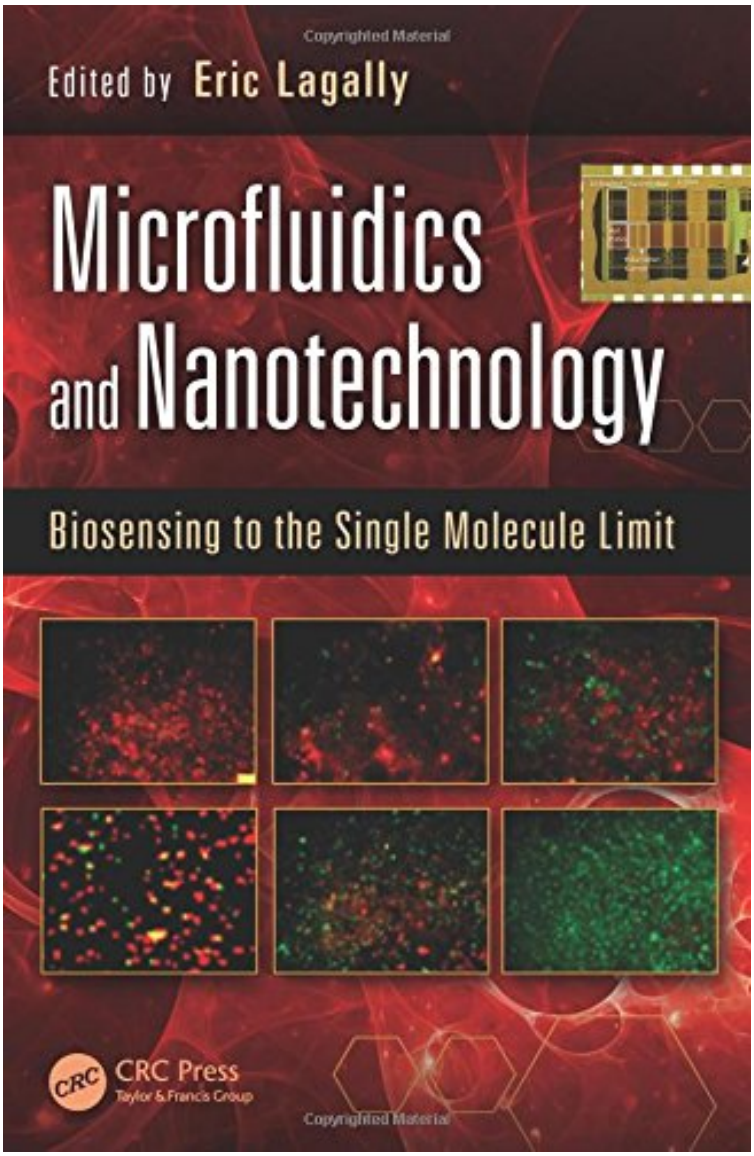
Microfluidics and Nanotechnology: Biosensing to the Single Molecule Limit (Devices, Circuits, and Systems)

From CRC Press
*DOC | *audiobook | ebooks | Download PDF | ePub*



#5115996 in Books 2014-05-27Original language:EnglishPDF # 1 .80 x 6.10 x 9.20l, 1.20 #File Name: 146659490X290 pages | File size: 36.Mb

From CRC Press : Microfluidics and Nanotechnology: Biosensing to the Single Molecule Limit (Devices, Circuits, and Systems) before purchasing it in order to gage whether or not it would be worth my time, and all

praised Microfluidics and Nanotechnology: Biosensing to the Single Molecule Limit (Devices, Circuits, and Systems):

An increasing number of technologies are being used to detect minute quantities of biomolecules and cells. However, it can be difficult to determine which technologies show the most promise for high-sensitivity and low-limit detection in different applications. Microfluidics and Nanotechnology: Biosensing to the Single Molecule Limit details proven approaches for the detection of single cells and even single moleculesapproaches employed by the worlds foremost microfluidics and nanotechnology laboratories. While similar books concentrate only on microfluidics or nanotechnology, this book focuses on the combination of soft materials (elastomers and other polymers) with hard materials (semiconductors, metals, and glass) to form integrated detection systems for biological and chemical targets. It explores physical and chemicalas well as contact and noncontactdetection methods, using case studies to demonstrate system capabilities. Presenting a snapshot of the current state of the art, the text: Explains the theory behind different detection techniques, from mechanical resonators for detecting cell density to fiber-optic methods for detecting DNA hybridization, and beyond Examines microfluidic advances, including droplet microfluidics, digital microfluidics for manipulating droplets on the microscale, and more Highlights an array of technologies to allow for a comparison of the fundamental advantages and challenges of each, as well as an appreciation of the power of leveraging scalability and integration to achieve sensitivity at low cost Microfluidics and Nanotechnology: Biosensing to the Single Molecule Limit not only serves as a quick reference for the latest achievements in biochemical detection at the single-cell and single-molecule levels, but also provides researchers with inspiration for further innovation and expansion of the field.

About the AuthorDr. Eric T. Lagally holds a Ph.D from the University of California (UC)-Berkeley/UC-San Francisco Graduate Program in Bioengineering, USA. Currently, he is a faculty member at Western Governors University, Salt Lake City, Utah, USA. Previously, he founded and consulted for Lagally Consulting, and served as assistant professor at the University of British Columbia, Vancouver, Canada, where his research program was responsible for developing multiplexed surface plasmon resonance microfluidics as well as dielectrophoresis chips for whole-cell detection of Mycobacterium tuberculosis. A co-inventor on patents for microfluidic valve technologies and aptamer selection techniques, he has published numerous peer-reviewed, conference-proceeding, and review papers and chapters in edited books. Dr. Krzysztof (Kris) Iniewski is managing RD at Redlen Technologies Inc., Vancouver, British Columbia, Canada, a leading manufacturer of high resolution cadmium zinc telluride semiconductor radiation detectors. He is also president of CMOS Emerging Technologies Research Inc., Coquitlam, British Columbia, Canada, an organization hosting high-tech events on communications, microsystems, optoelectronics, and sensors. A popular speaker and consultant, he has published over 100 research papers, written and edited several books, and held faculty and management positions at University of Toronto, Ontario, Canada; University of Alberta, Edmonton, Canada; Simon Fraser University, Burnaby, British Columbia, Canada; and PMC-Sierra Inc., Burnaby, British Columbia, Canada.