

# Solvay Workshop

## *From physics of graphene to physics with graphene*

### September 6-8, 2017

Université Libre de Bruxelles, Campus de la Plaine, Brussels  
Building N.O. - 5th Floor - SOLVAY ROOM

## Tentative program

### WEDNESDAY SEPTEMBER 6

#### Session 1. Chair person: F. Peeters

- 10:00 - 10:10 *Welcome* by Marc Henneaux (Director of the Solvay Institutes, Brussels)
- 10:10 - 10:20 *Introduction* - Philippe Lambin (Univ. Namur)
- 10:20 - 11:10 *Graphene-based heterostructures* - Kostya Novoselov (Univ. Manchester)
- 11:10 - 12:00 *The physics of a vacancy in the graphene lattice*  
Eva Y. Andrei (Rutgers Univ., New Brunswick)
- 12:00 - 12:20 *Graphene for metrology* - Klaus von Klitzing (Max Planck Institute, Stuttgart)
- 12:20 - 14:00 **LUNCH** (in hall adjacent to the Solvay room)

#### Session 2. Chair person: from the participants

- 14:00 - 14:50 *Light scattering and emission from hetero-structures*  
Andrea Ferrari (Univ. Cambridge)
- 14:50 - 15:40 *Ballistic transport and Aharonov-Bohm interference in grapheme*  
Christoph Stampfer (RWTH Aachen)
- 15:40 - 16:00 **COFFEE BREAK** (in hall adjacent to the Solvay room)
- 16:00 - 16:50 *Topological defects in graphene and other 2D materials: atomic structure and electronic transport* - Oleg Yazyev (EPFL, Lausanne)
- 16:50 - 17:40 *Quantum devices in 2D materials* - Klaus Ensslin (ETH Zurich)
- 18:00 - 19:30 **POSTER SESSION** - Beer and cheese party for all participants (on the 9<sup>th</sup> Floor)

### THURSDAY SEPTEMBER 7

#### Session 3. Chair person: from the participants

- 09:00 - 9:50 *Higher-than-ballistic conduction in viscous flows of electrons*  
Leonid Levitov (MIT, Boston)
- 09:50 - 10:40 *Relativity meets superconductivity in graphene*  
Carlo W. J. Beenakker (Univ. Leiden)
- 10:40 - 11:00 **COFFEE BREAK** (in hall adjacent to the Solvay room)
- 11:00 - 11:50 *Dirac fermions in confined geometry* - Pawel Hawrylak (Ottawa Univ.)
- 11:50 - 12:40 *Electron and phonon confinement in graphene nanoribbons*  
Vincent Meunier (Rensselaer Polytechnic Institute)

12:40 - 14:00     **GROUP PHOTO** (before leaving for lunch)  
                      **LUNCH** (in hall adjacent to the Solvay room)

#### Session 4. Chair person: J.C. Charlier

14:00 - 14:50     *Spin-orbit-coupling and topology in 2D: topological insulators, interfacial skyrmions, graphene and TMD* - Albert Fert (CNRS/Thales, Palaiseau)

14:50 - 15:40     *New opportunities for spintronics with graphene and other 2D materials*  
Pierre Seneor (CNRS/Thales, Palaiseau)

15:40 - 16:00     **COFFEE BREAK** (in hall adjacent to the Solvay room)

16:00 - 16:50     *Recent progress in experimental graphene spintronics*  
Sergio Valenzuela (ICN2, Barcelona)

16:50 - 17:40     *Recent theoretical advances in graphene spintronics*  
Stephan Roche (ICN2, Barcelona)

20:00             Conference dinner, "Maison du Cygne", Brussels' *Grand Place*

### FRIDAY SEPTEMBER 8

#### Session 5. Chair person: Ph. Lambin

09:30 - 10:20     *Graphene hybrid architectures: squeezing the best out of graphene*  
Jurgen Smet (Max Planck Institute, Stuttgart)

10:20 - 11:10     *Plasmonic properties of graphene* - Nuno M.R. Peres (Univ. Minho)

11:10 - 11:30     **COFFEE BREAK** (in hall adjacent to the Solvay room)

11:30 - 12:20     *Graphene (or how to reinvent engineering with extreme materials)*  
Tomas Palacios (MIT, Boston)

12:20 - 13:30     **LUNCH** (in hall adjacent to the Solvay room)

#### Session 6. Chair person: P. Kockaert

13:30 - 14:20     *Quantum nano-photonics with graphene* - Frank Koppens (ICFO, Barcelona)

14:20 - 15:10     *Nonlinearity-induced spectral broadening of laser pulses in graphene-covered waveguides* - Nathalie Vermeulen (Vrije Universiteit Brussel, Brussels)

15:10 - 15:20     *Concluding remarks* - François Peeters (Univ. Antwerpen)

15:20             End of the Conference