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Combustion and Emission Performance of Internal Combustion Engines

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Message from the Guest Editors

As internal combustion (IC) engines will remain as one of the major energy conversion and power devices in the foreseeable future, developing advanced IC engines to achieve high efficiency and low emissions is of paramount significance. While new combustion modes and after-treatment strategies have been proposed to achieve high efficiency and low emissions, the complexity of physical processes involved in IC engines, including turbulence, chemical kinetics, spray and particle formation pose challenges in understanding combustion and emission processes in IC engines and in further improving combustion/emission performance. Therefore, the key to advancing IC engines to a highly efficient and low-emission future is a deeper understanding of the combustion and emission formation processes. Topics of interest for this Special Issue include but are not limited to:

- Fuel spray and atomization processes;
- Soot formation and evolution processes;
- Low-carbon fuels;
- Ignition and combustion;
- Chemical kinetics and mechanism reduction;
- Numerical methods and simulations;
- Laser diagnostics for combustion characteristics;
- New combustion modes;
- Exhaust after-treatment;
- Engine knock.

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Message from the Editor-in-Chief

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