Special Issue

The Thermal Decomposition and Combustion Behavior of Combustible Materials

Message from the Guest Editors

Combustible materials are essential across industrial, residential, and defense sectors, yet their complex thermal decomposition and combustion behaviors continue to pose significant challenges for safety, environmental protection, and energy efficiency. Understanding the intricate physicochemical transformations that govern ignition, flame spread, and hazardous emissions remains a critical scientific pursuit. This Special Issue of *Fire* calls for experimental, theoretical, and simulation studies that provide new insights into these processes. By advancing the fundamental science and supporting real-world applications, we seek to promote the safer and more sustainable use of such materials worldwide. We welcome original research and reviews covering topics including:

- Pyrolysis kinetics and reaction mechanisms
- Heat and mass transfer during decomposition and combustion
- Flame spread and combustion characteristics
- Safety of energetic systems (e.g., batteries, thermites)
- Behavior under special environments (e.g. microgravity, low oxygen)
- Fire toxicity and emissions analysis
- Advanced experimental and computational methods
- Fire safety strategies and flame retardancy
- Real-world fire case studies

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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

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