

High-Temperature Solar Thermal Systems

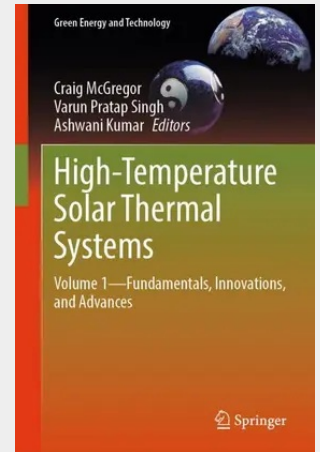
Volume 1—Fundamentals, Innovations, and Advances

This book explores the recent technological development and advancement in high-temperature solar thermal technologies, offering a comprehensive guide to harnessing solar energy for industrial processes, power generation, and energy storage in the 21st century. This book delves into the science and engineering behind systems that capture and concentrate sunlight to generate heat above 400°C, providing a clean, renewable solution to global energy needs. Readers are able to understand how different technologies are integrating with the solar thermal domain to make it more predictive, accurate, efficient, and reliable.

The book, the first volume in a sequence of volumes, covers both foundational principles and the latest innovations, encompassing advanced materials, heat transfer fluids, artificial intelligence, and algorithm applications, as well as applications of solar thermal technologies in various cutting-edge domains such as solar thermochemical green hydrogen production. With practical case studies and in-depth analysis, this book helps solar thermal application engineers, researchers, policymakers, and anyone interested in understanding solar thermal energy future pathways. Whether the reader is exploring solar thermal systems for the first time or looking for cutting-edge insights into this rapidly evolving field, the proposed book offers the knowledge and tools to drive sustainable energy solutions forward.

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