



**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*)**



**Zafer Ziya ÖZTÜRK**

**Function in the Action ( MC, WG1&2, SIG member,)**

**Gebze Institut of Technology, Dept. of Physics,**

**41400 Kocaeli TURKEY**



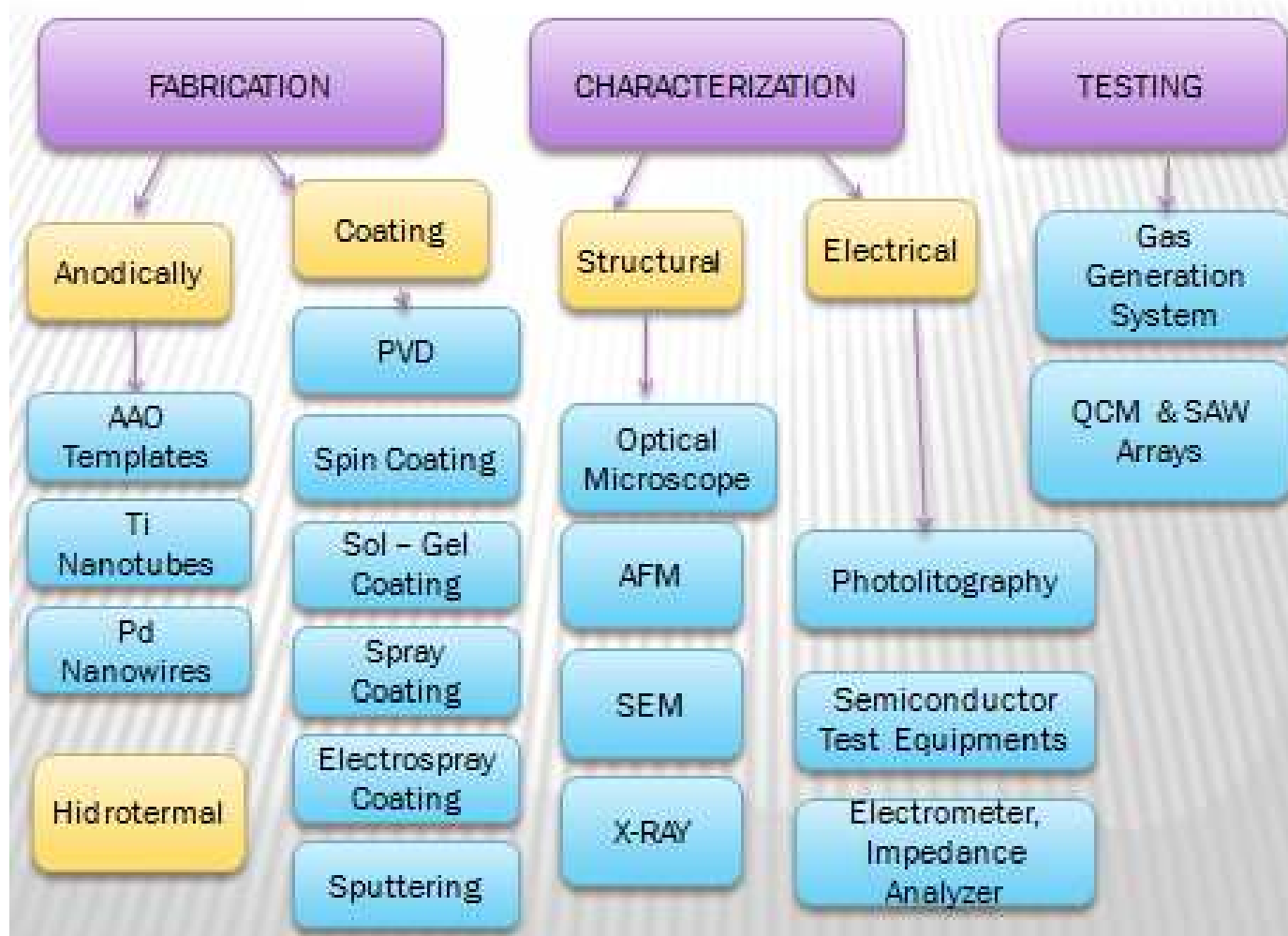
## Scientific context and objectives in the Action

- The risky gases which may affect adversely air quality in the car are  $H_2$ ,  $CO$ ,  $H_2S$ ,  $NH_3$ ,  $NO_2$ ,  $CO_2$  etc. According to USA EPA standards the limit values of the concentration for one hour exposure are 35 ppm (part per million) for  $CO$ , 100 ppb (part per billion) for  $NO_2$ , 0,12 ppm for  $O_3$ , 75 ppm for  $SO_2$ , 10 ppm for  $H_2S$  etc.
- Within the frame of TD1105 EuAirNet, nanostructured doped-undoped metal-oxide semiconductor based gas sensors will be developed to control the air quality in car cabin including fuel cell battery operated vehicles.

# Current research activities of Gebze Inst Tech



# Research Facilities available for GIT





## Suggested **Priorities** for future research

- gas sensors based on doped/undoped nanostructured metal-oxide semiconductors will be developed for toxic gases such as H<sub>2</sub>, CO, and NO<sub>2</sub>.
- to fabricate inexpensive, sensitive and selective gas sensors for toxic gases in the car cabin from low level to high level concentrations with low power consumption,
- ZnO and TiO<sub>2</sub> nanostructures will be synthesized by using sol-gel, anodization, hydrothermal, chemical vapor deposition (CVD), and electrochemical methods.
- Fabricated sensor devices will be characterized against to gases H<sub>2</sub>, CO, NO<sub>2</sub> and interference gases.