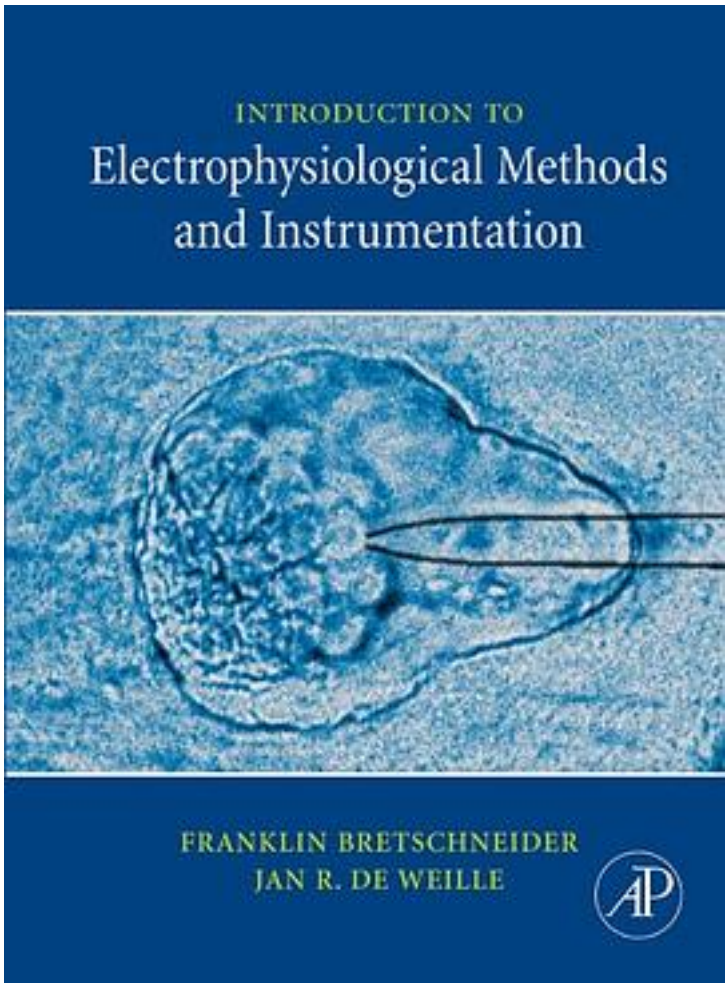
Introduction to Electrophysiological Methods and Instrumentation



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"Introduction to Electrophysiological Methods and Instrumentation" covers all topics of interest to electrophysiologists, neuroscientists and neurophysiologists, from the reliable penetration of cells, the behaviour and function of the equipment, to the mathematical tools available for analysing data. It discusses the pros and cons of techniques and methods used in electrophysiology and how to avoid their pitfalls. Particularly in an era where high quality off-the-shelf solutions are readily available, it is important for the electrophysiologist to understand how his or her equipment manages the acquisitions and analysis of low voltage biological signals. "Introduction to Electrophysiological Methods and Instrumentation" addresses this need. The book presents the basics of the passive and active electronic components and circuitry used in apparatuses such as (voltage-clamp) amplifiers, addressing the strong points of modern semiconductors as well as the limitations inherent to even the highest-tech equipment. It concisely describes the theoretical background of the biological phenomena. The book includes a very useful tutorial in electronics, which will introduce students and physiologists to the important basics of electronic engineering needed to understand the function of electrophysiological setups. The vast terrain of signal analysis is dealt with in a way that is valuable to both the uninitiated and the expert. For example, the utility of convolutions and (Fourier, Pascal) transformations in signal detection, conditioning and analysis is presented both in an easy to grasp graphical form as well as in a more rigorous mathematical way. It introduces possibilities and solutions, along with the problems, pitfalls, and artifacts of equipment and electrodes. It presents the fundamentals of signal processing of analog signals, spike trains and single channel recordings as well as procedures for signal recording and processing. It includes appendices on electrical safety, on the use of CRT monitors in research and foundations of some of the mathematical tools used.

作者介绍:

目录:

标签

neuroscience

MathematicalBiology

评论

覆盖面很广，但是写得太糟糕了，要配合其他相关资料学习

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书评

写得不是那么易懂！不大适合入门，不过可以了解下，有些地方还是需要找专门书籍去专研的！——...

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