

Program

Nanostructured Materials: Environmental, Energy and Sensing Applications

September 18 – 22, 2005

**Il Ciocco Hotel and Conference Center
Castelvecchio Pascoli (near Barga), Italy**

Conference Chair:

Dr. Jan L. Allen
US Army Research Laboratory
Adelphi, Maryland USA

Conference Co-Chairs:

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University of Limoges, France

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ECI

Engineering Conferences International

6 MetroTech Center

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Sunday, September 18, 2005

17:00 – 18:00	Registration
18:30 – 19:30	Reception – a special wine tasting at La Cantinetta (wine bar)
19:30 – 21:00	Dinner
21:00 – 22:00	Social Hour

IMPORTANT ANNOUNCEMENTS

- Audiotaping, videotaping and photography of presentations are strictly prohibited.
- Speakers – Please leave at least 5 minutes for questions and discussion.
- Please do not smoke at any conference functions.
- Turn your cellular telephones to vibrate or off during technical sessions.
- Be sure to make any corrections to your name/contact information on the Master Participant List or confirm that the listing is correct. A corrected copy will be sent to participants after the conference.

Monday, September 19, 2005

- 08:00 – 09:00 Breakfast
- 09:00 – 09.40 **Invited lecture**
ROLE OF INTERFACES ON STRUCTURE AND PROPERTIES OF STRAIN-
ENHANCED NANOSCALE FERROELECTRICS
Xiaoqing Pan, University of Michigan, USA
- 09:40 – 10.10 EFFECT OF Al₂O₃ ADDITIONS ON THE STRENGTH, TOUGHNESS AND
HARDNESS OF C-ZrO₂/Al₂O₃ COMPOSITES USED AS AN ELECTROLYTE FOR
SOLID OXIDE FUEL CELL
Süleyman Tekeli, Gazi University, TURKEY
- 10:10 – 10.30 Coffee Break
- 10:30 – 11.00 GEL-COMBUSTION SYNTHESIS OF METAL OXIDE NANOPOWDERS FOR GAS
SENSING APPLICATIONS
Fabio Deorsola, Politecnico di Torino - Dip. Scienza dei Materiali e Ingegneria Chimica,
ITALY
- 11:00– 11.30 NO₂ ADSORPTION AND DECOMPOSITION BY SiC POWDER
Hideyuki OKUMURA, Kyoto University, JAPAN
- 11:30 – 12:30 DISCUSSION OF RESEARCH NEEDS IN NANOSTRUCTURED MATERIALS
- 12:30 – 18:00 Excursion to Lucca (with boxed lunch) or *ad hoc* sessions and/or free time
- 19:30 – 21:00 Dinner
- 21:00 – 22:00 Social Hour

Tuesday, September 20, 2005

- 08:00 – 09:00 Breakfast
- 09:00 – 09:30 IN-SITU SYNCHROTRON X-RAY STUDIES OF NANOSTRUCTURED
HETEROGENEOUS CATALYSTS FOR ENERGY AND ENVIRONMENTAL
APPLICATIONS
Jeffrey A. Eastman, Argonne National Laboratory, USA
- 09:30 – 10:00 LOW TEMPERATURE PERFORMANCE OF NANOSCALE $\text{Li}_4\text{Ti}_5\text{O}_{12}$ AS LITHIUM ION
BATTERY ANODE
Jan L. Allen, U.S. Army Research Laboratory, Adelphi, Maryland USA
- 10:00 – 10:30 Coffee Break
- 10:30 – 11:10 **Invited lecture**
NANOCRYSTALLINE MESOPOROUS ORDERED LAYERS
David Grosso, Univ. Paris VI Pierre et Marie Curie, FRANCE
- 11:10 – 11:40 NANOSTRUCTURED GAS SENSORS BASED ON CARBON NANOTUBES:
CURRENT STATUS AND FUTURE PROSPESCTS
Carlo Cantalini, Università dell'Aquila, Dept. of Chemistry and Materials, ITALY
- 11:40 – 12:10 STUDIES OF TIN DIOXIDE BASED SENSORS' CROSS SENSITIVITY TO CO AND
WATER VAPOR - THE ROLE OF THE CHEMICAL AND MORPHOLOGICAL STAGE
OF THE SURFACE
Dorota Koziej, University of Tübingen, Institute of Physical and Theoretical Chemistry,
GERMANY
- 12:10 -12:30 *Ad hoc* Discussion
- 12:30 – 14:00 Lunch
- Note: We are planning an excursion to a vineyard.
- 14:30 – 19:20 *Ad hoc* sessions and/or free time
- 16:30 – 17:00 Afternoon Coffee
- 19:20 – 21:30 Dinner
- 21:30 – 22:30 Poster Session and Social Hour

Wednesday, September 21, 2005

- 08:00 – 09:00 Breakfast
- 09:00 – 09:40 **Invited lecture**
IMPROVEMENT OF GAS SENSING PROPERTIES OF SEMICONDUCTOR GAS
SENSORS BY NANOSTRUCTURAL CONTROL
Yasuhiro Shimizu, Faculty of Engineering, Nagasaki University, JAPAN
- 09:40 – 10:10 INFRARED SENSING TECHNOLOGY WITH NANOSTRUCTURES - QUANTUM DOT
AND NANOPILLAR REPARATION OF MESOPOROUS SILICATE THICK FILMS BY
ELECTROPHORETIC DEPOSITION AND THEIR ADSORPTION PROPERTIES OF
WATER VAPOR
Manijeh Razeghi, Northwestern University, USA
- 10:10 – 10:30 Coffee Break
- 10:30 – 11:00 PHASE STABILITY IN MICROMETRIC AND NANOMETRIC ZIRCONIA CRYSTALS.
Gianguido Baldinozzi, SPMS, CNRS-Ecole Centrale Paris, FRANCE
- 11:00 – 11:30 MICROSPHERE ENCAPSULATING BY FERRITE PLATING
Tran Hoang Hai, Ho Chi Minh City Institute of Physics, VIETNAM
- 11:30 – 12:00 FULLY DENSE, NANOCRYSTALLINE SILICON CARBIDE BY SINTER-FORGING IN
THE PRESENCE OF A LIQUID PHASE
Georg Rixecker, Max Planck Institute for Metals Research and Institute of Nonmetallic
Inorganic Materials, University of Stuttgart, GERMANY
- 12:00 – 12:30 *Ad hoc* Discussion
- 12:30 - 14:00 Lunch
- 14:00 – 19:30 *Ad hoc* sessions and/or free time
- 16:30 – 17:00 Afternoon Coffee
- 19:30 – 22:30 Conference Banquet in Le Salette (typical regional specialties)

Thursday, September 22, 2005

08:00 – 09:00	Breakfast
09:00 – 09:40	Invited Lecture (Virtual) CONTROLLING THE SENSITIVITY, SPECIFICITY, AND TIME SIGNATURE OF SENSORS THROUGH ARCHITECTURAL DESIGN ON THE NANOSCALE Debra R. Rolison, U.S. Naval Research Laboratory, USA
09:40 – 10:10	NANOPOROUS SUPERALLOY MEMBRANES: PROCESSING, PROPERTIES AND APPLICATION Joachim Rösler, Technische Universität Braunschweig, GERMANY
10:10 – 10:40	Coffee Break
10:40 – 12:00	Concluding Discussions
12:00 – 13:30	Lunch and adjournment
14:00	Bus departs for Pisa Airport and train station