

# Preface

This special edition explores heat and mass transfer processes on scientific and engineering levels, focusing on the anthropogenic factors of environmental dynamics and mass and heat transfer in engineering systems and numerical and theoretical approaches to research in solid-state physics and chemistry.

The first chapter examines transfer processes in the environment influenced by anthropogenic factors, highlighting the critical impact of human activities on natural systems.

The second chapter delves into the intricate mechanisms of heat transfer within engineering systems, offering insights into the optimization of thermal performance across various applications. This section is particularly valuable for enhancing energy efficiency and advancing sustainable technologies.

In the third chapter, the focus shifts to solid-state physics and chemistry, on numerical and theoretical approaches in these investigations research. This chapter provides a deep dive into the foundational principles governing material behaviours, offering models and simulations that aid in the development of advanced materials and innovative technologies.

The presented research results use a multi-disciplinary approach to understanding and addressing complex challenges in environmental science, engineering, and material research from the position of heat and mass transfer phenomena.

This special edition will be relevant to many engineers and researchers in their professional activities.