Special Issue

Fire Dynamics in Long and Narrow Confined Spaces

Message from the Guest Editors

As underground infrastructure—tunnels, corridors, utility galleries, culverts—expands, fire safety in long, narrow confined spaces grows critical. Unlike open areas, such fires are shaped by wall confinement, limited air, and poor ventilation, causing unique behaviors: plume stretching, intense heat feedback, fast back-layering, and complex smoke stratification. Hazard diversity adds complexity: Moving vehicles (especially in congestion/bidirectional flow) create airflow disturbances and erratic flame spread; fuel spills form dynamic burning zones interacting with vents; cable fires in utility tunnels spread fast, emit persistent toxic smoke. These hinder detection, suppression, and response. Grasping hazard development and smoke transport under geometric/ventilation limits is key to better design and emergency management. This Special Issue aims to advance the scientific understanding of fire dynamics and smoke propagation mechanisms in long and narrow confined environments. Contributions involving experimental studies, theoretical analyses, numerical simulations, detection and suppression technologies, and engineering applications are all welcome.

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

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