Xiao-Hong Nancy Xu (Editor)

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DESCRIPTION

An overview of current research and developments in ultrasensitive bioanalysis

New platforms of ultrasensitive analysis of biomolecules and single living cells using multiplexing, single nanoparticle sensing, nano-fluidics, and single-molecule detection are advancing every scientific discipline at an unprecedented pace. With chapters written by a diverse group of scientists working in the forefront of ultrasensitive bioanalysis, this book provides an overview of the current status and an in-depth understanding of the objectives and future research directions of ultrasensitive bioanalysis. Spanning a wide spectrum of new research approaches, this book:

• Introduces new theories, ideas, methodologies, technologies, and applications of ultrasensitive bioanalysis in a wide variety of research fields

• Includes background, fundamentals, and descriptions of instrumentation and techniques behind every experimental design and approach to help readers explore the promising applications of new tools

• Covers single molecule detection (SMD), single living cell analysis, multi-functional nanoparticle probes, miniaturization, multiplexing, quantitative and qualitative analysis of metal ions and small molecules, and more

• Discusses techniques such as single molecule microscope and spectroscopy, single nanoparticle optics, single nanoparticle sensors, micro- and nano-fluidics, microarray detection, ultramicroelectrodes, electrochemiluminescence, mass spectrometry, and more
This book will be a useful resource and an inspiration for scientists and graduate and undergraduate students in a wide variety of research fields, including chemistry, biology, biomedical science and engineering, and materials science and engineering.

ABOUT THE AUTHOR

Xiao-Hong Nancy Xu, PHD, is a tenured Associate Professor of Chemistry and Biochemistry at Old Dominion University in Norfolk, Virginia. Her current research program focuses on the development and application of cutting-edge bionanotechnologies and ultrasensitive analytical and sensing methodologies to address fundamental and practical questions in chemical, biochemical, and biomedical sciences and engineering, and is supported by NSF, NIH, DoE, and DoD. She has served extensively as a peer-reviewer for an array of journals and panels and an invited organizer of symposia in chemistry and bioengineering at national and international conferences.

SERIES

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