

# Solid–Liquid Thermal Energy Storage Modeling and Applications

Edited by  
Moghtada Mobedi, Kamel Hooman, and  
Wen-Quan Tao



CRC Press

Taylor & Francis Group

Boca Raton London New York

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CRC Press is an imprint of the  
Taylor & Francis Group, an **informa** business

First edition published 2022  
by CRC Press  
6000 Broken Sound Parkway NW, Suite 300, Boca Raton, FL 33487-2742

and by CRC Press  
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

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ISBN: 978-1-032-10018-0 (hbk)  
ISBN: 978-1-032-10026-5 (pbk)  
ISBN: 978-1-003-21326-0 (ebk)

DOI: 10.1201/9781003213260

Typeset in Times  
by codeMantra

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# Editors

**Moghtada Mobedi** is a professor of heat transfer and works in Mechanical Engineering Department, Shizuoka University in Japan. He received his Ph.D. from Middle East Technical University, Turkey in 1994. After working in an HVAC company as a project manager, he worked in the Mechanical Engineering Department of Izmir Institute of Technology in Turkey between 2003 and 2015. Since 2015, he has been working at Shizuoka University and continues his research in Japan. He has taught many bachelor's, master's, and Ph.D. courses such as heat transfer, computational fluid dynamics, convective heat transfer, and numerical methods in Turkey, Japan, and European countries. His research interests include heat transfer enhancement in solid–liquid phase change, heat and mass transfer in porous media, adsorption heat pump, and computational fluid dynamics. He published more than 70 papers in international journals as well as 100 papers in national and international conferences and 3 book chapters on the various applications of heat transfer. He has supervised many master's and Ph.D. students both in Turkey and Japan. He received fellowships from the Japan Society for the Promotion of Science, European Union, and Cracow University of Technology to visit laboratories of different universities in Japan, Poland, Italy, Sweden, and Austria. He has led many projects funded by “State Planning Department of Turkey”, “Scientific and Technological Research Council of Turkey”, “Japan Society for the Promotion of Science”, and “Suzuki Foundation” to study on discovering innovative methods for heat transfer enhancement for single convection heat transfer, adsorbent beds as well as for solid–liquid phase change thermal storage.

**Kamel Hooman** is a professor of heat transformation technology at the Delft University of Technology. He received his Ph.D. from The University of Queensland in 2009 where he has worked for almost two decades. He is working closely with the industry in the field of thermo-fluids engineering. He was named Australia's Research Field Leader in Thermal Sciences in 2019. His book “Convective Heat Transfer in Porous Media” has been published in 2019 (CRC Press) to help both undergraduate and postgraduate students who work on porous media flows. An author of over 150 archival journal articles, 8 book chapters, and over 50 conference papers, he has given numerous national and international invited lectures, keynote addresses, and presentations. He has been awarded fellowships from Emerald, Australian Research Council, National Science Foundation China, Australian Academy of Sciences, and Chinese Academy of Sciences with visiting professor/researcher positions at the University of Padova, La Sapienza University of Rome, Krakow Institute of Technology, Ecole Centrale Paris, University of Malaya, Karlsruhe Institute of Technology, Xi'an Jiaotong University, Harbin Institute of Technology, North Western Polytechnical University, Tianjin University, and Shandong University.

He is the associate editor for the *International Journal of Heat and Mass Transfer*, *Heat Transfer Engineering*, and *Journal of Porous Media* while serving on the editorial/advisory board of some international journals and conferences in the field

of energy storage, conversion, and management. As an editor for Heat Exchanger Design Handbook (Begell House); he relies on his practical experience to ensure the latest development in the field of heat exchangers is kept up to date and shared with the practicing engineers. He has been the organizer and chair of the International Conference on Cooling Tower and Heat Exchanger sponsored by IAHR (International Association for Hydro-Environment Engineering and Research). He has supervised 11 doctoral students and has directed over 10 post-docs. He has an h-index of 46 with an i10-index of 154. He has carried out various sponsored research projects through companies, governmental funding agencies, and national labs. He has also consulted for various companies and governments in Australia and overseas.

**Wen-Quan Tao** is a professor at Key Laboratory of Thermo-Fluids Science & Engineering of MOE, and Int. Joint Research Laboratory of Thermal Science & Engineering, Xi'an Jiaotong University, China. He graduated from Xi'an Jiaotong University in 1962 and received his graduate Diploma in 1966 under the supervision of Professor S. M. Yang. From 1980 to 1982, he worked with Professor E. M. Sparrow as a visiting scholar at the Heat Transfer Laboratory of the University of Minnesota. He was selected as a member of the Chinese Academy of Science in 2005. He has published more than 300 technical papers in international journals. He has published eight books in heat transfer and numerical heat transfer, among which the book titled *Numerical Heat Transfer* has been cited more than 15,000 times at home and abroad. He has supervised more than 140 graduate students. His recent research interests include multiscale simulations of fluid flow and heat transfer problems, thermal management of fuel cell, cooling technique of data center, thermal energy storage and saving, and enhancement of heat transfer.