Special Issue

Advancements in Supersonic Combustion: Fundamentals, Applications, and Challenges in Hypersonic Propulsion

Message from the Guest Editor

Hypersonic propulsion is vital in aerospace engineering for faster, efficient flight. Supersonic combustion, involving complex fluid dynamics, chemical kinetics, and thermodynamics at extreme velocities, is central to this field. However, sustaining combustion in supersonic flows remains challenging due to fuel–air mixing, heat management, and materials science. This Special Issue aims to advance the understanding and development of supersonic combustion processes, particularly in hypersonic propulsion, by providing a platform for cutting-edge research, reviews, and perspectives.

The journal Fire, traditionally focusing on fire science and technology, will expand its scope to explore the intersection of fire science and propulsion systems. This Special Issue will highlight interdisciplinary approaches, fostering collaboration between aerospace engineering, combustion science, and materials science.

Submissions are invited on the following themes:

- Fundamentals of Supersonic Combustion
- Applications in Hypersonic Propulsion
- Challenges and Innovations
- Interdisciplinary Approaches

Guest Editor

Prof. Dr. Ye Tian

China Aerodynamics Research & Development Center, Mianyang 621000, China

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Fire
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
fire@mdpi.com

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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
School of Biological Sciences, University of Tasmania, Private Bag 55, Hobart, TAS 7001, Australia

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