



nanomaterials



Special Issue Reprint

The Role of Nanofluids in Renewable Energy Engineering

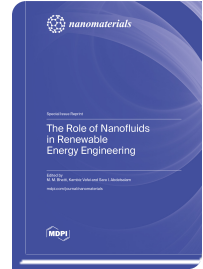
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Nanofluid flows are characterized by intricate and multi-level physics, which has led to substantial study from both fundamental and practical viewpoints. This collection examines the progress made in modeling and experimental methods used to study nanofluids. It specifically focuses on how these nanofluids might be used to tackle thermal challenges in renewable energy systems. The phenomenon of improving heat transfer via the use of nanofluids is well recognized; however, further research is necessary to comprehensively comprehend the interplay between nanoparticles and base fluids, as well as their influence on heat convection. Furthermore, the extensive use of nanofluids in solar thermal, geothermal, heat storage, and heat recovery systems has not been thoroughly investigated. The current difficulty is in creating precise and economical computational methods to forecast the heat transfer characteristics of nanofluids. This requires thorough experimental investigations at the system level. This edition highlights the significant contribution of nanofluid heat transfer in promoting carbon-free thermal technology and supporting the shift from fossil fuels to renewable energy sources, in line with the worldwide effort to decarbonize the energy sector.



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