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Supersonic Combustion: Latest Advances and Prospects

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Message from the Guest Editors

Dear Colleagues,

Great efforts have been dedicated to the fundamental research and engineering development of hypersonic flight vehicles. Supersonic combustion is a central physical process that enables hypersonic propulsion systems flying several times faster than the sound of speed. Supersonic combustion is prominently featured with high flowing speed (thousands of meters per second) and short residence time (of the order of milliseconds). Fuel injection, primary atomization, secondary breakup, droplet dispersion and evaporation, vapor mixing, ignition, flame propagation, and stabilization are great challenges associated with robust and efficient combustion organization in supersonic or hypersonic flows.

Subjects that will be discussed in this Issue include the above-mentioned non-linear, multi-scale, and high-coupling physical-chemical processes, but also the flight demonstrations, ground-based experiments, high-fidelity simulations, and elaborated theoretical analyses relevant to supersonic combustion. Submissions associated with high-speed flows, like shock and drag reduction, cooling, and thermal protection for either internal or external walls, are also welcome.



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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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