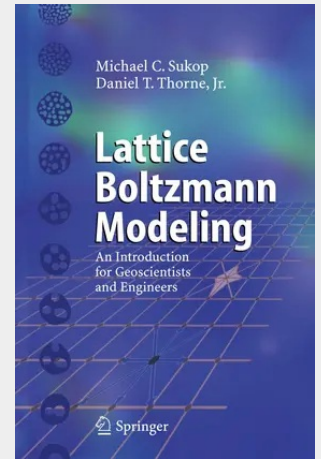


Lattice Boltzmann Modeling

An Introduction for Geoscientists and Engineers

Lattice Boltzmann models have a remarkable ability to simulate single- and multi-phase fluids and transport processes within them. A rich variety of behaviors, including higher Reynolds numbers flows, phase separation, evaporation, condensation, cavitation, buoyancy, and interactions with surfaces can readily be simulated. This book provides a basic introduction that emphasizes intuition and simplistic conceptualization of processes. It avoids the more difficult mathematics that underlies LB models. The model is viewed from a particle perspective where collisions, streaming, and particle-particle/particle-surface interactions constitute the entire conceptual framework. Beginners and those with more interest in model application than detailed mathematical foundations will find this a powerful "quick start" guide. Example simulations, exercises, and computer codes are included. Working code is provided on the Internet.

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