

"Conical Intersections in Mathematical Physics"

Institut Henri Poincaré - Paris, May 29-31, 2013

Location: Institut Henri Poincaré
11 Rue Pierre et Marie Curie, Paris
[Directions](#)

Wednesday, May 29th

- 9:30-9:55 Welcome and introduction
- 10:00-10:55 **G. Hagedorn** (Virginia Tech, USA)
Two molecular problems involving energy-level crossings
- 11:00-11:25 Coffee break
- 11:30-12:25 **M. Sigalotti** (INRIA École Polytechnique, Paris)
Control of the Schrödinger equation via adiabatic paths through conical intersections
- 12:30-14:25 Lunch break
- 14:30-15:25 **A. Trombettoni** (SISSA, Trieste)
Simulations of Dirac fermions with ultracold atoms in optical lattices
- 15:30-16:25 **M. Porta** (Bonn Universität)
The bulk-edge duality for topological insulators

Thursday, May 30th

- 9:30-10:25 **M. Lewin** (CNRS, Cergy-Pontoise)
Ground state properties of graphene in Hartree-Fock theory
- 10:30-10:55 Coffee break
- 11:00-11:55 **D. Monaco** (SISSA, Trieste)
Topological invariants of eigenvalue intersections and decrease of Wannier functions in graphene
- 12:00-12:30 **F. Chittaro** (Université de Toulon)
Geometry of conical intersections: constructive methods for adiabatic control
- 12:30-14:25 Lunch break
- 14:30-15:25 **A. Joye** (Université de Grenoble)
Semiclassical Determination of Intermode Transitions
- 15:30-16:25 **C. Lasser** (TU München, Munich)
Microlocal surface hopping through conical intersections

Friday, May 31st

- 9:30-10:25 **A. Agrachev** (SISSA, Trieste)
Homological invariants for families of quadratic forms
- 10:30-10:55 Coffee break
- 11:00-11:55 **R. Adami** (Politecnico di Torino, Turin)
Asymptotic stability for the Schrödinger equation with a pointwise nonlinearity
- 12:00-12:30 **D. Prandi** (École Polytechnique, Paris)
Dynamics of a quantum particle on a conical-like surface
- 12:30-14:25 Lunch break
- 14:30-15:25 **C. Fermanian** (Université Paris Est, Paris)
A nonlinear Landau-Zener formula
- 15:30-15:55 **Concluding remarks**