



The Abdus Salam
**International Centre
for Theoretical Physics**



Conference on: Ultrafast Dynamics of Correlated Materials

Cosponsor(s): SISSA - International School for Advanced Studies; European Commission GO FAST Project - FP7
NMP Programme

Organizer(s): M. Fabrizio, C. Giannetti, M. Marsi. ICTP Local Organizer: M. Müller
Trieste - Italy, 14 - 18 October 2013

Venue: Leonardo da Vinci Building Main Lecture Hall

Programme

Monday 14 October 2013 (Room:Leonardo da Vinci Building Main Lecture Hall)

14 October 2013

- 08:15 - 09:15** (Room: Leonardo da Vinci Building, Lobby)
--- Registration ---
- 09:15 - 09:30** **Opening Remarks**
- 09:30 - 10:15** **Fulvio Parmigiani / University of Trieste**
Science Driven Requirements for Seeded Free Electron Lasers
- 10:15 - 11:00** **Wanzheng Hu / Center for Free-Electron Laser Science, Hamburg, Germany**
Coherent Control of High-Tc Superconductivity
- 11:00 - 11:15** (Room: Leonardo da Vinci Building, Lobby)
--- Coffee Break ---
- 11:15 - 12:00** **José Lorenzana / ISC-CNR, University of Rome "La Sapienza", Italy**
Investigating Pairing Interactions with coherent Charge Fluctuation Spectroscopy
- 12:00 - 12:45** **J. Schmiedmayer / Vienna University of Technology, Austria**
Does an isolated 1d quantum system relax ?
- 12:45 - 14:15** --- Lunch Break ---

- 14:15 - 15:00** **Steven L. Johnson** / *ETH Zurich, Switzerland*
A direct view of order dynamics with femtosecond x-ray diffraction
- 15:00 - 15:45** **Andrea Damascelli** / *UBC Vancouver, Canada*
Relativistic Quantum Materials
- 16:00 - 16:30** (Room: Leonardo da Vinci Building, Lobby)
 --- Coffee Break ---
- 16:30 - 17:15** **Philipp Werner** / *ETH Zurich, Switzerland*
Nonequilibrium dynamics of electron-phonon coupled systems
- 17:15 - 18:00** **Gabriel Kotliar** / *Rutgers State University, USA*
Dynamical Mean Field Theory of Steady States: Electric Field Dissipation and U
- 18:30 - 20:30** (Room: Leonardo da Vinci Building Cafeteria)
 --- Welcome Reception ---

Tuesday 15 October 2013 (Room:Leonardo da Vinci Building Main Lecture Hall)

15 October 2013

- 09:00 - 09:45** **Alessandro Silva** / *SISSA, International School for Advanced Studies, Trieste*
Stationary states and Non-thermal behaviour in superfluids out of equilibrium
- 09:45 - 10:30** **Ulrich Schneider** / *Ludwig Maximilians Universität, Germany*
Quantum Quenches and Mass Transport in homogeneous optical lattices
- 10:30 - 10:45** (Room: Leonardo da Vinci Building, Lobby)
 --- Coffee Break ---
- 10:45 - 11:30** **Javier Garcia-Barriocanal** / *Universidad Complutense de Madrid, Spain*
Phase diagram of electrostatically doped $\text{La}_2\text{CuO}_4+d$
- 11:30 - 12:15** **Giulio Biroli** / *Commissariat à l'énergie atomique, Saclay, France*
Quantum quenches, dynamical transitions and off-equilibrium quantum criticality
- 12:15 - 13:00** **Alessandra Lanzara** / *University of California, USA*
Ultrafast electron dynamics of cuprate superconductors
- 13:00 - 14:30** --- Lunch Break ---
- 14:30 - 15:15** **Marcus Kollar** / *University of Augsburg, Germany*
Prethermalization and thermalization of weakly interacting quantum systems
- 15:15 - 16:00** **Martin Wolf** / *Fritz-Haber-Institute, Germany*
Ultrafast dynamics of complex materials probed by time-resolved photoemission
- 16:00 - 16:30** (Room: Leonardo da Vinci Building, Lobby)
 --- Coffee Break ---
- 16:30 - 17:15** **Laurent Cario** / *Université de Nantes, France*
Resistive switching induced by an electronic avalanche phenomenon in the narrow gap Mott Insulators GaM_4Q_8 ($M = \text{V, Nb, Ta}$; $Q = \text{S, Se}$)
- 17:15 - 18:00** **Marcelo Javier Rozenberg** / *CNRS & LPS, Université Paris-Sud, France*
Universal dielectric breakdown and synaptic behavior in Mott insulators

