

Program (06 September 2013)

**Advances and Applications in Carbon Related Nanomaterials:
From Pure to Doping Including Heteroatom Layers**

A ECI Conference

September 22-26, 2013

**Gran Hotel Rey Don Jaime
Castelldefels, Spain – near Barcelona**

Conference Chair

Raul Arenal, University of Zaragoza

Co-Chairs

Chris P Ewels, University of Nantes

Dmitri Golberg, University of Tsukuba

Angel Rubio, NanoBio Spectroscopy Group

**Vincent Meunier, Rensselaer Polytechnic
Institute**

Marcelo Motta, Thomas Swan & Co. Ltd



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Sunday, September 22, 2013

17:30 – 19:00	Conference Check-in / Registration (Hotel Lobby)
19:00 – 20:00	Welcome Drink (Terrace by the swimming pool)
20:00 – 21:30	Dinner

NOTES

- Please do not smoke at any conference functions.
- Turn your mobile telephones to vibrate or off during technical sessions.
- All technical sessions will be in TBA. Poster sessions will be in TBA.
- All meals will be in the hotel restaurant.
- Be sure to check your contact information on the Participant List in this program and make any corrections to your name/contact information online. A corrected copy will be sent to all participants after the conference.

Invited talks: **40 minutes**

Regular talks: **20 minutes**

Monday, September 23, 2013

07:30 – 08:50 Breakfast

08:50 – 09:00 **Opening Remarks: *Raul Arenal, Chair***

09:00 – 11:00 **Session I: Doping of C nanotubes & graphene 1**
Session chair: **C. Ewels**

Invited Talk: Doping of monolayer and bilayer graphene

Jean-Louis Sauvajol, Universite de Montpellier

Nitrogen-doped carbon nanotubes: Thin films, dopant identification, and electron beam damage

Toma Susi, Aalto University

Fludized bed chemical vapor deposition of nitrogen-doped carbon nanotubes for the energy storage application

Guili Tian, Tsinghua University

Invited Talk: New directions toward ultra-low substitutional doping

Paula Ayala, Vienna University

11:00 – 11:30 Coffee break

11:30 – 13:30 **Session II: Graphene 1**
Session chair: **P. Petit**

Invited Talk: Electronic structure of a disordered grain boundary in graphene

Philippe Lambin, Universite de Namur

Gate modulated Raman spectroscopy of single-layer and bilayer graphene

Riichiro Saito, Tohoku

Non-covalent interactions in graphene-polymer nanocomposites

Gregory Van Lier, Vrije Universiteit Brussel

Invited Talk: Atomically precise graphene nanoribbons

Roman Fasel, Empa, Swiss Federal Laboratories for Materials Science and Technology

13:40 – 15:00 Lunch

15:00 – 17:45 Ad hoc sessions, discussion, free time

17:45 – 18:55 **Session III: Carbon nanotubes 1**
Session chair: **M. Mayne-L'Hermite**

Invited Talk: Properties of individual nanotubes with known chiral structure

Xuedong Bai, Institute of Physics, Chinese Academy of Sciences

Bias-dependent remote joule heating by a carbon nanotube
Merijn Bronsgeest, University of Maryland

19:00 – 20:30

Poster Session and Social Hour

All posters will be kept on display throughout the conference. Participants will then be free to view/discuss posters at their convenience as well.

20:45 – 22:15

Dinner

Tuesday, September 24, 2013

- 07.30 - 08:45 Breakfast
- 08:55 - 09:00 **Announcements: *Raul Arenal, Chair***
- 09:00 – 11:00 **Session IV: Chacogenides 1**
List of talks; session chair: **V. Meunier**
- Invited Talk:* Inorganic nanotubes and fullerene-like nanoparticles: an update**
Reshef Tenne, Weizmann Institute
- 2D transition-metal dichalcogenides: Doping, alloying and electronic structure engineering using electron beam**
Arkady Krasheninnikov, Aalto University
- Nanostructures of layered metal chalcogenides**
Gotthard Seifert, TU Dresden
- Invited Talk:* TBD**
Vincent Dusastre (Nature Publishing Group)
- 11:00 – 11:30 Coffee break
- 11:30 – 13:30 **Session V: Doping of C nanotubes & graphene 2**
Session chair: **D. Golberg**
- Invited Talk:* Nanotube-Molecular complexes for energy transfer systems**
Stephanie Reich, Freie Universität Berlin
- Influence of the nature of precursors and temperature on the structure and N-content in nitrogen containing carbon nanotube arrays**
Martine Mayne-L'Hermite, CEA-Saclay
- Bonding of nitrogen dopants in graphene**
Rebecca J. Nicholls, Department of Materials, Oxford University
- Nitrogen doped single-walled carbon nanotubes: Atomic structure and configuration**
Raul Arenal, Universidad de Zaragoza
- Nitrogen, boron and phosphorus doping in carbon nanomaterials: Insight from DFT calculations**
Chris Ewels, CNRS/ Université de Nantes
- 13:40 – 15:00 Lunch
- 15:00 – 17:45 Ad hoc sessions, discussion, free time
- 17:45 – 18:55 **Session VI: Heterostructured materials**

