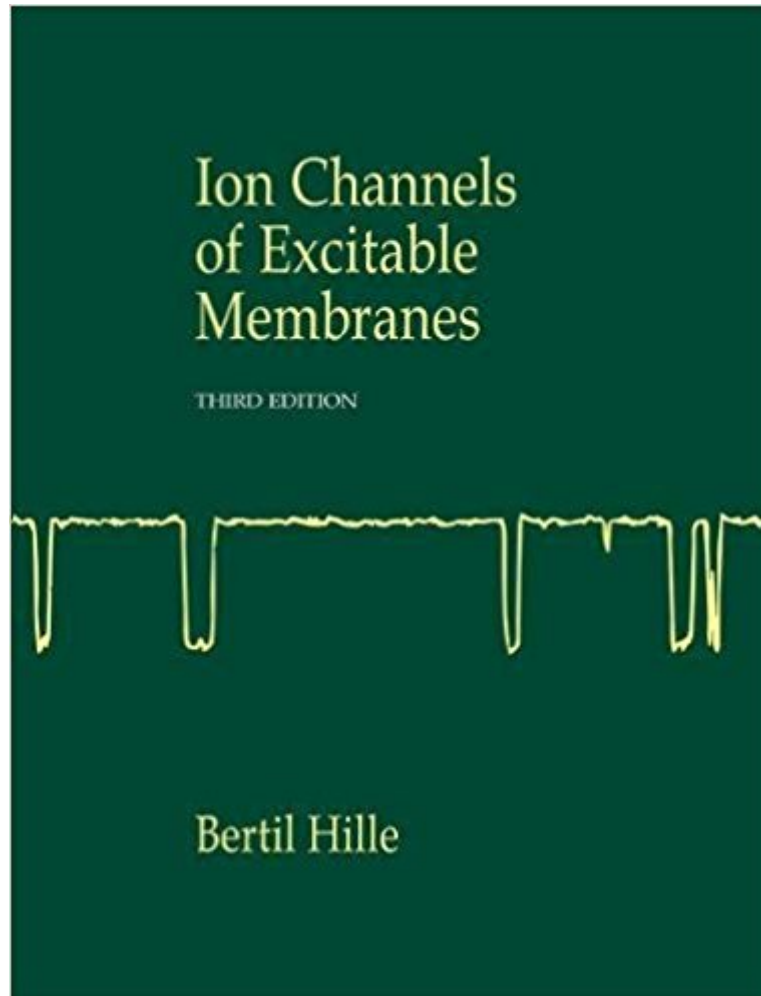




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# Ion Channels Of Excitable Membranes



## Synopsis

Ion channels underlie a broad range of the most basic biological processes, from excitation and signaling to secretion and absorption. Like enzymes, they are diverse and ubiquitous macromolecular catalysts with high substrate specificity and subject to strong regulation. This fully revised and expanded third edition of *Ion Channels of Excitable Membranes* describes the known channels and their physiological functions, then develops the conceptual background needed to understand their architecture and molecular mechanisms of operation. It includes new chapters on calcium signaling, structural biology, and molecular biology and genomics. *Ion Channels of Excitable Membranes* begins with the classical biophysical work of Hodgkin and Huxley, continues with the roles of channels in cellular signaling, then develops the physical and molecular principles needed for explaining permeation, gating, pharmacological modification, and molecular diversity, and ends with a discussion of channel evolution. *Ion Channels of Excitable Membranes* is written to be accessible and interesting to life scientists and physical scientists of all kinds. It introduces all the concepts that a graduate student should be aware of but is also effective in advanced undergraduate courses. It has long been the recognized authoritative overview of this field used by all neuroscientists.

## Book Information

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## Customer Reviews

"The third edition of *Ion Channels of Excitable Membranes* is markedly expanded, remarkably up to date, and stands as an unmitigated tour de force. Complete and enthusiastic, but not overwhelming,

the text builds intuitively from the biophysical roots of the discipline. By maintaining a historical flavor, the reader is cleanly offered the essential ideas and concepts that remain key even as the field evolves. The book remains a resource for practitioners of the craft and the essential guide to the electrophysiological universe." --Steven A. N. Goldstein, Cell

Bertil Hille is Professor in the Department of Physiology and Biophysics at the University of Washington. He graduated summa cum laude from Yale University with a B.S. in Zoology, and earned a Ph.D. in Life Sciences at The Rockefeller University. Dr. Hille then did postdoctoral work in the laboratories of A. L. Hodgkin and R. D. Keynes. He was elected to the National Academy of Sciences in 1986, and has received numerous awards, including: the Third Annual Bristol-Myers Squibb Award for Distinguished Achievement in Neuroscience Research (1990); the Columbia University Louisa Gross Horwitz Prize for Biology or Biochemistry (1996, shared with Clay Armstrong); and the Albert Lasker Basic Medical Research Award (1999, jointly with Clay Armstrong and Roderick MacKinnon). A cell physiologist, neurobiologist, and educator, Dr. Hille works on ion channel biophysics, signaling by modulatory neurotransmitters, and intracellular calcium dynamics. The Hille laboratory has published over 140 research papers and trained fifty graduate students and postdoctoral fellows.

If you're thinking of learning about electrophysiology (not cardiac), this is THE resource. It discusses most of the known ion fluctuations and gives a great deal of background in the proper physics to aid understanding. The style is dry and dense; this is not a book that one reads multiple chapters at a time, but it will be helpful to have on the shelf to look up some information quickly. I took off a star because, as good and highly recommended a resource as this is, it's less practical than other books on electrophysiology. This is a 'before the experiment' book-it helps identify the channels you're looking at, what kind of glass to choose, what drugs might be appropriate for your experiment. It is less helpful with the 'during the experiment' questions than, say, Patch Clamping. It doesn't explain as well what a good seal looks like on your oscilloscope, for instance. To sum: great resource for electrophysiologists, pair with another book for the practical side of actually performing the experiment.

The definitive textbook on this topic. Wonderfully written with a lucid style.

This blends mathematical concepts with neurological phenomenon.

com'mon man. its hille! Absolute necessity for any serious neurophysiologist. Although most people use this as a reference, I read cover to cover. Very readable for someone who has had intro to neuroscience and some Bio background.

If you are interested in the science of electrophysiology, this is your textbook. Starts with basic, ground concepts and works it way up. Begin with an intro of Ohm's law, etc. and the history of electrophysiology and moves to more in depth material for each ion channel. The only drawback is that this is the most up to date version, so there has been some progress since then. But for anyone involved in patch clamping, this is a must read.

I don't think I need to comment on the book itself. It's quite specialized. Those who need it know how good it is. The book I got looks pretty much new. Just as described.

A must reference book for those who studies electrophysiology!

Excellent book about ion channels. I do recommend it to everyone working with those complex systems. 5 stars! Dr. Osvaldo Santos-Filho

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