



**ICTP** | International Centre for Theoretical Physics  
**SAIFR** | South American Institute for Fundamental Research

**Campus of IFT-UNESP – São Paulo, Brazil**

**November 4 – 8, 2024**

**MINICOURSE ON  
 DISORDER AND DYNAMICS  
 IN STRONGLY  
 CORRELATED MATERIALS**



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A physical description of strongly correlated materials is one of the biggest challenges in theoretical and experimental condensed matter research. An obstacle in describing quantum phases and quantum phase transitions in real materials is the ubiquitous inhomogeneities that enter as a quenched random variable (disorder) in the system. Examples where disorder effects play a major role are the low-temperature physics of frustrated magnets or the electronic nematic phases of iron pnictides and cuprates. On the other hand, there is a growing interest in the description and the control of time-dependent properties of quantum materials. Examples are the use of ultrafast spectroscopy as a tool to control quantum phases of matter, and the development of cold atoms as platforms to study out-of-equilibrium dynamics.

This one-week course is designed to provide graduate (and, perhaps, a few senior undergraduate) students in physics with an introduction to disorder and dynamical properties in condensed matter systems. In addition, we will have space for participants to present their research in poster sessions.

Requirements: A graduate course on quantum mechanics and statistical physics. Participants are required to bring their laptops to the lectures involving numerical analysis.

There is no registration fee and limited funds are available for local expenses.

**Application deadline: September 15, 2024**

**Online application and more information:**

**[ictp-saifr.org/mpgll2024](https://ictp-saifr.org/mpgll2024)**



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