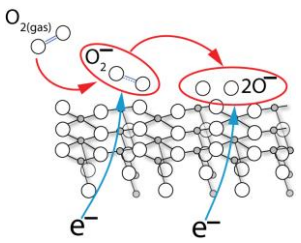
4th GOSPEL Workshop on:

Gas sensors based on semiconducting metal oxides: basic under- standing & applications



Tübingen (Germany), 7th to 9th of June, 2015

Monday, June 8

07:30 Registration

08:30 Nicolae Barsan, University of Tuebingen, Germany
Welcome Address

Session 1 – Fundamental Understanding (1/3)

09:00 Yoshihiko Sadaoka, Ehime University, Japan
VOC gas sensor based on metal oxides - Behaviour of adsorbed VOC on the surface

09:40 Nan Ma, Kyushu University, Japan
Impact of Pd on the gas sensing properties of SnO_2 based sensors in the presence of water vapor

10:00 David Degler, University of Tuebingen, Germany
Identification of the reactive oxygen species on SnO_2 by using operando spectroscopy

10:20 Coffee Break

Session 2 – Fundamental Understanding (2/3)

10:40 Ken Watanabe, National Institute for Material Science (NIMS), Japan
Nonstoichiometry in metal oxide semiconductors in dry/wet atmosphere

11:20 Patrick Moseley, Atmospheric Sensors Ltd., United Kingdom
Gas Responses of the Imaginary Part

11:40 Šarūnas Vaškelis, Center for Physical Sciences and Technology, Lithuania
Gas dependent occupation of surface electronic states in TiO_2 films

12:00 Lunch Break

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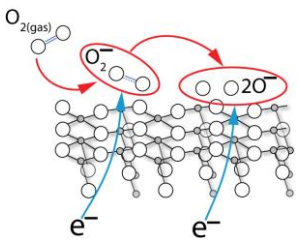

Session 3 – Fundamental Understanding (3/3)

13:00 Anne Hémeryck, Centre national de la recherche scientifique (CNRS), France
A Modeling tentative of operation of gas sensor through atomic scale insights

13:40 Mauro Epifani, Istituto per la Microelettronica e i Microsistemi, Italy
The importance of surface chemistry in metal oxide nanocrystals based gas-sensors by DFT-aided approach: critical issues and perspectives

14:00 Guozhu Zhang, Huazhong University of Science and Technology, China
Temperature-programmed technique - A novel method to basically understand the gas sensing of the MOS gas sensor

14:20 Coffee Break

Session 4 – Advanced Materials (1/4)

14:40 Tong Zhang, Jilin University, China
Strategy for enhanced sensing of metal oxide semiconductor gas sensors

15:20 Vincenzo Guidi, University of Ferrara, Italy
Thermo- and photo-activation of metal sulfides for gas sensing

15:40 Carrado Di Natale, University of Rome Tor Vergata, Italy
Photo-assisted chemical sensors based on porphyrins coated ZnO

16:00 Coffee Break

Session 5 – Advanced Materials (2/4)

16:20 Yeon Hoo Kim, Seoul National University, Republic of Korea
Self-activated transparent flexible all graphene gas sensor

16:40 Christine Leroux, Université de Toulon, France
Nanostructured cobalt ferrite for gas sensing

17:00 Geyu Lu, Jilin University, China
Highly Sensitive acetone sensor based on $ZnFe_2O_4$ hollow microspheres

17:30 Poster Session

19:00 Conference Dinner

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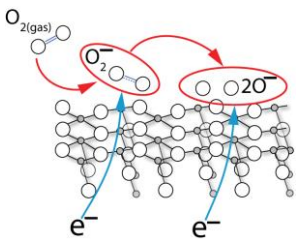

Presented Posters

Seonyong Lee, Seoul National University, Korea
Facile synthesis of 1-dimensional α-Fe_2O_3 nanostructures for ultrasensitive gas sensors

Eduard Llobet, Universitat Rovira i Virgili, Avda. Països Catalans, Spain
Synthesis, characterization and hydrogen sensing properties of palladium nanoparticle decorated tungsten oxide nanowires

Hyung-Gi Byun, Kangwon National University, South Korea
Optimal Sensors Selection Technique for DADSS

Manjeet Kumar, Defense Institute of Advanced Technology, India
Selectivity improvement of Tin oxide based electronic nose for the detection of air pollutants

