

**Title: Internet of things for air quality monitoring:  
Past, present and future**

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**ABSTRACT:**

With emerging concerns of air pollution and recent advances in Internet of Things (IoT) technology, air quality monitoring has become one of the most important IoT applications in many countries and major cities. In this talk, we first talk about our AirBox project, which engages citizens to participate in the PM<sub>2.5</sub> sensing project and empowers participants to make low-cost PM<sub>2.5</sub> sensing devices on their own. Moreover, it enables PM<sub>2.5</sub> monitoring at a finer spatio-temporal granularity and enriches environmental data analysis by making all measurement data freely available for everyone. Then, we present examples of big data analysis using AirBox data for anomaly detection, emission source finding, and data forecast services. We also demonstrate applications that are built upon the results of AirBox data analysis, as well as cross-disciplinary collaborations, for both outdoor and indoor scenarios. Finally, we discuss the open challenges and research issues for future environmental monitoring IoT systems.