Special Issue

Thermal Runaway in Lithium Batteries: Fire Mechanisms, Early Warning and Advanced Suppression

Message from the Guest Editors

Lithium-ion batteries have revolutionized energy storage systems, with a wide range of applications from powering electric vehicles and portable electronics to grid-scale renewable energy storage. However, the thermal runaway events, often triggered by mechanical damage, electrical abuse, or thermal instability, can result in fires, explosions, and toxic emissions, posing severe threats to human safety, infrastructure, and environmental sustainability. The scope of this Special Issue aligns with *Fire*'s focus on energy storage innovation and safety. We welcome contributions that explore themes such as the following:

- Multi-scale mechanisms of thermal runaway initiation and propagation;
- Advanced sensing technologies for early detection (e.g., gas, temperature, or pressure-based indicators);
- Novel suppression agents and cooling strategies (e.g., phase-change materials, flame retardants);
- Computational modeling for risk prediction.

Original research articles and reviews with an emphasis on practical scalability and fundamental breakthroughs are welcome. We look forward to receiving your contributions.

Guest Editors

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Dr. Yan Wang

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Deadline for manuscript submissions

30 November 2025

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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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