This 5-day school consists of lectures and hands-on sessions on a wide range of electronic-structure methods based on Wannier functions. The event targets graduate students, early-career scientists and experienced users.

**Description:**

Wannier functions (WFs) are used to understand the nature of chemical bonding, calculate topological and geometrical quantities, efficiently interpolate band-structure properties and more. This event includes highlight talks that provide a historical and broad perspective on WFs in electronic structure, dedicated lectures to the theory and methods of WFs, as well as hands-on tutorials at the basic and advanced level. The school is designed to allow participants to join both in-person and online, and covers a wide range of complex materials properties using several software packages.

In person participation: As regards the COVID-19 policy, we advise to follow the updated rules available on the ICTP page Access Guidelines for Visitors.

The School will be followed the week after (23 - 27 May 2022) by the Wannier 2022 Developers Meeting (smr3757), devoted to foster integration between several packages composing the Wannier software ecosystem.

**Topics:**

- Maximally-localized Wannier functions (Wannier90)
- Advanced Wannier functions methods: symmetry-adapted, SCDM, transport (Wannier90)
- Partly occupied Wannier functions (ASE)
- Tight-binding models (PythTB)
- Topological properties (Z2pack & WannierTools)
- Berry-phase properties (WannierBerri)
- Automated wannierisation (AllDA)
- Electron-phonon coupling (EPW)
- Dynamical mean-field theory (TRIQS)

**How to apply:**

Online application: https://indico.ictp.it/event/9789/

Female scientists are encouraged to apply.

**Grants:**

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

**Deadline:**

20 March 2022