Artem S. Chizhov, Moscow State University, Russia
Room temperature NO_2 sensors based on "Metal oxide/Quantum Dots" nanocomposites

Kengo Shimanoe, Kyushu University, Japan
Determination of oxygen adsorption species on oxide semiconductor for highly sensitive gas sensor under humid condition

Nikolay Samotaev, National Research Nuclear University MEPhI, Russia
Ammonia detection using MOX sensors in temperature pulse mode

Zafer Ziya Öztürk, Gebze Technical University, Turkey
Electrical and gas sensing properties of TiO_2 nanorods fabricated with hydrothermal method

Julia Rebholz, University of Tuebingen, Germany
Implications of conduction mechanism changes for sensing with SnO_2 based gas sensors

Susanne Wicker, University of Tuebingen, Germany
Impact of the doping method of commercial SnO_2 on gas sensor response, humidity dependence and sensing mechanism

Albert Romano-Rodriguez, Universitat de Barcelona, Spain
Ultra-low power gas nanosensors fabricated from single metal-oxide nanowires

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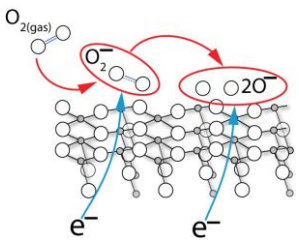

Tuesday, June 9

Session 6 – Advanced Materials (3/4)

08:30 Sang Sub Kim, Inha University, Republic of Korea
Overview and prospect of oxide nanowire sensors

09:10 Tetsuya Kida, Kumamoto University, Japan
Porosity control of gas sensing films using SnO_2 nanorods for highly sensitive ethanol detection

9:30 Young-Seok Shim, Seoul National University, Republic of Korea
Bamboo-like metal oxide nanorods for ultrasensitive VOC gas sensors

9:50 Carlo Cantalini, University of L'Aquila, Italy
Surface area effect on NO2 gas sensing properties of nanofiber-nanowire brush-like ZnO nanostructures compared to thin films

10.10 Coffee Break

Session 7 – Advanced Materials (4/4)

10:30 Jong-Heun Lee, Korea University, Republic of Korea
Highly selective detection of methyl benzenes using oxide semiconductors

10:50 Anu Naik, Alphasense Limited, United Kingdom
Commercial opportunities for P-Type MOX sensors

11:10 Takafumi Akamatsu, National Institute of Advanced Industrial Science and Technology, Japan
Improved NO gas detection of cobalt oxide sensor by noble metal addition

11:30 Artem Marikutsa, Moscow State University, Russia
Sensing behaviour of nanocrystalline $BaSnO_3$ to SO_2

11:50 Sergio Roso, Universitat Rovira i Virgili, Spain
Synthesis of single crystalline In_2O_3 octahedra for detecting oxidizing and reducing gases at trace levels

12:10 Lunch Break

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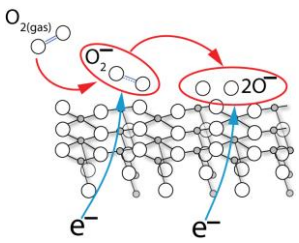

Session 8 – New Devices (1/2)

13:10 Anton Köck, Materials Center Leoben Forschung GmbH, Austria
Multi-sensor platform for smart building management - Progress and aspects of CMOS-nanowire integration

13:50 Kuniyuki Izawa, Figaro Engineering Inc., Japan
Long-term stability of MEMS methane sensor

14:10 Elisabeth Preiss, Robert Bosch GmbH, Germany
Large area pulsed laser deposition of tin oxide for gas sensor applications

14:30 Coffee Break

Session 9 – New Devices (2/2)

14:50 Danick Briand, Ecole Polytechnique Fédérale de Lausanne, Switzerland
Recent advances on printed metal-oxide gas sensors on polymeric foil

15:10 Tomas Plecenik, Comenius University, Slovak Republic
Highly-sensitive room-temperature semiconductor gas sensors based on nanoscale metal-metal oxide-metal sandwich structures

15:30 Klaus Schierbaum, Heinrich-Heine University, Germany
Gas sensors based on PEO technology

15:50 Nicolae Barsan, University of Tuebingen, Germany
Closing Address