



Antoine GEORGES, professeur

SUPERCONDUCTING CUPRATES: RECENT ADVANCES, CHARGE ORDERS AND OPEN ISSUES

Colloque en anglais • organisé par Antoine Georges et Louis Taillefer
Jeudi 26 et vendredi 27 mars 2015, amphithéâtre Guillaume Budé

Thursday, March 26

- 08:45–09:00 **Welcome**
A. Georges & L. Taillefer
- 09:00–09:30 **Field and temperature scales in charge-ordered $\text{YBa}_2\text{Cu}_3\text{O}_y$**
Marc-Henri Julien (LNCMI-Grenoble)
- 09:30–10:00 **Impact of charge order on the electronic properties of underdoped cuprates**
Cyril Proust (LNCMI-Toulouse)
- 10:00–10:30 **Discussion**
- 10:30–11:00 **Break**
- 11:00–11:30 **Charge-density waves in the cuprates from x-ray scattering**
Mathieu Le Tacon (MPI-Stuttgart)
- 11:30–12:00 **Charge ordering in $\text{YBa}_2\text{Cu}_3\text{O}_y$ observed by hard x-ray diffraction**
Johan Chang (UZH-Zurich)
- 12:00–12:45 **Discussion**
- 12:45–14:20 **Lunch** (self-organized)
- 14:30–15:00 **Atomic-scale antagonism between d-symmetry Cooper pairs and d-symmetry density waves in underdoped cuprates**
Seamus Davis (Cornell)
- 15:00–15:30 **Charge order in cuprates: from hole to electron doping**
Andrea Damascelli (UBC-Vancouver)
- 15:30–16:00 **Quenched disorder and vestigial nematicity and its relation to high temperature superconductivity**
Steve Kivelson (Stanford)
- 16:00–16:30 **Discussion**
- 16:30–17:15 **Break**
- 17:15–17:45 **Interplay of nematicity, charge order and superconductivity in YBCO**
Louis Taillefer (Sherbrooke)
- 17:45–18:15 **Remnant of the first order Mott transition at finite doping as an organizing principle for strongly correlated superconductors**
André-Marie Tremblay (Sherbrooke)
- 18:15–18:45 **Discussion**

Friday, March 27

- 09:00–09:30 **SU(2) symmetry in underdoped cuprates**
Catherine Pépin (CEA-Saclay)
- 09:30–10:00 **Interplay between charge-density-wave and pair-density-wave orders in the cuprates**
Andrey Chubukov (Minneapolis)
- 10:00–10:30 **Discussion**
- 10:30–11:15 **Break**
- 11:15–11:45 **How to identify the mechanism of superconductivity in the cuprate superconductors**
Gabriel Kotliar (Rutgers)
- 11:45–12:15 **Superconductivity and the pseudogap in the Hubbard model, implications for the cuprates**
Andrew Millis (Columbia)
- 12:15–12:45 **Discussion**
- 12:45–14:20 **Lunch** (self-organized)
- 14:30–15:00 **Intra-unit-cell magnetic correlations near optimal doping in YBCO**
Philippe Bourges (CEA-Saclay)
- 15:00–15:30 **What are the indications for the pseudogap in the temperature and frequency dependence of the optical conductivity?**
Dirk van der Marel (Geneva)
- 15:30–16:00 **The pseudogap and its collapse in cuprates**
Alain Sacuto (Paris-Diderot)
- 16:00–16:30 **Discussion**
- 16:30–17:15 **Break**
- 17:15–17:45 **Quantum dimer dynamical mean-field theory and beyond**
Olivier Parcollet (CEA-Saclay)
- 17:45–18:15 **A quantum dimer model for the pseudogap metal**
Subir Sachdev (Harvard)
- 18:15–19:00 **Discussion**