

Symposium 11:
Nanomaterials for
Sensing Applications:
From Fundamentals to
Device Integration

Wednesday, January 25, 2012

**Symposium 11: Poster
Session**

5:00 PM-7:30 PM

Room: Exhibition Hall, Ocean Center

**(ICACC-S11-P116-2012) Theoretical Modeling
of NH₃ Adsorption on SnO₂**

Feng Shao*, Institut de Recerca en Energia de Catalunya (IREC), Spain; Nuria López, Institut Català d'Investigació Química (ICIQ), Spain; Francisco H Ramírez, Institut de Recerca en Energia de Catalunya (IREC), Spain; Joan D Prades, Universitat de Barcelona, Spain; Joan R Morante, Institut de Recerca en Energia de Catalunya (IREC), Spain

**(ICACC-S11-P117-2012) Nanowire based gas
sensors in wireless and power-autonomous
detector systems**

Jordi Llosa, Universitat de Barcelona, Spain; Mikel Martínez de Marigorta, Jordi Bécares, WorldSensing, S.L.N.E., Spain; Oriol Monereo, J. Daniel Prades*, Universitat de Barcelona, Spain; Francisco Hernandez-Ramirez, Institut de Recerca en Energia de Catalunya (IREC), Spain; Ignasi Vilajosana, WorldSensing, S.L.N.E., Spain; Sanjay Mathur, Universität zu Köln, Germany; Albert Cirera, Universitat de Barcelona, Spain

**(ICACC-S11-P118-2012) Insight into ethanol
sensing mechanism and its relation with
humidity using individual SnO₂ nanowires**

J. Daniel Prades, Universitat de Barcelona, Spain; Francisco Hernandez-Ramirez, Joan Ramon Morante*, Institut de Recerca en Energia de Catalunya (IREC), Spain

**(ICACC-S11-P119-2012) Metal oxide
mesoporous structures for resistive CO₂ gas
sensors**

Teresa Andreu, Marta Manzanares, Joan Ramón Morante*, Catalonia Institute for Energy Research (IREC), Spain; Joan Ramón Morante, University of Barcelona, Spain

Thursday, January 26, 2012

Sensing Devices I

8:00 AM-11:30 AM

Room: Oceanview

Session Chair(s): Francisco Hernandez-Ramirez

8:00 AM

**(ICACC-S11-001-2012) Integration and testing
of quasi-one-dimensional tin oxide
nanomaterials in chemical microsensors
(Invited)**

Kurt D. Benkstein*, Eric N Dattoli, Christopher B Montgomery, Steve Semancik, National Institute of Standards & Technology, USA; Suresh Donthu, Vinayak Dravid, Northwestern University, USA

8:30 AM

**(ICACC-S11-002-2012) Structural and Electrical
Characterization of BaTiO₃ Nanorods**

Kristina Zagar*, Jozef stefan Institute, Slovenia; Francisco Hernandez-Ramirez, Catalonia Institute for Energy Research (IREC), Spain; Joan Daniel Prades, University of Barcelona, Spain; Joan Ramon Morante, Catalonia Institute for Energy Research (IREC), Spain; Aleksander Recnik, Miran Ceh, Jozef stefan

Institute, Slovenia

8:50 AM

(ICACC-S11-003-2012) NH₃ Sensing with Single SnO₂ Nanowire and the Humidity Influence

Feng Shao*, Catalonia Institute of Energy Research (IREC), Spain; Roman J Diaz, University of Barcelona, Spain; Francisco H Ramirez, Catalonia Institute of Energy Research (IREC), Spain; Joan D Prades, University of Barcelona, Spain; Sanjay Mathur, Inorganic Chemistry, Germany; Joan R Morante, Catalonia Institute of Energy Research (IREC), Spain

9:10 AM

(ICACC-S11-004-2012) Effects of the UV illumination and temperature on the conductometric detection of CO using SnO₂ nanowires from room temperature

J. Daniel Prades, Universitat de Barcelona, Spain; Francisco Hernandez-Ramirez, Joan Ramon Morante*, Institut de Recerca en Energia de Catalunya (IREC), Spain

9:30 AM

Break

10:00 AM

(ICACC-S11-005-2012) Nanowire Chemiresistors: The Devices Where the Joule Heating is Beneficial (Invited)

Andrei Kolmakov*, Southern Illinois University at Carbondale, USA

10:30 AM

(ICACC-S11-006-2012) Improved gas selectivity to the humidity using self-heated nanowires in pulsed-operation (Invited)

J. Daniel Prades*, Universitat de Barcelona, Spain; Francisco Hernandez-Ramirez, Institut de Recerca en Energia de Catalunya (IREC), Spain; Thomas Fischer, Martin Hoffmann, Ralf

Müller, Universität zu Köln, Germany; Nuria López, Institut Català d'Investigació Química (ICIQ), Spain; Sanjay Mathur, Universität zu Köln, Germany; Joan Ramon Morante, Institut de Recerca en Energia de Catalunya (IREC), Spain

10:50 AM

(ICACC-S11-007-2012) Combined Resistive-Surface Ionisation Gas Sensor Response in Individual Nanowires

Francisco Hernandez-Ramirez, Institut de Recerca en Energia de Catalunya (IREC), Spain; J. Daniel Prades*, Universitat de Barcelona, Spain; Angelika Hackner, EADS Innovation Works, Germany; Thomas Fischer, Universität zu Köln, Germany; Gerhard Müller, EADS Innovation Works, Germany; Sanjay Mathur, Universität zu Köln, Germany; Joan Ramon Morante, Institut de Recerca en Energia de Catalunya (IREC), Spain

11:10 AM

(ICACC-S11-008-2012) Role of surface active centers in interaction of Pd- and Ru-modified nanocrystalline tin dioxide with CO and NH₃

Alexander Gaskov*, Marina Rumyantseva, Artem Marikutsa, Elizaveta Konstantinova, Darya Deygen, Diana Grishina, Moscow State University, Russian Federation; Artem Abakumov, University of Antwerp, Belgium

Sensing Devices II

1:30 PM-3:00 PM

Room: Oceanview

Session Chair(s): Francisco Hernandez-Ramirez

1:30 PM

(ICACC-S11-009-2012) Sensors and Catalysts in Automotive Exhaust Gas Aftertreatment - an Overview on recent developments and research trends (Invited)

Ralf Moos*, Bayreuth Engine Research Center

(BERC), Germany

2:00 PM

(ICACC-S11-010-2012) Improvement of NO₂-Sensing with Cr-Doped TiO₂-Nanotubular Sensor Electrodes

Bilge Saruhan-Brings*, Yakup Gönüllü, German Aerospace Center, Germany

2:20 PM

(ICACC-S11-011-2012) Effect of Ion-Implantation on the Binding Energy, Electronic and Chemical States in ZnO nanorods

It-Meng Jim Low*, Curtin University, Australia; Alex Djurisic, University of Hong Kong, Hong Kong; Mihail Ionescu, Australian Nuclear Science & Technology Organisation, Australia

2:40 PM

(ICACC-S11-012-2012) SWAP: a wireless and power-autonomous new generation sensor node (Invited)

Jordi Llosa, Xavier Vilajosana, Ignasi Vilajosana*, WorldSensing, S.L.N.E., Spain; J. Daniel Prades, Universitat de Barcelona, Spain