



Research on Solar Energy System and Storage for Sustainable Buildings

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Message from the Guest Editors

Dear Colleagues,

The building sector accounts for approximately 40% of total carbon emissions, making it a crucial aspect to consider in the pursuit of carbon neutrality. Developing sustainable buildings is thus essential in achieving this goal. The integration of solar thermal and solar electric (photovoltaic) energy systems in the building sector offers significant benefits, including heating, cooling, and substantial electricity savings, alongside the promotion of environmental sustainability.

In order to maximize the utilization of solar energy in buildings, the seasonal imbalance between supply and demand must be overcome. Seasonal thermal energy storage emerges as a pivotal technology in addressing this challenge, enhancing the efficiency of solar heating systems and thus facilitating the large-scale deployment of solar energy.

This Special Issue aims to provide an overview of the latest research and developments in solar energy. The scope of this Special Issue includes solar heating, solar cooling, PV, PVT, thermal energy storage, BIPV and more.

Guest Editors





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Message from the Editor-in-Chief

Current urban environments are home to multi-modal transit systems, extensive energy grids, a building stock, and integrated services. Sprawling neighborhoods are composed of buildings that accommodate living and working quarters. However, it is expected that the cities and communities of the future will face complex and enormous challenges, including maintenance, interconnectivity, resilience, energy efficiency, and sustainability issues, to name but a few. A smart city uses advanced technologies and a digital infrastructure to improve the outcomes in every aspect of a city's operations. A smart building optimizes the experience of occupants, staff, and management by using a modern and connected environment. Innovations in technology that can bring dramatic improvements to design, planning, and policy are critical in developing the cities and buildings of the future.

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