

# Spring School

10-14 May 2010  
Rimini, Italy



## MOX Semiconductors Gas Sensor Technology From basics to application

### The School will cover the following topics

The school focuses on metal oxide semiconductors as sensitive layers

- Chemical sensing mechanisms (modelling)
- Synthesis of materials and deposition
- Electrical characterisation (operation)
- Spectroscopic investigation (understanding)
- Driving electronics and systems aspects
- Application issues

### For whom this could be of interest

The S3 School will mediate knowledge over the entire spectrum of the semiconductor gas sensor technology. This activity particularly addresses younger researchers and doctoral students and aims at ensuring comparable levels of technological and scientific skills. For further information please visit <http://www.olfactionsociety.org/springschool2010>

### Lecturers

- Prof. Elisabetta Comini, CNR-IDASC SENSOR Lab, Italy
- Prof. Guido Faglia, CNR-IDASC SENSOR Lab, Italy
- Prof. Udo Weimar, University of Tuebingen, Germany
- Prof. Sanjay Mathur, University of Cologne, Germany
- Dr. Gerhard Müller, EADS, Germany
- Prof. J. R. Morante, IREC & Univ. of Barcelona, Spain
- Prof. Alexander Gaskov, Moscow State University, Russia
- Dr. Marina Rumyantseva, Moscow State University, Russia
- Prof. Alexey Vasiliev, Kurchatov Institute, Russia

# ISOCS

International Society for  
Olfaction and Chemical Sensing



Selectivity, Sensitivity, Stability



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The school is organized by Elisabetta Comini (CNR-IDASC SENSOR Lab, Italy) and is delivered by active researchers with international reputations

**Elisabetta Comini** received her degree in Physics at the University of Pisa in 1996. She received her Ph.D degree in material science at the University of Brescia. In 2001 she has been appointed assistant professor of physics of matter at Brescia University. She has been organizer of several symposia in the sensing field for MRS and E-MRS. She has a high productivity confirmed by the numerous publications on international journals (more than 134) & the high number of invited presentations at conferences. H-index of Elisabetta Comini is 27.

**Udo Weimar** is head of Gas Sensor Group at the University of Tuebingen. He is responsible for two major European projects applying gas sensing technology and was co-ordinator of the Networks of Excellence NOSE and GOSPEL which led to the formation of ISOCS. He is working on the fundamental properties of sensors, and uses multivariate techniques in combination with modelling and measurements 'in operando' to understand their operation and hence improve their performance

**Guido Faglia** is involved in preparation and characterisation of metal oxide semiconductor MOX as thin films and quasi monodimensional nanostructures for functional applications like bio-chemical sensing. He has a relevant working experience with many national and international institutions like European Commission, NATO, ESA, INTAS and Italian Ministry of Research. During his career Guido Faglia has published 125 articles on International Journals with referee (source ISI @ 07/23/09) and was co-author of more than 25 invited talks at international congresses (since 2001).

**Alexander Gaskov** is the Head of Laboratory of Semiconductor and Sensor Materials (LSSM) from Moscow State University. He received his diploma in chemistry 1966, his Ph.D. in inorganic chemistry 1969 and his Doctor of Science in Inorganic chemistry in 1988 from the Moscow State University. His activity is focused at the nanostructured inorganic materials investigation. He has published over 120 scientific papers, reviews and book chapters.

**Marina Rumyantseva** is heading the sensor group of LSSM, she has more than 15 years of experience in the field of semiconductor gas sensors. She received in 1992 her diploma in Chemistry and in 1996 his PhD from Moscow State University and Grenoble Polytechnical Institute and her Doctor of Science in Inorganic chemistry in 2009 from the Moscow State University. Her activities is centered at nanostructural material synthesis and modification in relation with gas sensor phenomena. She has published more than 60 scientific papers, reviews and book chapters.

**Gerhard Müller** graduated in physics from the University of Heidelberg with a PhD degree in 1976. Post-doctoral employments at the Max-Planck-Institute for Nuclear Physics in Heidelberg and the University of Dundee, Scotland. Since 1981 he has been working in the fields of sensor, semiconductor and MEMS technology. His current employment is with EADS Innovation Works in Munich, where he is working on sensors for safety, security and smart maintenance. As 'Senior Expert Sensor Physics' he is assisting the management team in defining the strategic directions of research. He is author & co-author of more than 200 papers and 50 patents. Since 2000 he is a lecturer in the Munich University of Applied Sciences.

**Sanjay Mathur**, is currently the Chair of Inorganic and Materials Chemistry at the University of Cologne. He received his PhD (1992) in Inorganic Materials Chemistry at the University of Rajasthan, Jaipur, India. His Habilitation thesis was at the Saarland University, Saarbruecken, Germany. He had established (2002-2008) the Division of CVD & PVD Technologies at the Leibniz Institute of New Materials in Saarbrücken. He has published over 120 scientific papers, reviews & book chapters and has delivered over 100 Plenary & Invited talks.

**Alexey Vasiliev** graduated in 1980 from the Department of Molecular and Chemical Physics of Moscow Institute of Physics and Technologies (Chemical Physics); Ph.D. in 1986 from Kurchatov Institute of atomic energy for the RRCKI & the degree of Dr. of Sc. in Solid state electronics, micro- and nano-electronics in 2004. Research interests are related with the fabrication of microhotplates, ceramic microhotplates, synthesis of nanomaterials for gas sensors, investigation of chemical relaxation processes after fast heating of sensing material, study of the elementary processes on the surface of catalysts, investigation of MIS structure gas sensors including gas sensors with a layer of solid electrolyte. Has more than 200 publications in journals, patents, abstracts of conferences.

**J.R. Morante** received his Ph. D. in Physics from the University of Barcelona. Since 1985 he is professor of Electronics, and director of the research group on Engineering and Electronic Materials, EME, now M-2E. He has been dean and vice-dean of the Faculty of Physics. From 2008 he is head of the advanced material for energy area of the Catalonia Institute for Energy Research, IREC. His activities have been centred in electronic materials and the assessment of the technology and processes in materials. He has taken part in many R&D international projects. He has authored or co-authored more than 400 works in international specialized journals.

The school is residential and the programme allows plenty of scope for networking with lecturers and other delegates. The daily schedule allows time to enjoy the amenities of the beautiful surroundings of Rimini. Lectures takes place in the morning, with an amply break after the lunch free for participants to network, consolidate their knowledge or enjoy the outdoors. Shorter lecture session resume in the late afternoon

The venue is the Hotel Sporting in Rimini. Participants may choose either a **single room (960€)**, or to share with another participant in a **double room (790€)**. Prices are including all accomodation and meals. For full program and conditions visit: <http://www.olfactionsociety.org/springschool2010>

# ISOCS

International Society for  
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ISOCS is a non-profit organisation which aims to promote the development and application of knowledge in the fields of biological and artificial olfaction, and chemical sensing.

Company registered in England, number 6607277

