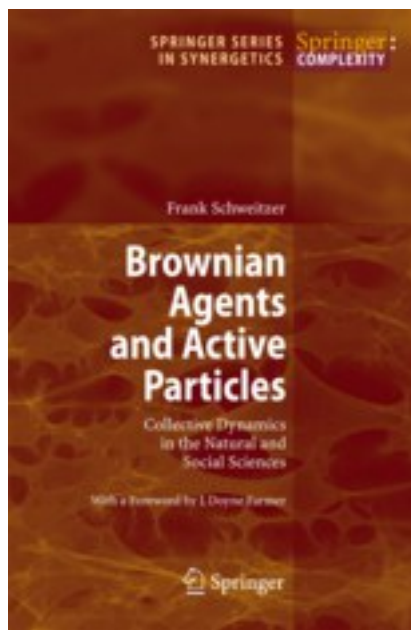


Brownian Agents and Active Particles



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"This book lays out a vision for a coherent framework for understanding complex systems" (from the foreword by J. Doyne Farmer). By developing the genuine idea of Brownian agents, the author combines concepts from informatics, such as multiagent systems, with approaches of statistical many-particle physics. This way, an efficient method for computer simulations of complex systems is developed which is also accessible to analytical investigations and quantitative predictions. The book demonstrates that Brownian agent models can be successfully applied in many different contexts, ranging from physicochemical pattern formation, to active motion and swarming in biological systems, to self-assembling of networks, evolutionary optimization, urban growth, economic agglomeration and even social systems.

Content Level » Research

Keywords » agent based simulations - brownian agents - complex networks - multiagent models

Related subjects » Artificial Intelligence - Complexity - Game Theory / Mathematical Methods - Theoretical Computer Science

作者介绍:

目录: From the contents
Complex Systems and Agent Models.- Active Particles.- Aggregation and Physico-Chemical Structure Formation.- Self-Organization of Networks.- Tracks and Trail Formation in Biological Systems.- Movement and Trail Formation of Pedestrians.- Evolutionary Optimization Using Brownian Searchers.- Analysis and Simulation of Urban Aggregation.- Economic Agglomeration.- Spatial Opinion Structures in Social Systems.
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