

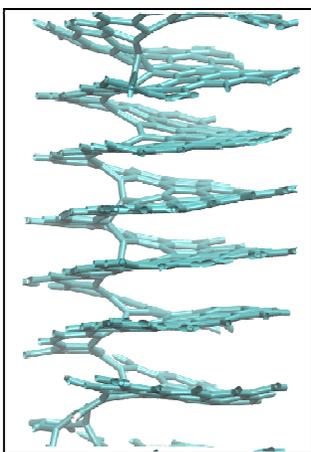
Workshop announcement

Multi-scale structure & properties of Bulk Carbon Materials:

Structure determination, physical & chemical properties characterization, modelling, from nm to m

a.k.a. "the 2nd PyroMaN workshop"

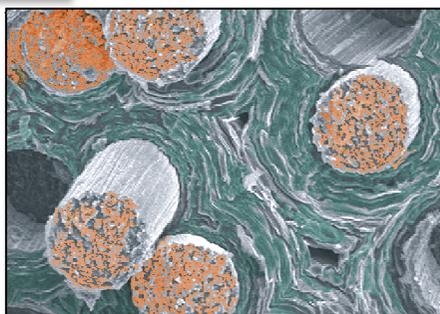
University of Dresden



**Dresden,
Germany**



**July 10-11,
2015**



Workshop announcement

Though the focus in carbon science nowadays is set on nano-objects such as fullerenes, nanotubes, nanohorns, nanofibers, graphene, etc., most of the relevant applications still rely on bulkier forms of carbon solids.

Describing accurately and unambiguously the inner "structure" (with this word taken in all the possible meanings) of bulk carbon materials is the subject of constant attention for more than a century, because of the impressive versatility and multi-scale organization of graphene-based solids. For instance, a specific material may have the property of being both highly anisotropic and dense on a very local scale, while being isotropic and/or porous at a larger scale. Accordingly, the structure-properties relationship, which is a key issue in materials sciences, is extremely difficult to manage on such particular materials.

Nowadays, the ever growing capacity of structural determination and imaging down to nanoscale brings a new momentum to this topic. Recent works have shown that building molecular-scale models of bulk carbons is at hand, despite models with fairly large dimensions are considered. Regarding larger scales, although diffraction pattern recognition and image analysis techniques have already proved to be extremely powerful tools, they are still under-exploited in carbon science so far, for the accurate description and modeling of carbon materials structure and properties.

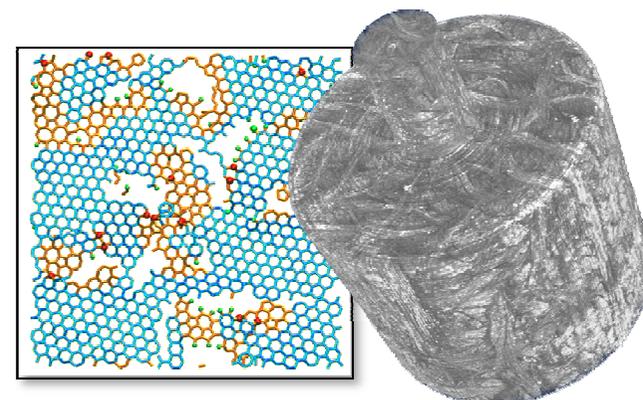
We are now in an exciting period in which physical chemistry, image science, materials characterization, and numerical computations can, if properly combined together, provide numerous clues on these familiar yet extremely complex materials that are bulk carbon materials.

The aim of this workshop is to bring people from the different related areas of activity in close contact, whether they are academic scientists or industrial engineers, and whether they are experts in characterization or modeling techniques for carbons or carbon materials users. It is expected that participants will present and discuss the recent advances in this field, tell about their current needs and limitations, and share their vision of the future in the field.

The workshop will last for a couple of days and will be held right before the World Conference on Carbon, in the same city, for the best convenience to attendees, who will certainly be also attracted by this important event.

The workshop will host both invited and contributing talks, as well as posters; proposals for presentations are to be sent to Pr. G. L. Vignoles.

vinhola@lcts.u-bordeaux1.fr



Scope

• **Bulk carbons** (*i.e.* excluding individual nano-objects but including nanostructured and nano-object-made or –containing bulk materials):

graphitic carbons, pyrocarbons, porous carbons, carbon foams, etc ...

