

3rd International Conference on

MASS SPECTROMETRY

October 10-11, 2016 Kuala Lumpur, Malaysia

Characterization of air pollution episodes by PTR-MS triggered sampling coupled with GC/MS analysis

Jia-Lin Wang and Wei-Cheng Liao
National Central University, Taiwan (ROC)

Foul smells in the peripheral of industrial parks are often perceived by local residents as hazardous and toxic, and arouse major public concerns. Thus, the ability to instantaneously detect relevant compounds from a large pool of volatile organic compounds (VOCs) at a given site is pivotal to emission source investigation, followed by law enforcement to curb emissions from the relevant factories. Due to the illusive and intermittent nature of pollution episodes, *in-situ* monitoring with fast response to key compounds has proven to be an effective solution. Although, GC-MS has been the preferred choice for the task, it requires long analysis time despite its high compound identification power, rendering it unsuitable to capture illusive events. The alternative, proton transfer reaction-mass spectrometry (PTR-MS), is a powerful tool for real-time monitoring of ambient VOCs with extremely high sensitivity (1ppbv) and speed (~1 sec). However, its major limitation lies in its unit mass resolution which limits its ability to accurately identify key compounds among various possibilities of similar molecular weights. Therefore, this work is for bridging the merits of PTR-MS and GC/MS by incorporating a trigger sampling device. The PTR-MS serves to instantaneously detect pollution episodes, which trigger canister sampling at the moments of episodes. The canister samples were then analyzed with in-laboratory GC/MS for accurate determination of episodic chemical composition of more than 100 VOCs.

Biography

Jia-Lin Wang has completed his PhD from University of California, Irvine. He is the Director of the Center of Health and Safety and also a Full Professor at National Central University, Taiwan. He has published more than 70 papers in reputed SCI journals, including *J. Chromatography A.*, *Atmospheric Environment*, *Environmental Science and Technology*, etc. His expertise is in Atmospheric Chemistry and Analytical Chemistry.

cwang@cc.ncu.edu.tw

Notes: