



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  $\text{GaM}_4\text{Q}_8$  ( $M = \text{V, Nb, Ta}$  ;  $Q = \text{S, Se}$ )**
- 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 La<sub>2</sub>VS<sub>3</sub> and in the Mott insulator Sr<sub>2</sub>IrO<sub>4</sub>**
- 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**     **Dragan Mihailovic** / *Jozef Stefan Institute, Slovenia*  
**Coherent trajectories through phase transitions in complex systems: topological defect dynamics and hidden states**
- 12:15 - 13:00**     **Peter Prelovsek** / *University of Ljubljana, Slovenia*  
**Charge recombination and relaxation in Mott-Hubbard insulators**
- 13:00 - 14:30**     --- Lunch Break ---
- 14:30 - 15:15**     **Serguei Brazovskii** / *CNRS, LPTMS, Université Paris-sud, France*  
**Modeling of light-induced transformations of cooperative electronic states**
- 15:15 - 16:00**     **Uwe Bovensiepen** / *University Duisburg-Essen, Germany*  
**Ultrafast photo-induced changes in the electronic structure of Fe-pnictide and cuprate superconductors**
- 16:00 - 16:45**     **Massimo Capone** / *CNR IOM and SISSA, Trieste*  
**Time-resolved spectroscopy reveals the momentum-selective Mottness of the pseudo gap state of the cuprates.**
- 16:45 - 17:15**     (Room: Leonardo da Vinci Building, Lobby)  
 --- Coffee Break and 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 guesthouse at 9:00. The departure from Elettra is scheduled at 11:30. 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/>