Action TD1105

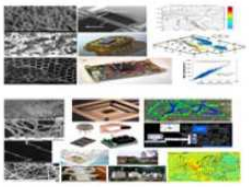
European Network on New Sensing Technologies for Air-Pollution Control and Environmental Sustainability - EuNetAir

Objectives

The aim of the Action is to form a European-wide science and technology knowledge platform by a multidisciplinary coordinated network at international level on the new sensing technologies for Air Quality Control including sensor nanomaterials, portable wireless sensor-systems and distributed computing, air-quality modelling and chemical weather forecasting, standards, methods and protocols for environmental measurements in order to advance R&D and innovation in the European green-economy by strengthening the sustainable development in smart cities, outdoor air-pollution control and indoor energy efficiency in buildings and to foster the technology transfer of the new sensing paradigm of the cost-effective chemical sensors in the European countries with a special focus on SMEs.

Abstract

This Action will focus on a new detection paradigm based on sensing technologies at low cost for Air Quality Control (AQC) and set up an interdisciplinary top-level coordinated network to define innovative approaches in sensor nanomaterials, gas sensors and devices, wireless sensor-systems, distributed computing, methods, models, standards and protocols for environmental sustainability within the European Research Area (ERA). The state-of-the-art research on innovative sensing technologies for AQC based on advanced chemical sensors and sensor-systems at low-cost, including functional materials and nanotechnologies for eco-sustainability applications, the outdoor/indoor environment control, olfactometry, air-quality modelling, chemical weather forecasting, and related standardisation methods is performed already at the international level, but still needs serious coordination efforts to boost new sensing paradigms for research and innovation. Only a close multidisciplinary cooperation will ensure cleaner air in Europe as well as reduced negative effects on human health for future generations in smart cities, efficient management of green buildings at low CO2 emissions, and sustainable economic development. The objective of the Action is to create a cooperative network to explore new sensing technologies for low-cost air-pollution control through field studies and laboratory experiments, to transfer the results into preventive real-time control practices and to move towards global sustainability via monitoring climate change and outdoor/indoor energy efficiency. Establishment of such a network, involving COST country participants as well as non-COST key-experts, will enable Europe to develop world capabilities in urban sensor technology based on cost-effective nanomaterials, to form a critical mass of researchers suitable for cooperation in science and technology, to give training and education, to coordinate outstanding R&D, to promote innovation towards industry, and to support policy-makers.



Keywords: sensor functional materials, nanomaterials and sensing nanostructures, gas sensors and wireless sensor-systems with distributed computing, air quality control/monitoring and environmental measurements/modelling, protocols and standardisation methods for environmental sustainability and chemical weather forecasting

Working Groups

WG1	Sensor materials and nanotechnology
WG2	Sensors, devices and systems for AQC
WG3	Environmental measurements and air-pollution modelling
WG4	Protocols and standardisation methods

Non-COST participation: Australia, Canada, China, Russia, USA

Approval of the Committee of Senior Officials during 183rd Meeting on December 1, 2011, at Brussels - Earth System Science and Environmental Management (ESSEM) - Trans Domain (TD) Action

Action Fact Sheet: Action details

Memorandum of Understanding (MoU)	oc-2011-1-9706
CSO Approval date	01 December 2011
Kick-off Meeting of Action TD1105	16 May 2012
Start of Action	1 July 2012
Entry into force	09 January 2012
End of Action	30 June 2016
Period of Action	4 years

Participants of COST Action EuNetAir

At the moment of approval of the Action, 51 big Institutions from **17 European Countries** (Belgium, Bulgaria, Switzerland, Germany, Denmark, Greece, Spain, Finland, France, Hungary, Italy, Lithuania, Netherlands, Poland, Sweden, Slovenia, United Kingdom) participated in the preparation of the proposal. The Action spans largely across the European Union including a wide geographical coverage and other Countries, such as Czech Republic, Portugal, Norway, Iceland, Ireland, Israel, Latvia, Romania, Turkey, signed MoU after its approval from CSO.
At the Kick-off Meeting (16 May 2012), **21 COST Countries** were participants in the COST Action TD1105 by involving 60 research teams from COST area (Europe-zone). The Action participants are from *30 Universities*, *13 Research Centers*, *2 Environmental Agencies* and *15 SMEs* including *5 spin-offs*.
At the current stage (November 2012), **25 COST Countries** have signed the Memorandum of Understanding (MoU).
Additional 6 top-level Institutions from 5 **Non-COST Countries** (Australia, USA, Canada, China, Russia) were involved to Action: CSIRO, Chinese Academy of Sciences, National Research Center Kurchatov-Institute, University of Waterloo, Southern Illinois University Carbondale, NASA Ames Nano Research Center.

COST Action TD1105 EuNetAir Participating Institutions

Universitè de Liège (BE); VITO (BE); Odometric SA (BE); Bulgarian Academy of Sciences (BG); Ecole Polytechnique Federale de Lausanne (CH); E2V Microsensors SA (CH); EnvEve SA (CH); Empa Swiss Federal Laboratories for Materials Science and Technology (CH); Institute of Computer Science - Czech Academy of Sciences, (CZ); Institute of Energy and Environmental Technology (DE); Alfred Becker GmbH (DE); 3S GmbH (DE); Saarland University (DE); University of Bayreuth (DE); University of Paderborn (DE); UST GmbH (DE); Aarhus University (DK); Technical University of Denmark (DK); Aristotle University (EL); FORTH (EL); ISI-ATHENA (EL); Catalonia Institute for Energy Research (ES); CSIC (ES); Universitat Rovira i Virgili (ES); University of Barcelona (ES); Worldsensing SL (ES); University of Oulu (FI); University of Helsinki (FI); University of Tampere (FI); Universitè de Bourgogne (FR); University Blaise Pascal (FR); Hungarian Meteorological Service (HU); Trinity College Dublin (IE); AirBase (IL); Agricultural University of Iceland (IS); ENEA (IT); ELETTRA (IT); University of Bari (IT); Lenviros srl (IT); Sensichips srl (IT); University of Brescia (IT); University of Trieste (IT); University of Latvia (LV); Lithuania Environmental Protection Agency (LT); IMEC (NL); ECN (NL); Norwegian Institute for Air Research (NO); Silesian University of Technology (PL); Warsaw University of Life Science (PL); University of Coimbra (PT); National R&D Institute for Nonferrous and Rare (RO); SC IPA SA (RO); Metals Chalmers University of Technology (SE); Linkoping University (SE); SenseAir AB (SE); SenSiC AB (SE); Aerosol doo (SI); University of Ljubljana (SI); Alphasense Ltd (UK); Cambridge CMOS Sensors Ltd (UK); Imperial College London (UK); Newcastle University (UK); University of Manchester (UK); University of Warwick (UK); University of Cambridge (UK).

Proposer/Chair of COST Action EuNetAir

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