



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

COST Action TD1105

1ST TRAINING SCHOOL

Universitat de Barcelona, Spain, 13 - 15 June 2013

organized by UB, MIND-IN2UB - Dept. of Electronics and CSIC-IDAEA

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

Year 1: 2012 - 2013 (*Ongoing Action*)



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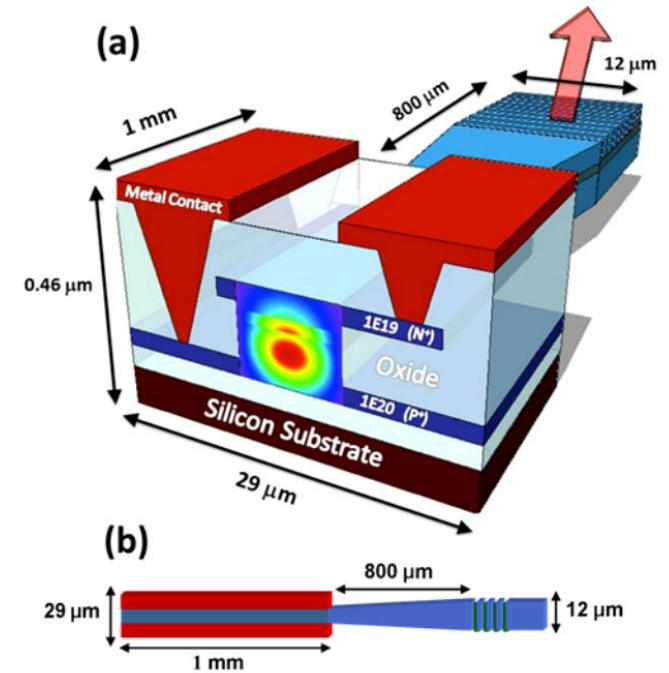
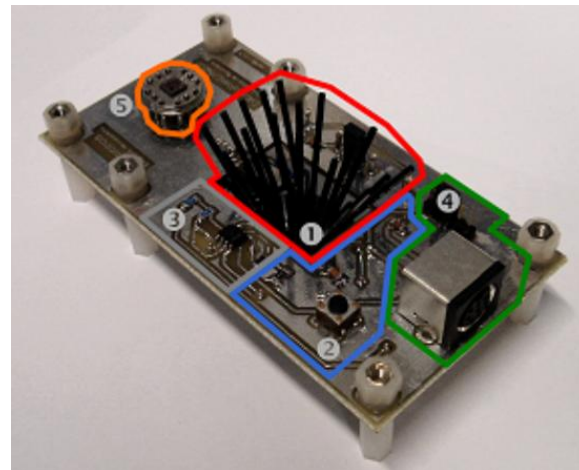
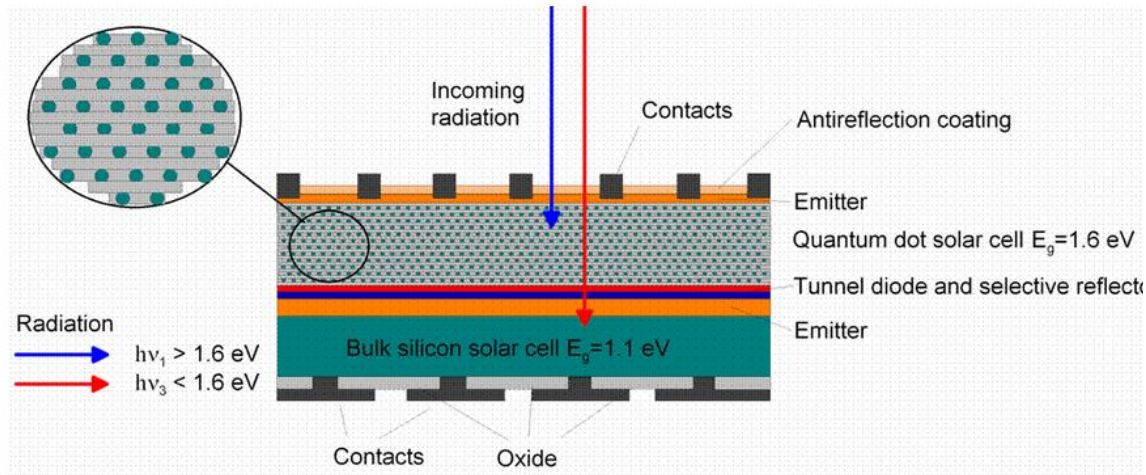
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My Expertise

