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Nota di contenuto	1. Getting Started -- 2. A System of Ordinary Differential Equations -- 3. The Diffusion Equation -- 4. Implicit Numerical Methods -- 5. Improved Accuracy -- 6. A Simple Cable Equation -- 7. Operator Splitting -- 8. Membrane Models -- 9. The Cable Equation -- 10. Spatial Models of Cardiac Electrophysiology -- 11. The Extracellular- Membrane-Intracellular (EMI) Model -- 12. The Poisson-Nernst-Planck (PNP) Model -- Index.
Sommario/riassunto	This open access text aims at giving you the simplest possible introduction to differential equations that are used in models of electrophysiology. It covers models at several spatial and temporal scales with associated numerical methods. The text demonstrates that a very limited number of fundamental techniques can be used to define numerical methods for equations ranging from ridiculously simple to extremely complex systems of partial differential equations. Every method is implemented in Matlab and the codes are freely available online. By using these codes, the reader becomes familiar with classical

models of electrophysiology, like the cable equation, the monodomain model, and the bidomain model. But modern models that have just started to gain attention in the field of computational electrophysiology are also presented. If you just want to read one book, it should probably not be this one, but if you want a simple introduction to a complex field, it is worth considering the present text.

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