Special Issue

Innovative Combustion Technologies for Low-Carbon and Zero-Carbon Fuels

Message from the Guest Editors

The global push for carbon neutrality requires advanced combustion technologies for low- and zero-carbon fuels like hydrogen, ammonia, synthetic e-fuels, and biofuels. These fuels can decarbonize hard-to-abate sectors such as power generation, heavy industry, and maritime/aviation transport. However, their adoption faces challenges including flame stability, NOx emissions, combustion efficiency, and safety risks like leakage and explosion.

Innovative combustion strategies, such as MILD combustion, catalytic combustion, plasma-assisted ignition, and fuel blending, are essential to address these issues. This Special Issue compiles research on next-generation combustion systems and safety technologies to enable efficient, clean, and safe use of emerging fuels while maintaining compatibility with existing infrastructure. It focuses on combustion innovations for decarbonization and fire/explosion prevention strategies for low-carbon fuels. Contributions should bridge lab-scale breakthroughs and industrial deployment, offering scalable and safe solutions. We welcome original research articles, reviews, technical notes, and short communications.

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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