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:

Dr. Marie Isabelle Baratron
Department of Ceramics
University of Limoges, France

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ECI

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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

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<th>Time</th>
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<td>08:00 – 09:00</td>
<td>Breakfast</td>
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| 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 HETEROGEOUS CATALYSTS FOR ENERGY AND ENVIRONMENTAL APPLICATIONS
Jeffrey A. Eastman, Argonne National Laboratory, USA

09:30 – 10.00  LOW TEMPERATURE PERFORMANCE OF NANOSCALE Li₄Ti₅O₁₂ 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
NANOCRUSTALLINE 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 PROSPECTS
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 CRYSTSALS.
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