



# ISGS Summer School 2012

organized by the

## International Sol-Gel Society

22-26 July 2012

Paris, FRANCE

advanced characterization  
techniques  
courses  
sol-gel chemistry  
international experts  
industrial exhibition  
friendly atmosphere  
poster session  
...

Cité Internationale  
Universitaire (CIUP)  
Paris, 14e

# COMMUNICATIONS

More information on ISGS website  
[www.isgs.org](http://www.isgs.org)



## Short report

The third edition of the ISGS Summer School was held in Paris from July 22nd to 26th 2012.

The School brought together over 50 young researchers and experienced scientists at the Cite International Universitaire de Paris for 4 days to attend courses on sol-gel chemistry and advanced characterization techniques. 14 countries were represented as follow: 27 attendees from France, 4 from Austria, 3 from Belgium, 2 from Germany, 2 from Lithuania, 1 from Portugal, 2 from Switzerland, 2 from Ukraine, 2 from United States of America, 1 from Italy, 1 from Italy, 1 from Poland, 1 from Slovakia, 1 from Spain.

There were 10 invited talks given by internationally recognized scientists in their field, coming from both Academia and Industry. The courses covered theoretical and practical materials, topics ranging from sol-gel chemistry to advanced characterization techniques during an intensive program.

The first plenary lecture was given by Thierry Gacoin who presented the intense field of investigations of nanoparticles research. *Michel Aegerter* gave us an overview on wet chemical coating technologies. *Philip Llewellyn* described the use of adsorption and other complementary methods for the characterization of powders and porous solids. Mika Linden described the different options for characterizing the surface chemistry of native and functionalized materials . *Cédric Boissière* focused on thin film analysis and the description of Spectroscopic Ellipsometry as an advanced, non destructive, characterization technique. François Fabreguette reviewed the fundamentals of X-Ray Diffraction and X-Ray Reflectivity techniques to characterize advanced thin films. *Nicola Pinna* covered electronic microscopy while *Claire-Marie Pradier* described photoelectron spectroscopy. *Géraud Dubois* demonstrated importance of mechanical properties of thin films. Finally, *Christian Bonhomme* presented Advanced NMR techniques for nanomaterials.

At the poster session 15 participants presented their research during a session rich in exchanges and discussions.

The weather was nice, the school venue was great and the social program was rich (wine & cheese, banquet, boat trip, picnics and nightlife in Paris). All together the summer school occurred in a friendly atmosphere with lots of extended scientific discussions. It was also a great opportunity to discover or rediscover Paris .

First feedback from the meeting is very positive – participants greatly enjoyed the chance to meet new people and to network. They learned a lot from the speakers as well as from one another.

The organizers would like to thank very much the speakers for the quality of their tutorials and the time they devote to the school.

The next ISGS Summer School is planned to be held at the same place, at CIUP in Paris, in July 2014.



## COMMUNICATIONS

- × **Colloids and Nanoparticles.**  
**Thierry Gacoin** - Groupe de Chimie du Solide, Laboratoire de Physique de la Matière Condensée, Ecole Polytechnique - Palaiseau, France. [thierry.gacoin@polytechnique.edu](mailto:thierry.gacoin@polytechnique.edu)
- × **Wet Chemical Coating Technologies: An overview.**  
**Michel Aegerter** – Editor in chief Journal of Sol-Gel Science and Technology – Bottens, Switzerland. [michel.aegerter@bluewin.ch](mailto:michel.aegerter@bluewin.ch)
- × **Characterization of porosity in solids.**  
**Philipp Llewellyn** - Separation and Storage of Gases (S<sup>2</sup>G) - MADIREL (UMR7246) – CNRS - Université d'Aix Marseille - Marseille, France - [philip.llewellyn@univ-provence.fr](mailto:philip.llewellyn@univ-provence.fr)
- × **Surface characterization.**  
**Mika Linden** - Department of Inorganic Chemistry II, University of Ulm - Ulm, Germany - [mlinden@uni-ulm.de](mailto:mlinden@uni-ulm.de)
- × **Ellipsometry for thin film analyses.** (coming soon)  
**Cédric Boissière** - Laboratoire Chimie de la Matière Condensée – CNRS - Université Pierre et Marie Curie, Collège de France - Paris, France - [cedric.boissiere@upmc.fr](mailto:cedric.boissiere@upmc.fr)
- × **Applications of X-Ray diffraction and reflectivity techniques.**  
**François Fabreguette** - Micron Technology, Inc - Boise, ID, USA - [ffabreguette@micron.com](mailto:ffabreguette@micron.com)
- × **Electronic microscopy.**  
**Nicola Pinna** - Humboldt-Universität zu Berlin - Institut für Chemie – Berlin, Germany - [nicola.pinna@hu-berlin.de](mailto:nicola.pinna@hu-berlin.de)
- × **Photoelectron Spectroscopy: principle and applications to the characterization of sol-gel materials.**  
**Claire-Marie Pradier** - Université Pierre et Marie Curie/cleaire - [claire-marie.pradier@upmc.fr](mailto:claire-marie.pradier@upmc.fr)
- × **Thin film mechanical properties.**  
**Géraud Dubois** - IBM Almaden Research Center Department of Materials Science and Engineering - Stanford University - San Jose, CA, USA - [gdubois@us.ibm.com](mailto:gdubois@us.ibm.com)
- × **Advanced NMR techniques for nanomaterials.**  
[Part 1 - theory](#)  
[Part 2 – practical aspects](#)  
**Christian Bonhomme** - Laboratoire Chimie de la Matière Condensée, Université Pierre et Marie Curie, Collège de France - Paris, France - [christian.bonhomme@upmc.fr](mailto:christian.bonhomme@upmc.fr)



