

**ENVIRONMENTAL AND WASTE MANAGEMENT:  
ADVANCEMENTS THROUGH THE ENVIRONMENTAL  
MANAGEMENT SCIENCE PROGRAM**

**Organized by**

**T. Zachry**

Symposia Papers Presented Before the Division of Environmental Chemistry  
American Chemical Society  
Anaheim, CA March 28 – April 1, 2004

---

**Extended abstract not received in time for printing.  
The ACS abstract is reproduced as a courtesy to members  
of the Division of Environmental Chemistry.**

---

**MONITORING AIR POLLUTION IN AND AROUND THE PREMISES OF  
INDUSTRIAL PARKS USING TWO TYPES OF ELECTRONIC NOSE  
AND GAS CHROMATOGRAPHY-ION TRAP MASS SPECTROMETRY**

Jen Yu Liu, Sr. and Yong Chien Ling, Sr.  
Department of Chemistry, National Tsing Hua University,  
Taiwan, 101, Section 2 Kuang Fu Road, Hsinchu, Taiwan 300,  
Republic of China, Hsinchu 300, Taiwan  
Fax: 886-03-5711082, [g913418@oz.nthu.edu.tw](mailto:g913418@oz.nthu.edu.tw)

Two types of electronic nose and GC-MS were used to monitor air pollution in the premises of seven industrial parks. Real-time analysis of air at the sites was performed using portable electronic noses. Air samples were analyzed from the up and down stream direction along the wind flow to investigate the effect or distribution of the pollutants on the surrounding environment. The advantage of multisensors in spatially resolved sensing for direct multicomponent analysis was explored to minimize tedious sample preparation procedure. Electronic nose could give characteristic odor fingerprints, which were correlated with the pollutants analyzed using GC-MS providing detailed diagnostic information such as the presence of hydrocarbons, halocarbons, phenols, nitrogenous benzenes, sulfur compounds, lipid-derived compounds, polysiloxanes, etc. Subsequent principal component analysis helped in identifying the source of pollutants. The applicability of the electronic nose was demonstrated confirming it to be a simple and rapid screening method for identifying the pollutant source.