Special Issue

CO_2 Technologies for Energy Conversion and Waste Heat Recovery

Message from the Guest Editors

The thermophysical properties of CO2 indeed can bring many advantages in several applications. Compared to conventional technologies, supercritical CO2 power cycles allow for instance a more efficient exploitation of waste heat sources at higher temperatures and lower scales (down to hundreds of kW), as well as renewables energy sources like solar (Concentrated Solar Power, CSP), geothermal energy and nuclear fusion reactors. Furthermore, they are the most promising candidate for next generation nuclear fission power plants. For heating and cooling, CO2 represents a much more environmental friendly fluid compared to conventional refrigerants, and it is one of the most suitable fluid candidate for the development of high temperature heat pumps, which may play an important role for energy storage as well as the decarbonisation of heat in industrial applications and buildings. Many challenges are still hindering the commercialization of such technologies as termodynamic design and optimisation, turbomachinery development, dynamics and control and suitable auxiliary equipments as bearings, seals and valves.

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Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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