

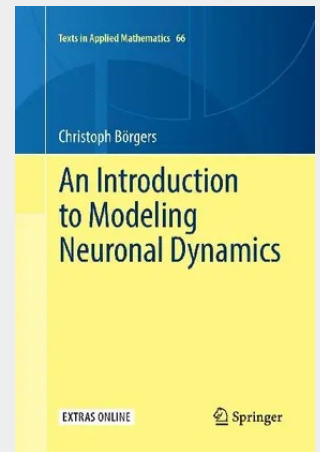
An Introduction to Modeling Neuronal Dynamics

This book is intended as a text for a one-semester course on Mathematical and Computational Neuroscience for upper-level undergraduate and beginning graduate students of mathematics, the natural sciences, engineering, or computer science. An undergraduate introduction to differential equations is more than enough mathematical background. Only a slim, high school-level background in physics is assumed, and none in biology.

Topics include models of individual nerve cells and their dynamics, models of networks of neurons coupled by synapses and gap junctions, origins and functions of population rhythms in neuronal networks, and models of synaptic plasticity.

An extensive online collection of Matlab programs generating the figures accompanies the book.

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