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Special Issue on Electrification of the Building Heating Sector

Buildings consume more than 40% of all the energy in developed countries, and more than 70% in major urban centers such as New York City, Beijing, Paris, and London. A large portion of this energy is due to space and Domestic Hot Water (DHW) heating, which is common in high latitude cities. As countries and cities aspire to low carbon living portfolios, meeting heating demand sustainably has become a challenge and an opportunity as most heating infrastructure is fossil fuels based. As such, electrification of the building heating sector, together with effective thermal insulation of the building envelopes, is an emerging technological field where electrical energy may be provided by low carbon sources such as solar or wind. Intrinsic challenges for transitioning from carbon-based heating to electrically based heating include efficient electrically based systems such as air or ground based heat pumps, use of low global warming refrigerants, cost effective technologies, retrofit processes, power system integration, building integrated approaches, environmental and energy infrastructure impacts, and public policies and economic incentives for large scale transitions.

This Special Issue aims at raising awareness on the emerging topic of electrification of the building heating sector. It will focus on interdisciplinary research in this field and provide a venue for research findings from a variety of disciplinary perspectives.

Topic Areas

- Space and DHW heating loads modeling and analyses at the single building and community scales
- Advances in electrically based building heating technologies
- Advances in efficient building envelopes in cold climate
- Power system integration and energy management of building heating equipment
- Ground and air-based heat pump systems
- Case studies for electrically based heating technologies
- Electric district heating technologies and experiences
- Environmental and energy impacts of electrification transition processes
- Public policy implications in transitions to electrification of the heating sector
- Refrigerants with low Global Warming Potential (GWP)

Publication Target Dates

Paper submission deadline: **April 1, 2021**
Papers reviewed and revised: **June 30, 2021**
Production & publication process: **July/August, 2021**

Submission Instructions

Papers should be submitted electronically to the journal at journaltool.asme.org. If you already have an account, log in as author and select **Submit Paper** at the bottom of the page. If you do not have an account, select **Submissions** and follow the steps. In either case, at the **Paper Submittal** page, select the [ASME Journal of Engineering for Sustainable Buildings and Cities](#) and then select the Special Issue **Electrification of the Building Heating Sector**.

Papers received after the deadline or papers not selected for inclusion in the Special Issue may be accepted for publication in a regular issue.

Special Issue Editors

K. Max Zhang, Professor of Mechanical and Aerospace Engineering, Cornell University, USA, kz33@cornell.edu

Jorge E. González, Presidential Professor of Mechanical Engineering, The City College of New York, USA, jgonzalezcruz@ccny.cuny.edu