## POSTER PRESENTATIONS

### ***Fabrication and characterization of light trapping structure for thin-film solar cells.***

Barbara Brudieu (CNRS/Saint-Gobain Recherche SGR; SVI / Ecole Polytechnique; PMC), A. Le Bris (CNRS; SVI), F. Guillemot (SGR; PCRS), J. Teisseire (SGR; SVI), E. Sondergard, E. Barthel (CNRS; SVI), T. Gacoin (Ecole Polytechnique; PMC), F. Sorin (SGR; SVI) - [barbara.brudieu@saint-gobain.com](mailto:barbara.brudieu@saint-gobain.com)

### ***Infiltration of Luminescence Particles in Mesoporous Hosts.***

Andrea Feinle, A. Sternig, I. Merschmann, S. Baumann, O. Diwald, N. Husing - [Andrea.Feinle@sbg.ac.at](mailto:Andrea.Feinle@sbg.ac.at)

### ***Use of sol-gel method for the production of metal corrosion protection coatings based on Organic-Inorganic Hybrid gels.***

Rita B. Figueira, C. J. R. Silva, E. V. Pereira, M. M. Salta - [rmfigueira@lnec.pt](mailto:rmfigueira@lnec.pt)

### ***Highly Porous Silica and Titania Monoliths Derived from Glycol-modified Precursors.***

Sylvia Fleig, J. Akbarzadeh, H. Peterlik and N. Husing - [sylvia.fleig@sbg.ac.at](mailto:sylvia.fleig@sbg.ac.at)

### ***Noble metal deposit on Bi<sub>2</sub>WO<sub>6</sub>. Application in photocatalysis.***

Marie-Anne Lavergne, Tamar Saison, Olivier Durupthy, David Portehault, Sophie Cassaignon, Nicolas Chemin, Corinne Chaneac - [marieanne.lavergne@ens-lyon.fr](mailto:marieanne.lavergne@ens-lyon.fr)

### ***Photocatalytic decomposition of methylene blue under LED irradiation on indium doped titanium dioxide: the impact of thin films thickness.***

Irina Levchuk, Sami Suihkonen, Markku Sopanen and Mika Sillanpaa - [irina.levchuk@lut.fi](mailto:irina.levchuk@lut.fi)

### ***Synthesis, structure and properties of polysiloxane sorbents functionalised by complexing groups.***

Melnyk Inna V., Zub Yuriy L. - [inna\\_melnyk@mail.ru](mailto:inna_melnyk@mail.ru)

### ***Solid Li<sup>+</sup> - carrying membranes.***

Mathieu Meyer, Andre Vioux, Ahmad Mehdi, Lydie Viau, Sophie Monge-Darcos - [meyer.mathieu@voila.fr](mailto:meyer.mathieu@voila.fr)

### ***Characterisation of gold nano-particles supported on SBA-15.***

Klaudia Odrozek, K. Maresz, J. Mrowiec-Białoń - [Klaudia.Odrozek@polsl.pl](mailto:Klaudia.Odrozek@polsl.pl)

### ***Nanoporous thin films for biosensing applications.***

Oswaldo J. Perez Anguiano<sup>1,2</sup>, E. Scolan<sup>1</sup>, B. Wenger<sup>1</sup>, R. Pugin<sup>1</sup>, H. Hofmann<sup>2</sup> - [oswaldoperezanguiano@epfl.ch](mailto:oswaldoperezanguiano@epfl.ch)

<sup>1</sup>Centre Suisse d'Electronique et de Microtechnique, CSEM SA, Neuchatel, Switzerland

<sup>2</sup>Laboratoire de Technologie des Poudres (LTP), Ecole Polytechnique Federale de Lausanne, EPFL Switzerland

### ***Comparative study of the structure of new layered organic-inorganic phases based on boronate ligands.***

Saad Sene, M. Reinholdt, S. Begu, H. Mutin, P. Gaveau, A. van der Lee, G. Renaudin, C. Bonhomme, D. Laurencin - [saad.sene@univ-montp2.fr](mailto:saad.sene@univ-montp2.fr)

### ***SiO<sub>2</sub> (HIPE) monoliths from an ethylene glycol-modified silane.***

Christos Triantafillidis and Nicola Husing - [christos.triantafillidis@sbg.ac.at](mailto:christos.triantafillidis@sbg.ac.at)

### ***Aqueous synthesis of high surface area TiO<sub>2</sub> from titanium alkoxides/glycolates and the influence of the pH and the precursor chemistry on the received particles.***

Konstanze Werner, Gerold Tippelt and Nicola Husing - [konstanze.werner@sbg.ac.at](mailto:konstanze.werner@sbg.ac.at)

### ***Semi-batch Coating of Submicrometer-sized Silica Particles With Titania.***

Ida E. Widnersson and Rachel A. Caruso - [i.widnersson@student.unimelb.edu.au](mailto:i.widnersson@student.unimelb.edu.au)

### ***New sol-gel nanocomposite resists based on inorganic oxides.***

Erika Zanchetta<sup>1</sup>, G. Della Giustina<sup>1</sup>, G. Greci<sup>2</sup>, A. Pozzato<sup>2</sup>, M. Tormen<sup>2</sup>, V. Auzelyte<sup>3</sup>, J. Brugger<sup>3</sup>, G. Brusatin<sup>1</sup> - [erika.zanchetta@gmail.com](mailto:erika.zanchetta@gmail.com)

<sup>1</sup>Industrial Engineering Dept., Padova University, Via Marzolo 9, 35131 Padova, Italy

<sup>2</sup>IOM CNR, Laboratorio TASC Area Science Park – Basovizza, S.S 14 Km 163.5, I-34149 Trieste, Italy

<sup>3</sup>Institute of Microengineering, IMT, EPFL CH 1015 LAUSANNE