Wednesday 16 October 2013 (Room:Leonardo da Vinci Building Main Lecture Hall)

16 October 2013

- 09:15 - 10:00** **Davide Boschetto** / *Ecole Polytechnique - Ensta Laboratoire d'Optique Appliquée, France*
Lattice dynamics and electron-phonon coupling in iron pnictide superconductors
- 10:00 - 10:45** **Hiroshi Okamoto** / *University of Tokyo, Japan*
Ultrafast control of optical and ferroelectric properties by terahertz fields in correlated electron materials
- 10:45 - 11:00** (Room: Leonardo da Vinci Building, Lobby)
--- Coffee Break ---
- 11:00 - 11:45** **Jure Demsar** / *Ilmenau University of Technology, Germany*
Order parameter dynamics in Density Waves probed by femtosecond electron diffraction
- 11:45 - 12:30** **Hanns-Christoph Nägerl** / *Universität Innsbruck, Austria*
Quench dynamics in strongly correlated Bose-Hubbard chains
- 12:30 - 13:15** **Takashi Oka** / *University of Tokyo, Japan*
Floquet theory of laser induced topological phase transitions
- 13:15 - 14:45** --- Lunch Break ---
- 14:45 - 16:15** Flash Talks
- All participants who intend to bring a poster can orally present it during the flash talks session. Each oral presentation should comprise no more than three slides.
- 16:15 - 16:45** (Room: Leonardo da Vinci Building, Lobby)
--- Coffee Break ---
- 16:45 - 18:15** Poster Session
- 18:15 - 20:15** (Room: Leonardo da Vinci Building Cafeteria)
--- Buffet ---

Thursday 17 October 2013 (Room:Leonardo da Vinci Building Main Lecture Hall)

17 October 2013

- 09:00 - 09:45** **Martin Eckstein** / *Center for Free-Electron Laser Science, Hamburg, Germany*
Real-space nonequilibrium dynamical-mean simulations for photo-excited hetero-structures and surfaces
- 09:45 - 10:30** **Luca Perfetti** / *Ecole Polytechnique, France*
Dynamics of Electronic states in the aperiodic crystal La₂VS₃ and in the Mott insulator Sr₂IrO₄
- 10:30 - 10:45** (Room: Leonardo da Vinci Building, Lobby)
--- Coffee Break ---
- 10:45 - 11:30** **Marco Schirò** / *Princeton University, USA*
Transient Dynamics and Correlations of Strongly Interacting Fermions Out of Equilibrium

- 11:30 - 12:15** **Corinna Kollath** / *University of Bonn, Germany*
Correlation dynamics in interacting quantum gases
- 12:15 - 13:00** **Peter Prelovšek** / *University of Ljubljana, Slovenia*
Charge recombination and relaxation in Mott-Hubbard insulators
- 13:00 - 14:30** --- Lunch Break ---
- 14:30 - 15:15** **Dragan Mihailovic** / *Jozef Stefan Institute, Slovenia*
Coherent trajectories through phase transitions in complex systems: topological defect dynamics and hidden states
- 15:15 - 16:00** **Serguei Brazovskii** / *CNRS, LPTMS, Université Paris-sud, France*
Modeling of light-induced transformations of cooperative electronic states
- 16:00 - 16:30** (Room: Leonardo da Vinci Building, Lobby)
 --- Coffee Break ---
- 16:30 - 17:15** **Uwe Bovensiepen** / *University Duisburg-Essen, Germany*
Ultrafast photo-induced changes in the electronic structure of Fe-pnictide and cuprate superconductors
- 17:15 - 18:00** **Massimo Capone** / *CNR IOM and SISSA, Trieste*
Time-resolved spectroscopy reveals the momentum-selective Mottness of the pseudo gap state of the cuprates.
- 18:00 - 18:30** **Closing Session**

Friday 18 October 2013

18 October 2013

- 09:00 - 12:00** **Visit to the italian FEL Fermi@Elettra**
 Our bus will leave from the bus stop in front of Adriatico guest house at 9.00. Interested participants should sign up for the visit within Monday 7 October 2013. For more information about the site please visit <http://www.elettra.trieste.it/FERMI/>