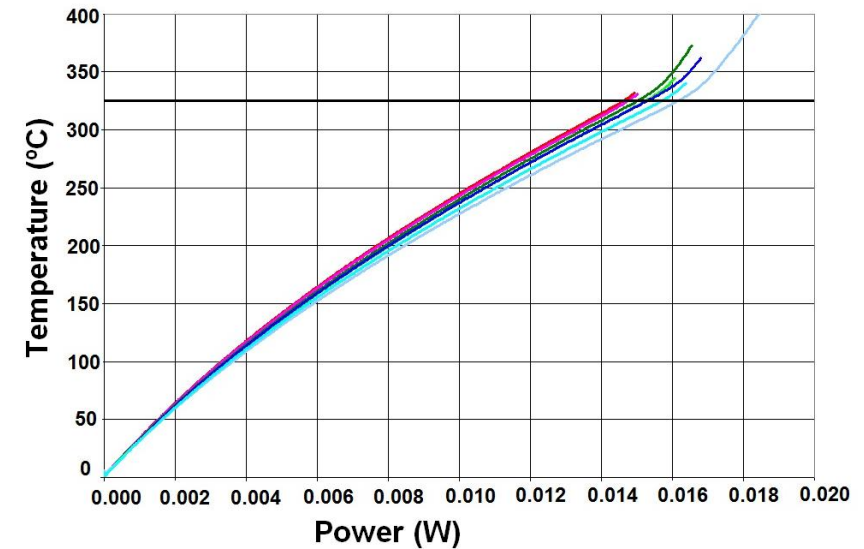
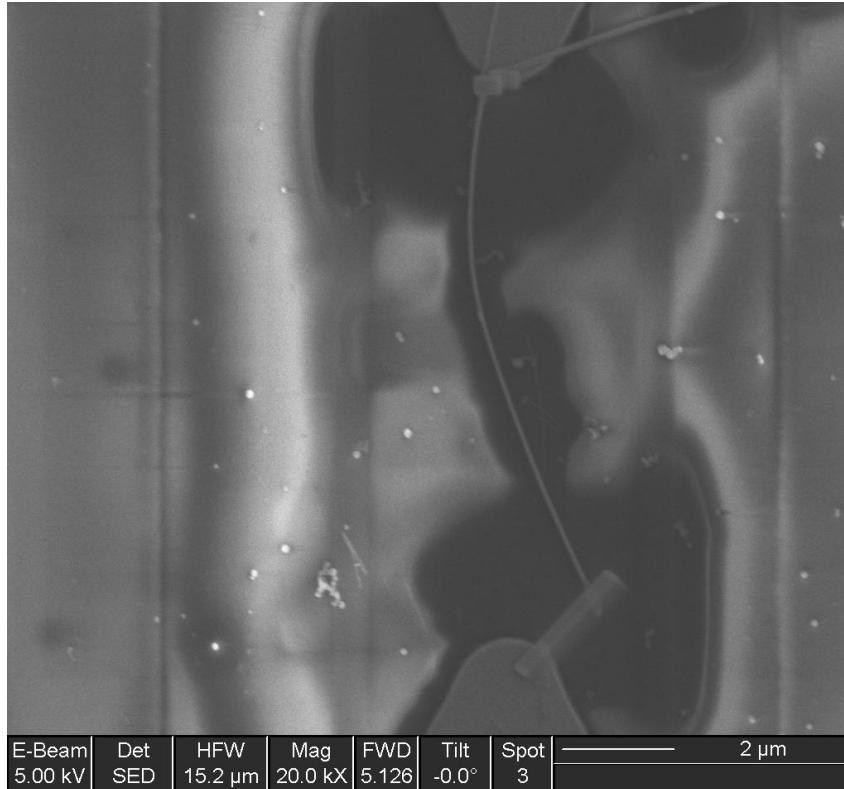
- **Fabrication of nanocontacts by Focused Ion Beam for gas sensors based on single metal oxide nanowire**
- **Development of localized growth of selfcontacted nanowire on microhotplates**
- **Testing and characterization the response of gas sensors towards toxic gases (CO, NO₂, etc)**

