

Special Issue

Sustainable Heat Pumps and Refrigeration Systems: Innovations in Eco-Friendly Fluids and Energy Efficiency

Message from the Guest Editor

Heat pumps and refrigeration systems are essential for sustainable energy, delivering efficient heating, cooling, and refrigeration across sectors while reducing fossil fuel use and greenhouse gas emissions. With growing focus on eco-friendly working fluids—such as natural refrigerants and low-GWP alternatives—this Special Issue explores innovations that enhance performance while meeting environmental standards. We invite research on the design, optimization, and application of systems using eco-friendly fluids, including thermodynamic cycles, component development, energy and exergy analyses, and system integration into renewable and smart grid networks. Topics also include control and optimization, waste heat recovery, thermal storage, and techno-economic or environmental assessments. By combining technical innovation and sustainability perspectives, this Special Issue supports global progress toward low-carbon energy and climate resilience.

Guest Editor

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Message from the Editor-in-Chief

I encourage you to contribute a research or comprehensive review article for consideration for publication in Sustainability, an international open access journal which provides an advanced forum for research findings in areas related to sustainability and sustainable development. The journal publishes original research articles, reviews, conference proceedings (peer reviewed full articles) and communications. I am confident you will find the journal contributes to enhancing understanding of sustainability and fostering initiatives and applications of sustainability-based measures and activities.

Editor-in-Chief

Prof. Dr. Steve W. Lyon

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