European Network on New Sensing Technologies for Air Pollution Control and Environmental Sustainability - *EuNetAir*

COST Action TD1105

WGs and MC Meeting at Rome, 4-6 December 2012

Action Start date: 01/07/2012 - Action End date: 30/06/2016

Year: 2012-2013 (*Starting Action*)

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Scientific context and objectives

Smart sensors for Urban Air Quality measurements in Cities

Objectives:

- **Horizon scanning of gas sensors for A/Q.**
- **Research & Technology in Sensors for air-pollution control.**
- **Technological Transfer.**

Activities:

- **Support writing of the State-of-Art planned in the Action for *Smart Gas Sensors and Transducers* activities related to the Action issues.**
- **Promotion/Definition of EU proposals for funding of new research projects in the AQC Sensors and related activities**

Deliverables (MoU):

- **Support preparation of reports on *Smart Gas Sensors and Transducers***
- **Report on proposed Guidelines *Air-Pollutant coupled to Best Transducer* Activities to be approved by Action Management Committee.**

- **Special interest group 2: *SMART SENSORS FOR URBAN AIR MONITORING IN CITIES***
- This special interest group currently involves 11 institutions including universities, nationally funded research institutes and one spin-off/start-up, collectively representing 8 separate COST countries. All the partners have particular interests and expertise in various aspects of promoting the development and/or use of smart sensors for urban air quality monitoring in cities and in a wider sense to help define the city environment.
- The SIG focuses on smart sensor technologies for air quality monitoring, including currently deployable sensor technologies, near market, and the horizon mapping of new technologies including smart sensors, sensor networks and integration into city management and ultimately GMES networks. The SIG aims to promote effective knowledge exchange on smart sensor technologies and their applications across the current COST partners, and to identity and encourage new research activities.

Priorities for SIG-2: Smart sensors for Urban Air Quality measurements in Cities

Excellent papers (sensors, sensor networks, deployments (current, future), analysis of existing networks, sensor calibration, network management, adaptive sensors/machine learning. Kept to time, but not enough time for discussion…..

Priorities

Improvements in basic sensor performance

Further improvement in sensors/networks still required….

- Species: gas phase, particulates (ultra-fine, composition?)…..
- Selectivity/stability, power/size
- Communications (lower power)

Definition of sensor performance requirements

Action which should come from SIG2 *and other WPs/SIGs*

Priorities for SIG-2: Smart sensors for Urban Air Quality measurements in Cities

Discussion of ‘smart’

- Self monitoring – e.g. fault detection
- Clever design/manufacturing – e.g. self calibrating

Ideally both needed…..

- Smart use of ‘stupid’ (not educated) sensors

→ sensor systems

Priorities for SIG-2: Smart sensors for Urban Air Quality measurements in Cities

Sensor Systems:

sensors + analysis/correction + archiving + data mining + mapping + interpretation/dissemination

- Deliver *answers* to:
  - *General public (low pollution routes/traffic flow)*
  - *Legislature/compliance?*
  - *Health impacts community?*

- *Activity goes way beyond 'simple' sensor development*

Priorities for SIG-2: Smart sensors for Urban Air Quality measurements in Cities

Other issues?

- Transferring A/Q knowledge from one environment to another (do we have to have networks everywhere? Continuously deployed?)
- Use of modelling? Philosophy of testing models, combining model/sensor network outputs - Data assimilation – routinely used in NWP – applicability here?

Highly cross-disciplinary, are all other communities represented here?

Priorities for SIG-2: Smart sensors for Urban Air Quality measurements in Cities

- Roadmap,

Not discussed…….