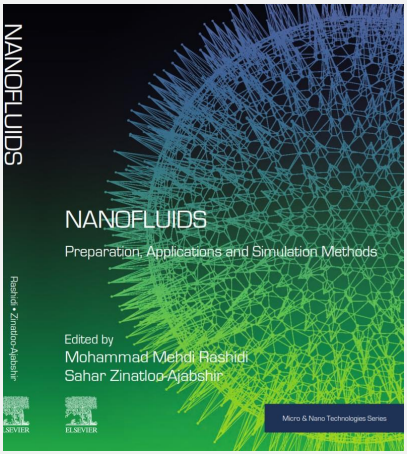

دوشنبه 28 آبان 1403 - 09:10

Nanofluids: Preparation, Applications and Simulation Methods

نویسنده: دکتر محمدمهدی رشیدی-دکتر سحر زینت‌لو

Description

Nanofluids: Preparation, Applications and Simulation Methods provides a comprehensive review of recent advances in this important research field. Different approaches for preparing some remarkable families of nanofluids such as aluminum oxide-based nanofluids, CuO/Cu-based nanofluids, carbon nanotubes/graphene-based nanofluids, ZnO-based nanofluids, Fe3O4-based nanofluids, and SiO2-based nanofluids are discussed in detail as well as their current and potential applications. Different approaches for numerical, semi-analytical and analytical simulations are also discussed including the Lattice Boltzmann method, as well as advanced analytical techniques such as the Differential Transform Method, the Homotopy Analysis Method, and Optimal Homotopy Analysis.

The book will be a valuable reference resource for academic and industrial researchers, materials scientists and engineers, nanotechnologists, and chemists working in the development of nanomaterials and nanofluids for heat transfer in energy and engineering applications.

Key Features

Covers synthesis of nanostructures, preparation of nanofluids, different applications and proposed models for fluid mechanics and heat transfer

Presents recent advances on preparation methods, including green chemistry-based methods for preparation of nanomaterials and nanofluids

Covers novel model-based approaches such as molecular dynamics and Lattice Boltzmann methods

Covers applications in renewable energy technologies and thermal management

Contains a Semi-analytical approach for solving Time-Fractional Navier-Stokes Equation

Readership

Materials scientists, physicists, chemists and engineers, R&D Managers working in ceramic materials, energy science and technology

Link

https://www.sciencedirect.com/book/9780443136252/nanofluids