



COST

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

COST Action TD1105

Research and Innovation Needs in COST Action TD1105

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 **cost**
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY





RESEARCH AND INNOVATION NEEDS AND STRATEGIC FORESIGHT ON AQC

General goal:

To collect needs in research and innovation and in strategic foresight for each partner of the COST Action TD1105 *EuNetAir* on AQC, in order to develop a first synthetic roadmap for future actions in the field of AQC (research, infrastructures, legislation)

Specific goals:

- to establish a Pan-European multidisciplinary R&D platform on new sensing paradigm for AQC contributing to sustainable development, green-economy and social welfare
- to investigate the best available technology for sensor deployment, communication, power supply and data storage, analysis and display
- to provide to the EU community and institutions a complete overview on the research and innovation needs in AQC in Europe
- to provide the challenges and strategic foresight in AQC in Europe
- to propose a Roadmap for the implementation of infrastructures, legislation, technologies, education on AQC in Europe

Challenges in Air Quality Control

- Low power devices, long lifetime and maintenance free
- Convince the market that new air quality network can improve the quality of life
- Engage the citizens through citizens observatories
- Convince the public institutions of the impact of odour nuisance
- To work in harsh environments

Research Goals in Air Quality Control

- Greater communication distances for wireless network of sensors
- New sensors for odour assessment
- Air-quality case-studies, stability assessment
- Calibration strategies for low cost sensing devices
- Work on POP (persistent organic pollutant) detection
- Biosensor based on enzyme for dioxin and POP, work on POP detection
- Chemical and radiation environmental monitoring
- Ozone sensors, NO_x and CO and CO₂ sensors for automotive application
- Improve stability of available sensors, compatibility with CMOS microelectronics, soft CMOS post-processing methods for reproducible high throughput manufacturing
- Toxic and explosive (hydrogen) gas leakage
- VOC detection developing sensors modules and sensor systems
- Indoor air quality control, leak detection
- Odour monitoring system (odour telephone)
- Enhancement of the sensing properties by introducing functional receptive groups
- Coupling different transduction modes in the same device

Priority Innovation Requirements in Air Quality Control

- Evaluate market opportunities for encouraging EU investment in specific topic of AQC and direct SME, RD effort.
- Develop legislation in different areas of air quality control
- Push the creation, extension and adoption of regulations (i.e. methodologies, guidelines) at EU levels
- Low cost devices and easy to use for odour monitoring
- Training school for new “ambassadors” that can promote air quality management
- Engage the citizens of the AQC concept
- Education and dissemination of AQC concept (school, institutions, sales, politicians, ONG etc.)



Proposed activity from SIG1 Group during UCAM Meeting

- News for SME and spin-off on research opportunities
- Periodical survey on recent relevant patents on AQC topics
- Lobbying in AQC on specific topics
- Promote partnership instruments
- Connection with local and regional TT network to intercept opportunities
- Communication of business opportunities
- Linkedin group of SIG1 (with no email alert!!)
- Partnership and common link with EEN organization

CONCLUSIONS

IT IS A HUGE AMOUNT OF WORK!!

