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Advanced Photoacoustic Spectroscopy and Its Applications

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Deadline for manuscript submissions:
closed (26 May 2023)

Message from the Guest Editors

Dear Colleagues,

Particulate matter (PM) and trace gas sensors with the advantages of low cost, high sensitivity, and high selectivity are strongly required in a broad range of applications, from atmospheric monitoring to industrial process control, and from life science research to biomedical application. Photoacoustic spectroscopy (PAS) is recognized as one of the best tools for PM and trace gas sensing, which relies on the detection of acoustic signals resulting from the light absorption of a modulated laser radiation by the target species. Various photoacoustic approaches have been developed using different acoustic transducers, PAS sensors have one unique advantage, which is that their performance is proportional to excitation optical power. Many methods have been investigated to build up high optical power in the PAS cell to improve the sensitivity of PAS gas detection.

The purpose of this Special Issue is to concentrate on advanced photoacoustic spectroscopy based on novel acoustic transducers and novel PAS cell structures developed for various applications, including atmospheric monitoring, industrial process control, biomedical application, etc.

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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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