Session chair: **A. Krasheninnkov**

New approaches for the characterization of porous electrodes based on carbon nanotubes for oxygen reduction: From PT loaded CNT to nitrogen doped CNT
Henri Perez, CEA-Saclay

Novel routes to hybrid chalcogenide nanomaterials
Frank Dillon, Department of Materials, Oxford University

Heterostructured materials for nanoelectronics: Computational design and controlled properties
Vincent Meunier, Rensselaer Polytechnic Institute

First principles study of the collective excitations in 2D materials
Pier Luigi Cudazzo, UPV

Polar effects at edges of layered materials
Miguel Pruneda, Centro de Investigacion en Nanociencia y Nanotecnologia (CIN2-CSIC)

19:00 – 20:30

Poster Session and Social Hour

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20:45 – 22:15

Dinner

Wednesday, September 25, 2013

- 07.30 - 08:55 Breakfast
- 08:55 - 09:00 **Announcements: *Raul Arenal, Chair***
- 09:00 - 11:00 **Session VII: Carbon nanotubes 2 + Hybrids (NP + NT or Graphene) 1**
Session chair: **R. Saito**
- Invited Talk:* Electronic transport properties of functionalized metallicity sorted single walled carbon nanotubes: Gain from photoemission and XAS**
Thomas Pichler (Vienna University)
- CNT-reinforced electrospun carbon fibers: Promising electrodes for energy production by enzymatic biofuel cells**
Sophie Tingry, Institut Européen des Membranes
- Synthesis and potential applications of pyrolytic carbon nano-cones**
Mathieu Delmas, CEMES-CNRS
- Modeling the encapsulation of clusters and one-dimensional crystals in carbon nanotubes**
Eric Faulques, University of Nantes CNRS
- Controlling the nanoscale rippling of graphene with nanoparticles**
Zoltán Osváth, Research Centre for Natural Sciences (MTA TTK), Institute for Technical Physics and Materials Science (MFA)
- 11:00 – 11:30 Coffee break
- 11:30 – 13:15 **Session VIII: Other layered nanostructures 1**
Session chair: P. Lambin
- Invited Talk:* Synthesis and heterostructures of 2D materials**
James Hone, Columbia University
- Lighting up excitons at defects in h-BN flakes**
Alberto Zobelli, Université Paris Sud
- Hierarchical 1D and 2D boron nitride nanoarchitectures: Synthesis, growth mechanism and wetting properties**
Amir Pakdel, National Institute for Materials Science (NIMS)
- Hydroxyapatite multiwalled carbon nanotube and graphene oxide hetero-nanostructures: Integration and bioactivity**
Jesus David Nuñez Garcia, ICB-CSIC
- 13:30-20:00 Lunch (lunch box) + [Free VISIT Barcelona](#)
- 20:30 – 23:00 Banquet

Thursday, September 26, 2013

- 07.30 - 08:45 Breakfast
- 08:55 - 09:00 **Announcements: *Raul Arenal, Chair***
- 09:00 - 10:55 **Session IX: Hybrids (NP + NT or Graphene) 2**
Session chair: **T. Pichler**
- Invited Talk: Carbon-based materials with tailored properties: Preparation and Applications**
Wolfgang Maser, CSIC-Zaragoza
- Study of the thermal stability of supported catalytic nanoparticles for the growth of single walled carbon nanotubes with narrow diameter distribution**
Pierre Petit, Institut Charles Sadron CNRS
- Formation of grain boundary induced by electron irradiation on graphene**
Kotone Hasegawa, National Institute for Materials Science
- Experimental and theoretical insights of the chemistry at the carbon nanotube supported ruthenium nanocatalysts interface**
Iann Gerber, Université de Toulouse; INSA, UPS, CNRS; LPCNO
- 10:55 -11:25 Coffee break
- 11:25 -12:55 **Session X: Other layered nanostructures 2**
Session chair: **R. Arenal**
- Invited Talk: Atomic imaging and spectroscopy of single-layered nano-materials**
Kazu Suenaga, AIST
- Atomistic simulations of nanocrystal/amorphous carbon-based composite materials**
Georgios Kopidakis, University of Crete
- Synthesis and Characterisation of Hetero-Carbon Nanotubes**
Jonathan Quinson, Department of Materials, Oxford University
- Direct Visualization of Hierarchical Nanodomains in Polymer-Fullerene Bulk Heterojunction Solar Cells Using Chromatic Aberration-Corrected TEM**
Dean Miller, Argonne National Laboratory
- 12:55 -13:15 Closing remarks
- 13:15 -14:30 Lunch & departures