Current research activities on UB



Current research activities

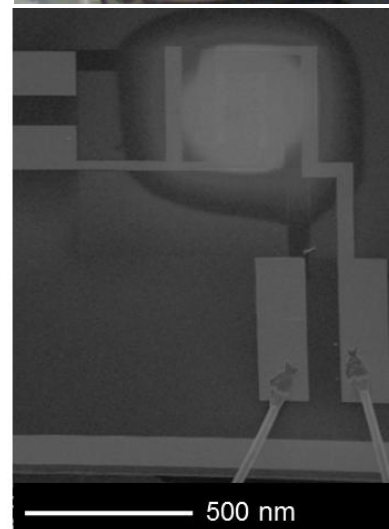
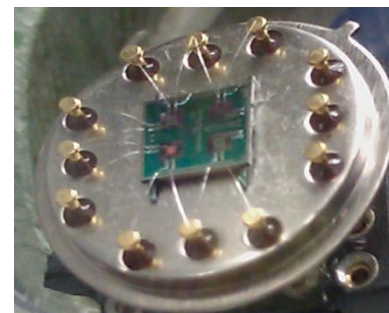
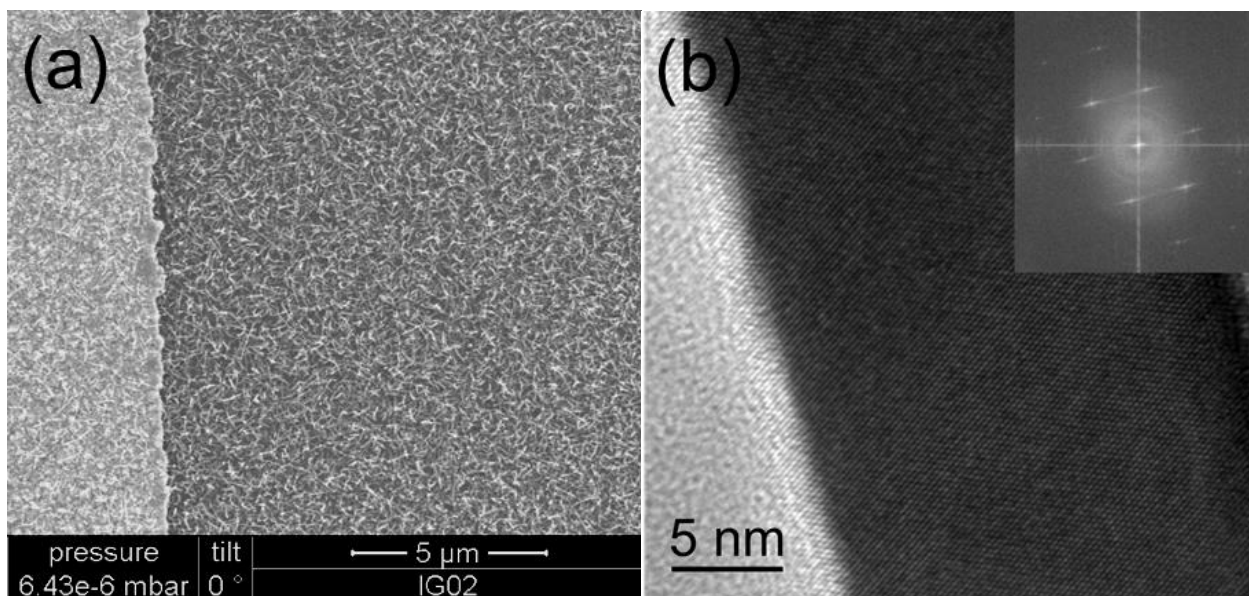
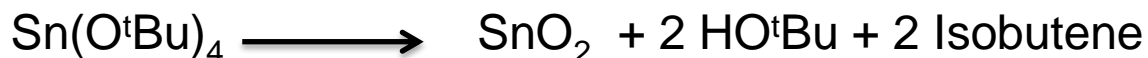
- Fabrication of gas sensors by FIB based on one single metal oxide nanowire



