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Mathematical population genetics and evolution of bacterial cooperation. (English)
[Zbl 07184931]

Preliminary review / Publisher's description: Social life of bacteria is in the focus of recent research. Bacteria are simple enough to be accessible by science, but still complex enough to show cooperation, division of labor, bet-hedging, cross-talk and synchronized activities, and a rich variety of social traits. A central question of evolutionary theory is the explanation why this social life did develop, and why these systems are evolutionary stable. This book introduces the reader into the theory of evolution, covering classical models and as well as recent developments. The theory developed is used to represent the up-to-date understanding of social bacteria.

This book will be useful for students and lecturers interested in mathematical evolutionary theory, as well as for researchers as a reference.

MSC:
- 92-02 Research exposition (monographs, survey articles) pertaining to biology
- 92C70 Microbiology
- 92D10 Genetics and epigenetics
- 92D15 Problems related to evolution
- 92D25 Population dynamics (general)
- 91A05 2-person games
- 91A12 Cooperative games
- 91A43 Games involving graphs
- 91A80 Applications of game theory

Keywords:
- computational cardiac electrophysiology
- drug induced cardiac arrhythmias
- proarrhythmic risk classification
- human induced pluripotent stem cell derived cardiomyocytes
- numerical analysis of differential equations

Full Text: DOI