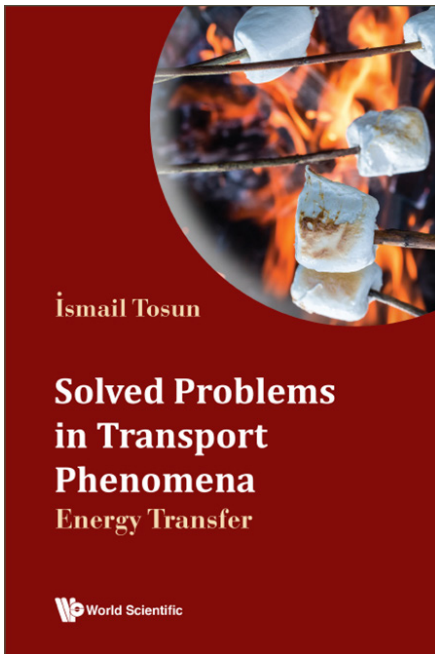


## Solved Problems in Transport Phenomena

### Energy Transfer



By İsmail Tosun  
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### ABOUT THE BOOK

*Transport Phenomena* is an umbrella term to describe the fundamental processes of momentum, energy, and mass transfer.

This unique compendium covers energy transfer at the microscopic and macroscopic levels in the three stages of problem-solving, namely formulation, simplification, and mathematical solution. The book does not overwhelm students with a large repertoire of problems. Instead, it highlights clear and easy presentation to help students grasp the methodology in problem-solving.

This useful reference text benefits upper undergraduate and graduate level students in the fields of chemical, mechanical, petroleum, and environmental engineering.

### READERSHIP

Researchers, professionals, academics, and graduate students in chemical engineering, mechanical engineering, petroleum engineering and environmental engineering.

### CONTENTS

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- Introduction to Heat Transfer
- Forced Convection Heat Transfer Correlations
- Steady-State Conduction Without Generation of Heat

- Steady-State Conduction With Generation of Heat
- Unsteady-State Conduction
- Forced Convection Heat Transfer
- Natural Convection Heat Transfer
- Heat Transfer in Microchannels
- Heat Exchangers
- Radiation Heat Transfer
- **Appendices:**
  - Physical Properties
  - Ordinary Differential Equations
  - Partial Differential Equations
  - Constants and Conversion Factors

## ABOUT THE AUTHOR

**İsmail Tosun** received his BS and MS degrees from the Middle East Technical University (METU) and a PhD degree from the University of Akron, all in chemical engineering. His research interests are mathematical modeling, solid–liquid separation processes, and multiphase transport phenomena. Currently, he is an emeritus professor of chemical engineering at METU. Professor Tosun is the author of the following books:

1. *Modeling in Transport Phenomena — A Conceptual Approach*, 2nd ed., Elsevier, 2007.
2. *Fundamental Mass Transfer Concepts in Engineering Applications*, CRC Press, 2019.
3. *Thermodynamics — Principles and Applications*, 2nd ed., World Scientific, 2020.
4. *The Thermodynamics of Phase and Reaction Equilibria*, 2nd ed., Elsevier, 2021.
5. *Solved Problems in Transport Phenomena — Momentum Transfer*, 2022, World Scientific.

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