

Materials Science

Over the last three decades, advances in modeling flow, heat, and mass transfer through a porous medium have dramatically transformed engineering applications. Comprehensive and cohesive, ***Handbook of Porous Media, Second Edition*** presents a compilation of research related to transport through porous media, including the development of practical applications for analysis and design of engineering devices and systems involving porous media.

See what's new in the Second Edition:

- Recent studies related to current and future challenges and developments in fundamental aspects of porous media
- Combustion and heat transfer in inert porous media
- Modeling bioconvection in porous media
- Influence of vibrations on the onset of the thermo-convection
- Modeling porous media impairment by particles
- Modeling liquid composites molding processes
- Parameter identification within a porous medium using genetic algorithms
- Viscous dissipation
- Forced and double diffusive convection in porous media
- Turbulent flow
- Dispersion
- Particle migration and deposition in porous media
- Dynamic modeling of convective transport through porous media

Completely revised, updated, and reviewed by experts in the field, each chapter includes, whenever applicable, a discussion of the pertinent aspects of experimental work or numerical techniques. Generously illustrated with 262 black and white illustrations, 15 tables, and 1,865 equations, the book is a rigorous and thorough working reference.

About the Editor...

KAMBIZ VAFAI is Professor of Mechanical Engineering at University of California, Riverside. The author and co-author of over two hundred journal articles, book chapters, and symposium volumes (Ed.), he has given numerous invited lectures and presentations. He is a Fellow of American Association for Advancement of Science, Fellow of the American Society of Mechanical Engineers, Fellow of World Innovation Foundation, and an Associate Fellow of the American Institute of Aeronautics and Astronautics; editor in chief of the ***Journal of Porous Media***; and serves on the editorial advisory board of the ***International Journal of Heat and Mass Transfer and International Communications in Heat and Mass Transfer, Numerical Heat Transfer, International Journal of Numerical Methods for Heat and Fluid Flow***, and the editorial board of ***Experimental Heat Transfer***. He is among the very few engineering scientists within the prestigious ISI highly cited category. Dr. Vafai received his B.S. degree from the University of Minnesota, Minneapolis, and his M.S. and Ph.D. degrees from the University of California, Berkeley.