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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COST is supported by the EU Framework Programme

ESF provides the COST Office through a European Commission contract

Scientific context and objectives in the Action

SENSGAS

The main objective of the project is to develop a new nanostructured doped BST(doped nanostructured barium strontium titanate) based multifunctional gas sensor platform with specific sensitivity for detecting each toxic gas providing the potential to operate at temperatures as near as possible to the ambient temperature and a detection range between 0-100 ppm.

Current research activities of the Partner (1/2)

- **Sensors based on complex perovskitic structures for detection and identification of hazardous substances.**
- **H2S Semiconductor sensors**
- **Electrochemical cells to determine H2S in water.**
- **Screen printed electrodes for the determination of metal ions in wastewater.**
- **ASV (anodic stripping voltametry) for determination of metal ions from wastewater using screen printed electrodes (carbon nanotubes,graphene).**
- **Electrical characterization of thin-film gas sensors.**
- **Design, Implementation, Testing of Gas Sensors.**
- **Design and implementation of sensor-systems for air quality control.**

Research Facilities available for the Partner (2/2)

- Manufacture of oxide semiconductor sensors for toxic gas- production-line.
- Testing, calibration of gas sensors.
- Developing programs for environmental monitoring softwer.
- Implementation of SCADA systems for air quality control.
- Deposition of oxide layers:

-The PLD technique Neocera type (available in our laboratory) used for deposition consists of a vacuum chamber (p=1.4x10-6torr) and optical laser system.

-Sputtering in RF,piroliza,etc

- Characterisation:

-X-ray diffractometer Bruker D8 Advance

-Atomic absorption spectrometer ZEENIT 700

-UV-VIS spectrometer, system for measuring elastic properties of thin films

-AFM Park system with modules (nanoindentation, Electrical Enhanced with Amplifier Lock-in, Force Modulation Microscopy, CAFM, Ultra Low-Current CAFM, Magnetic Force Microscopy, nanolithography, Scanning Thermal Microscopy)

The PLD technique Neocera type

AFM Park system

Suggested **Priorities** for future research

- **Sensors based on complex perovskitic structures for detection and identification of hazardous substances.**
- **Low cost and low energy consumption sensor structures.**
- **Development of fixed and portable devices.**
- **Development of wireless systems and sensors.**

Thank you
for your attention!