Special Issue

Non-Exhaust Vehicle Emissions: Measurement, Impacts, and Mitigation Strategies

Message from the Guest Editor

With the advancement of vehicle electrification, hybridization, and stringent exhaust emission regulations, non-exhaust emissions have emerged as a dominant contributor to urban particulate matter (PM) pollution, drawing increasing global attention. Unlike regulated exhaust emissions, non-exhaust emissions—primarily from brake wear, tire wear, and road resuspension—remain largely unregulated, with significant uncertainties regarding their real-world emission characteristics, formation mechanisms, and environmental impacts. This Special Issue will showcase cutting-edge research on non-exhaust vehicle emissions. We welcome original research, reviews, and technical notes covering, but not limited to, the following areas: advanced measurement technologies (e.g., on-board sensing systems, real-world sampling platforms, and telemetry-based monitoring); emission characteristics of diverse vehicle types (including heavy-duty diesel, natural gas, and alternative fuel vehicles); environmental and health impacts on vulnerable communities; and targeted mitigation pathways (such as material innovation, policy frameworks, and fleet management strategies).

Guest Editor

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Message from the Editor-in-Chief

Continued developments in instrumentation and modeling have driven atmospheric science to become increasingly more complex with a deeper understanding of concepts, mechanisms, and interactions. This is the field that innovation built and it has led to a better appreciation for the complexity with atmosphere. Human life is intertwined in this complexity as we strive to better understand our atmosphere. Climate change is constantly stretching the limits of our thinking and forcing new ideas and concepts to be played out. Welcome to the Anthropocene!

Editor-in-Chief

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