

## 'Small is beautiful: Low cost sensor networks start to show what they can do'

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**Date(s)** Wednesday 15th May 2013 (16:15-17:15)

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### Part of the School Seminar Series

**Speaker:** Professor Roderic L. Jones, Dept. of Chemistry, University of Cambridge

**Host:** Roy Harrison

### Abstract:

Urban air quality is traditionally monitored using sparse networks of fixed site monitoring stations, with numerical models of varying complexity and inputs being used to provide high spatial resolution mapping of pollution. Given the high spatial and temporal variability of pollutant concentrations usually observed in the urban environment, this approach has significant limitations both in characterizing true urban conditions and for quantifying personal exposure.

However, recent developments in low cost sensor technologies have made possible the monitoring of a range of trace gases (e.g. NO, NO<sub>2</sub>, CO, SO<sub>2</sub>, O<sub>3</sub>, CO<sub>2</sub>, VOCs) and particulates at the concentrations found in the urban environment. This, coupled to reductions in size, and integration with technologies such as GPS (position) and GPRS (data communication) make it possible to create low cost networks of static or mobile air quality sensors, potentially revolutionizing both routine monitoring of air quality and personal exposure studies.

In this presentation the performance of some of the latest generation of gas and particles sensors will be illustrated. Low cost sensors have now been integrated into a number of static and mobile networks of sensors, including major EPSRC and NERC funded deployments in Cambridge and at Heathrow Airport. Recent results from these deployments will be presented together with an assessment of their wider implications.

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