

Electronic States and Phases Induced by Electric or Optical Impacts.

International research school
IMPACT-2016

<http://lptms.u-psud.fr/impact2016/>

**August 22 - September 3,
2016, Cargèse, France**



Organizers:

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Recent years witness an emergence and a very fast development of a new activity in condensed matter physics. The goal is to achieve controlled transformations of electronic states or even of whole phases by external impacts.

There are two main directions:

electrostatic effects of very strong electric fields and the ultra fast optical pumping; the latest trend is to employ them in combination. Being as young as from 2000's, the studies demonstrated an explosive development during recent years. It is particularly important to reach a synergy and cross-fertilization between the branches of the new science which still lack an acquaintance - particularly with respect to the two major techniques, but also on different classes of materials.

For that purpose, we organize an international research school which unifies the following subjects:

EFFECTS

- Impact switching of the superconducting state.
- Impact switching of magnetically ordered states.
- Impacts upon phases of electronic crystals: CDW, SDW, AFM, FM, charge ordering and ferroelectricity.
- Switching of Mott and Peierls insulators.
- Surface and interface electronic phases.
- Symmetry breaking and restoration.
- Time evolution of electronic spectra.
- Time evolution of lattice and collective modes.
- Topological defects in inhomogeneous and instantaneous cooperative electronic phases.

METHODS

- Electrostatic doping and field effect.
- MBE fabrication of active interfaces.
- Combined methods: ferroelectric amplification.
- Combined methods: electrolytic field effect.
- Combined methods: the light and the field.
- Femtosecond optical pump-and-probe.
- TeraHz pulses
- Time resolved ARPES probes.
- Time resolved X-ray diffraction.
- Microscopic and phenomenological theories.

MATERIALS OF INTEREST

cuprates, pnictides, oxides, halcogenides, organic conductors and ferroelectrics, polymers, semimetals and semiconductors.

ABSTRACT SUBMISSION:

Deadline for the abstract submission is
April 15, 2016.

Some sources of financial support will be available. Fees waiving or reduction are previewed for students and some speakers.

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