Current research activities

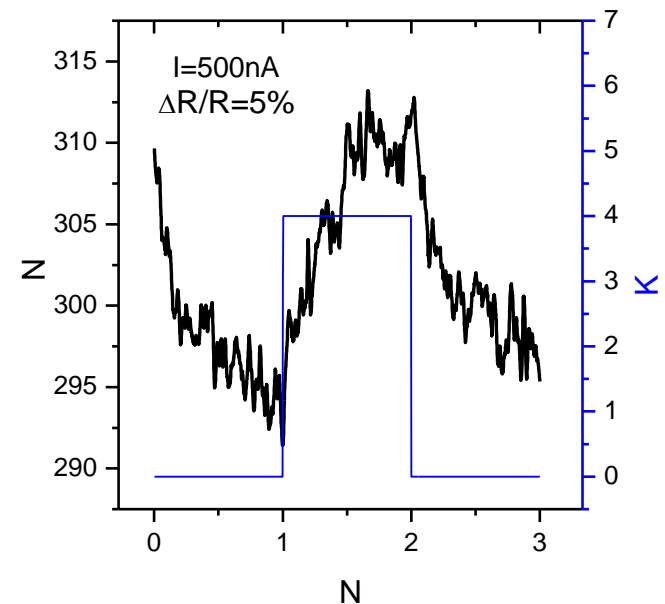
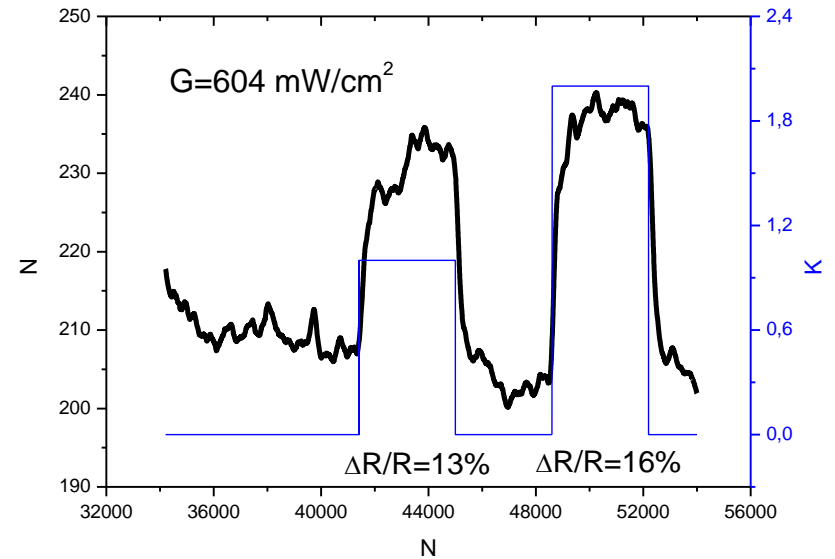
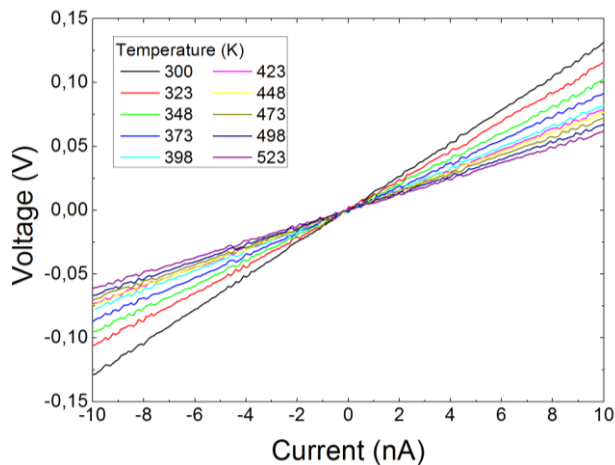
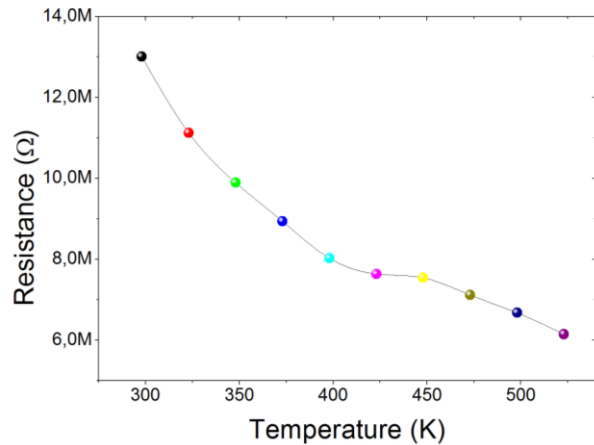
- Localized Growth of Selfcontacted NWs onto micromembranes for gas sensor applications

