Urban air quality: towards innovative sensor technologies and the potential use of artificial intelligence"

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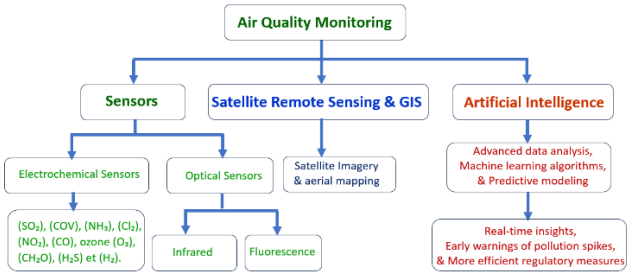
Thematic Area: Analytical chemistry & sustainable environment

Abstract

Cities are a key contributor to climate change, as urban activities are major sources of greenhouse gas emissions. Technological advances in artificial intelligence have introduced new paradigms for reducing urban pollution and improving environmental governance through green development, guiding the transformation and advancement of green and low-carbon urban initiatives. It is already estimated that they are responsible for 70% of global carbon dioxide emissions and 78% of energy consumption, and these figures could increase in an urbanizing world. Indeed, according to the UN, the proportion of people living in urban areas is expected to reach 68% by 2050. However, with unpredictable weather patterns and changing populations, many urban communities face increased climate-related health and economic risks. Hazards such as air pollution and natural disasters can be particularly acute in developing countries, where they threaten severe climate-related catastrophes, especially in cities in South Asia and the Middle East.



The development of artificial intelligence mitigates urban pollution emissions by improving production efficiency, minimizing energy consumption, and stimulating innovation in green technologies. In addition, artificial intelligence could potentially accelerate the search for urban climate solutions. For example, processing large amounts of data is a major obstacle to accurately modeling future climate scenarios and making informed planning decisions.

This session explores the latest technological advancements in air quality sensors focusing on their applications in monitoring a wide range of pollution and offering an efficient solution as well as the role of green technologies in providing a promising solution to reduce pollution in cities.

Keywords: agri-environmental technology innovation; sustainable ecosystems; bioremediation, phytoremediation Combined Remediation Techniques, biosensors.