Advances and applications in carbon related nanomaterials: From pure to doped structures including heteroatom layers

(HeteroNanoCarb-2015)

7th – 11th December, 2015
Benasque (Aragon), Spain

Significant advances have been recently made in the science of nano-carbon materials (nanotubes, graphene, nanodiamonds, fullerenes, nanoporous, cyclic nanotube rings (CPPs) and ribbons …). These developments do not only pertain to fundamental/basic studies but have also yielded tremendous progress in the development of technological applications. Following the steady growth and maturity of the field of nano-carbon research, which now includes significant industrial contributions, it becomes increasingly important for these communities to assemble and focus on scientific challenges.

The presence of dopants and surface modification in the otherwise pure carbon materials opens the possibility of tuning their properties (electronic, optoelectronic…) and in some cases in a controlled way. In addition, other layered inorganic materials, such as boron nitride, WS_2, MoS_2… are becoming increasingly important, due to properties absent in their pure carbon counterparts. This field of research is very dynamic and involves multidisciplinary areas ranging from chemistry, physics, materials science, and other prominent ones as biology and medicine due to the functional aspects of these nanomaterials. Thus, the impact of this field covers a significant number of potential applications as improved (bio)sensors, interconnectors (electronic), optoelectronic devices.

Following the success of the first event organized in 2013 (**HeteroNanoCarb13**, http://heteronanocarb.org/), HeteroNanoCarb15 will provide a unique forum for researchers, scientists, and engineers from different countries worldwide who are actively involved in the research on issues to disseminate their latest research results and development achievements. In addition to the exciting scientific and technological themes, the conference offers a platform to promote and encourage interaction among researchers for collaboration. To allow researchers from various stages of their career to take advantage of this event, the technical program will consist of a combination of invited, contributed oral, and poster presentations.

Chair:

Dr. **Raul Arenal** Laboratorio de Microscopias Avanzadas (LMA), Instituto de Nanociencia de Aragon (INA) – U. de Zaragoza, Spain ARAID researcher. Email: *arenal@unizar.es*

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Program Outline

- Synthesis of pure and doped carbon-based nanomaterials (graphene, nanotubes, nanodiamonds, fullerenes,…) and heteroatomic ones (BN, WS_2, MoS_2,…)
- Growth/formation mechanisms of these nanomaterials
- Advanced characterization/spectroscopic studies (Raman, EELS, TEM, XPS, STS & other technics)
- Spectroscopic (Raman, EELS, STS, IR) studies of these nano-objects
- Composite and hybrid carbon-based nanomaterials
- Nanoporous carbon materials (synthesis, applications,…)
- Transport, electronic, optoelectronic properties
- Mechanical, chemical and electromechanical properties of these nano-systems
- Functionalization, surface modification, and chemistry of nanomaterials
- Processing and Applications
- Multiscale modeling and computation in the above areas

International Advisory Committee

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