Au sputtering deposition – Localized Heating – Gold Islands act as a catalyst



RESULTS

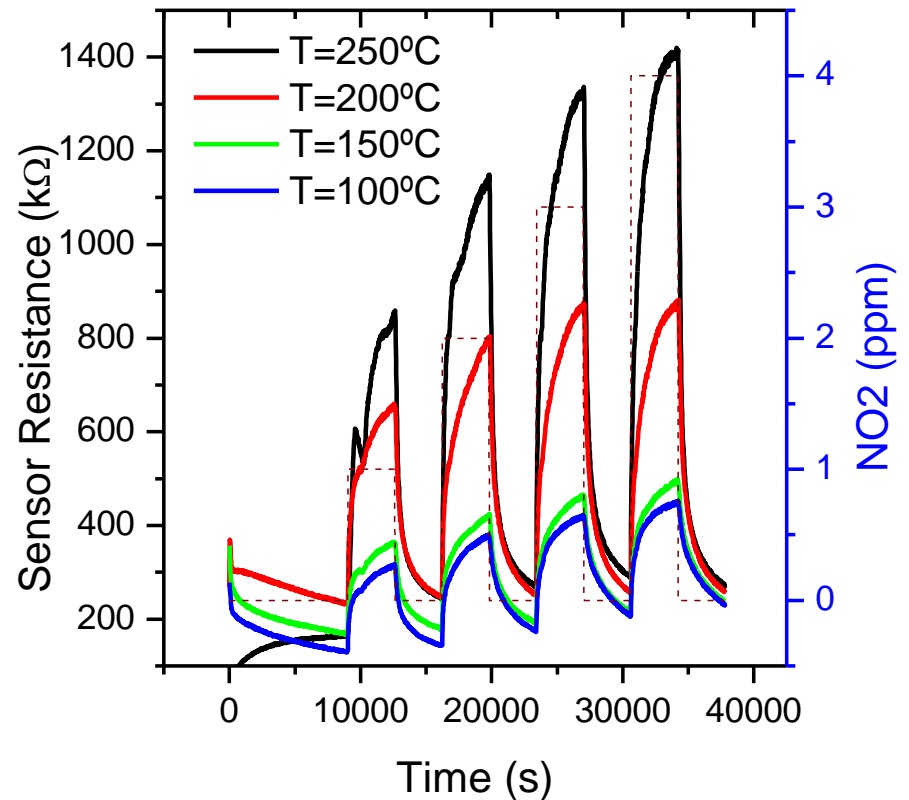
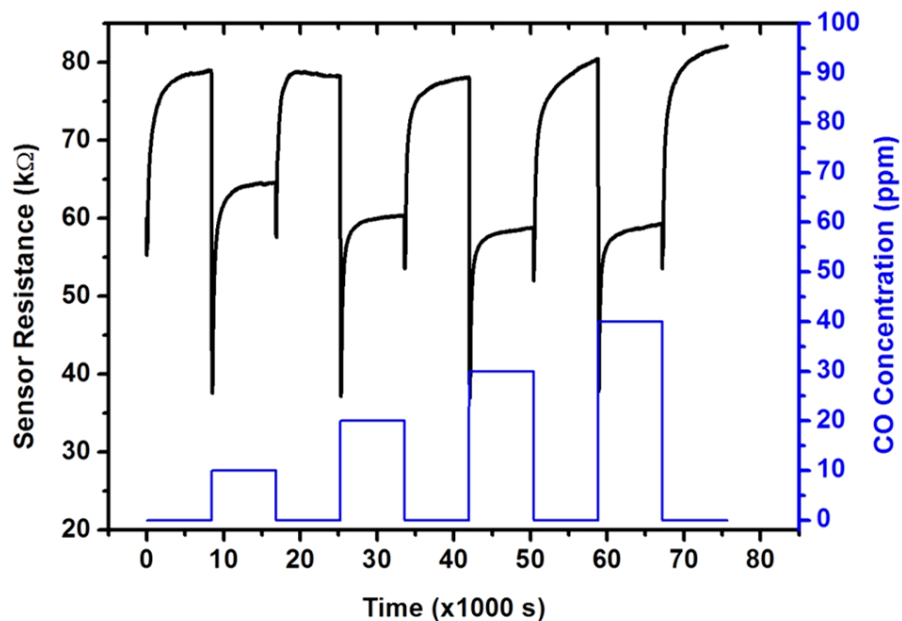
- One single MOX NW gas sensor:



RESULTS

- Localized growth of MOX selfcontacted NWs.
- SnO₂ CO DifT – NO₂ (Tesi Roman)

T=360°C



CONCLUSIONS

- **CONCLUSIONS:**
- Use of MEMS microhotplates as a platform for gas sensors has been performed
 - One single MOX NW contacted by FIB
 - Localized growth of nanowires by means of LPCVD technique
- Higher reproducibility needed on sensors fabricated by FIB
- Functionalization or additives on the surface or the bulk of NWs are tested in order to improve the response and selectivity of gas sensors.