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Study of Brake Wear Particle Emissions

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Message from the Guest Editor

Air pollution in cities worldwide is threatening human health, although emission directives have been sharpened over the last decades. Traffic-generated emissions are one of the main contributors to total particle emission in cities. Exhaust and non-exhaust emissions (airborne wear particles from tires, roads, clutches, and brakes) contribute equally to the total traffic generated emissions. It has been reported that airborne wear emissions from brake systems contribute up to 50% of non-exhaust emissions. Electric vehicles (EVs) are about 25% heavier than the equivalent internal combustion engine vehicles (ICEVs), which means that airborne brake wear emissions are expected to increase in the future. The health effects of airborne particles are strongly linked to their size. A major fraction of outdoor ultrafine particles are traffic generated. There are still large gaps in the current state of knowledge regarding the UFP from brakes. The aim of this Special Issue is to improve the knowledge of transport generated airborne brake wear emissions, with special emphasis on UFP. Both experimental and simulation approaches to the study of airborne brake wear emissions are welcome.

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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!

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