

Special Issue

Thermal Safety and Fire Behavior of Energy Storage Systems

Message from the Guest Editors

Battery Energy Storage Systems (BESS) are vital for renewable energy integration and grid stability, but pose risks of thermal runaway and fires. This Special Issue seeks research and reviews on the multi-physics of heat generation, runaway, fire growth, and gas release in BESS, covering lithium-ion and emerging chemistries. Topics include mechanisms of heat and runaway propagation, predictive modeling, gas emission quantification, early warning systems, and suppression technology evaluations. We welcome standards-aligned experiments, open datasets, and practical design/response guidance.

The issue aims to consolidate advances in mechanisms, sensing, modeling, and suppression, aligned with codes and standards. It provides an integrated reference for researchers, OEMs, safety engineers, and first responders, linking fundamental fire behavior to practical engineering measures. Contributions may cover heat generation, fire dynamics, gas toxicity, early warning, and novel suppression technologies.

Guest Editors

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About the Journal

Message from the Editor-in-Chief

Fire is an international open-access journal about the science, policy, and technology of fires and how they interact with communities and the environment. *Fire* seeks to provide a forum to help the fire science community convey how we can live with fire in a changing world. *Fire* seeks submissions from interdisciplinary studies that take a pyrogeography perspective of fires occurring in natural, cultural, and industrial landscapes and how they interact with communities in the science-policy interface. *Fire's* Editorial Board are widely recognized international leaders. The journal emphasizes quality and innovation and has a rigorous peer-review process. I strongly recommend *Fire* for the rapid publication of your innovative research publications and case studies.

Editor-in-Chief

Dr. Grant Williamson

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