
# Frontier Research in 2D Materials

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## Web site


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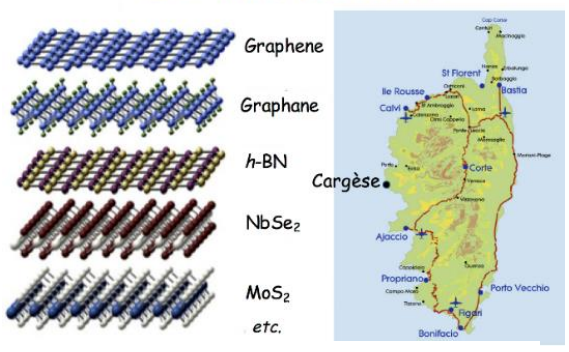


Strong of close to twenty publications a day, 2D-materials are one of the hottest topics in condensed matter physics and materials science. The interest for 2D-materials started with the discovery of graphene in 2004 and the consecutive measurement of its exceptional electronic properties which led to groundbreaking experiments in 2D. However, 2D-materials are not limited to graphene. At present, the existence and the stability under ambient conditions of more than a dozen different 2D-materials have been reported, including hexagonal boron-nitride, transition metal dichalcogenides, thin oxide layers, silicene, germanene, phosphorene, MXenes,... These novel 2D-materials also exhibit exotic properties suggesting new specific physics and possible novel applications. Looking beyond 2D, these isolated atomic monolayers can also be stacked on top of each others, creating van der Waals heterostructures. The fascinating properties of these new quasi-2D vdW nanostructures can be tuned on demand by modifying both the type of 2D-materials involved in the stack and the chosen sequence, leading to promising potential in different domains of applications such as electromechanics (flexible and transparent electronics), optoelectronics (solar cells, light-emitting diodes), spintronics, energy storage (lithium-ion batteries, hydrogen storage), thermoelectrics,…

In this rapidly developing field, 12 years after the pioneer publications on graphene, new concepts have emerged, on both experimental and theoretical sides. It is timely to propose a comprehensive and coherent scientific training that will provide a solid and structured foundation for young researchers in the field of 2D-materials and their corresponding vdW heterostructures. The present school is organized by the International Research Network (GDR-I) "Graphene & Co.". This event will be the fourth school that the GDR-I organizes in Cargèse, after a first school on Nanotubes in 2006, a second school on Graphene in 2010, and a third school on “Frontier research in Graphene-based systems” in 2014.

### Main topics will include

- Graphene, other 2D-materials and van der Waals heterostructures

### Lectures and seminars will be given by eminent scientists in the field, including :

*Claudia Backes (DE), Julien Barjon (FR), Francesco Bonaccorso (IT), Maria Carmen-Asensio (FR), Luigi Colombo (US), Johann Coraux (FR), Chris Ewels (FR), Jose Maria Gomez-Rodriguez (SP), Roman Gorbachev (UK), Andreas Hirsch (DE), Pablo Jarillo-Herrero (US), Kostas Kostarelos (UK), Aurélien Lherbier (BE), Annick Loiseau (FR), Xavier Marie (FR), Richard Martel (CA), Cecilia Ménard-Moyon (FR), Thierry Michel (FR), Gilles Montambaux (FR), Klaus Müllen (DE), Antoine Reserbat-Plantey (SP), Mathieu Paillet (FR), Marcos Pimenta (BR), Bernard Plaçais (FR), Marco Polini (IT), Antoine Reserbat-Plantey (SP), Christoph Stampfer (DE), Kazu Suenaga (JP), Mauricio Terrones (US), Bernhard Urbaszek (FR), Sergio Valenzuela (SP), Herre van der Zant (NL), Fabien Vialla (SP), Damien Voiry (FR)*

### Organization and Scientific Committees

http://www.graphene-and-co.org/?article168

### Application and Registration

*http://www.graphene-and-co.org/?-Ecole-Thematique-2018-*

Deadline Application : February, 8th, 2018
Deadline Registration (including payment) March, 2nd, 2018
Registration Fee : 980€ (students/postdocs)
1250 € (permanent researchers – 1500€ (industrials)