• **Carbon composites**

• **Nuclear graphites**

• **Understanding structural organization** at all scales, from 1 nm to > mm.

• Characterization and imaging techniques :
TEM & related techniques , Raman, PLOM, AFM/STM, tomographic imaging, etc ...

• Related image processing techniques

• **Property assessment**, in relation with structure:
mechanical, thermal, magnetic, electrical, optical, adsorption & capillary condensation (BET, DR, etc)

• **Structure and property modeling:**

- Molecular methods
- Mesoscale (coarse-grained) methods
- Continuum methods

Featured lectures

Dr. **Randy Vander Wal**, Penn State University (USA) :
“Carbon Nanostructure: Characterization by HRTEM and XPS and Alteration by PLH”

Dr. **Gareth Neighbour**, Oxford Brookes University (UK) :
“Multi-scale Structure/Properties Relationships in Nuclear Graphites.”

Pr. **Stefan Kaskel**, TU Dresden (G): *“Hierarchical Porous Carbide-Derived Carbons for Energy Storage”*

Dr. **Walter Schütz**, Future Carbon AG, Bayreuth (G) : *“....”*

Pr. **Gotthard Seifert**, TU Dresden (G): *“Energy Storage and Carbon Nanostructures »*

Organizers / Contacts

Scientific committee

• Pr. Gerard L. Vignoles, University Bordeaux

• Dr. Jean-Marc Leyssale, CNRS

Laboratoire des Composites

ThermoStructuraux

Pessac, France

vinhola@lcts.u-bordeaux1.fr



• Dr. Marc Monthieux, CNRS

• Dr. Pascal Puech, Univ. Paul Sabatier, Toulouse

CEMES – Centre d’Elaboration de

Matériaux et d’Etudes Structurales,

Toulouse, France



• Dr. Jean-Pierre Da Costa, University Bordeaux

• Pr. Christian Germain, University Bordeaux

IMS – Laboratoire d’Intégration

du Matériau au Système,

Talence, France



Local organizing committee

• Pr. Hubert Jäger,

TU Dresden

Dresden, Germany

hubert.jaeger@tu-dresden.de

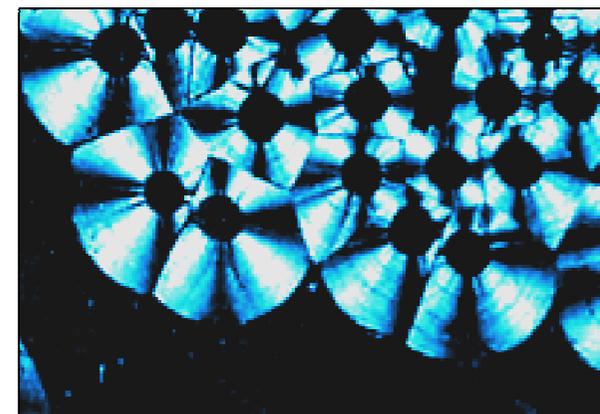
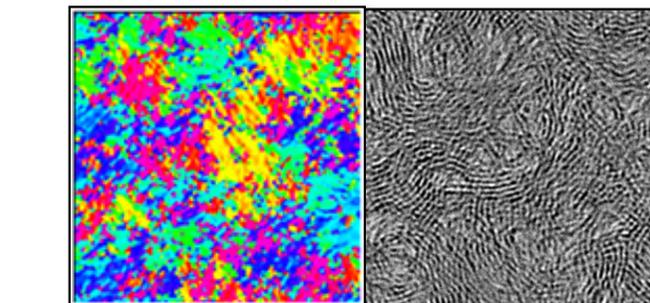


• Dr. Wilhelm Frohs,

SGL Group

Meitingen, Germany

wilhelm.frohs@sglgroup.com



This workshop is organized by the research consortium

“PyroMaN”

(Pyrocarbon Matrices At the Nanoscale)

ANR – 2010 – BLAN -929



PyroMaN
Pyrocarbon Matrices at the Nanoscale



All the needed info is available on the website:
<http://pyroman.dr15.cnrs.fr/pyroman/workshop-2015>