calipertech,and I-STAT. The second type of biochips—micro—nanoarrays-is a tool used in biotechnology research to analyze DNA or proteins to diagnose diseases or discover new drugs.Also called DNA arrays,they Can identify thousand of genes simultaneously（47.57,72）.They include a microarray of silicon nanowires,roughly a few nm in size,to selectively bind and detect even a single biological molecule such as DNA or protein by using nanoelectronics to detect the slight electrical charge caused by such binding,or a microarray of carbon nanotubes to detect glucose electrically.

编辑推荐

版权说明