

# School on Electron-Phonon Physics from First Principles



**19 - 23 March 2018**  
**Trieste, Italy**

Further information:  
<http://indico.ictp.it/event/8301/>  
[smr3191@ictp.it](mailto:smr3191@ictp.it)

The School addresses senior PhD students and experienced researchers with prior working knowledge of DFT.

Theoretical and hands-on training will focus on ab-initio calculations of many properties relating to the electron-phonon interaction, for applications in condensed matter physics, materials physics, and nanoscience.

Starting from an introduction to the background on electron-phonon physics and related materials properties from the point of view of ab-initio calculations, we will show the participants how to perform cutting-edge electron-phonon calculations using a suite of electronic structure codes, including EPW, Wannier90, Quantum ESPRESSO, and ABINIT.

## Topics:

- Density functional perturbation theory
- Electron-phonon coupling
- Phonon-assisted optical absorption
- Maximally-localized Wannier functions
- Temperature dependence of the electronic bandstructure
- Electronic transport using the Boltzmann transport equation
- Phonon-driven superconductivity

## How to apply:

Online application:  
<http://indico.ictp.it/event/8301/>

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.

## Directors:

S. Poncé, University of Oxford  
E.R. Margine, Binghamton University - SUNY  
F. Giustino, University of Oxford

## Local Organizers:

R. Gebauer, ICTP  
N. Seriani, ICTP

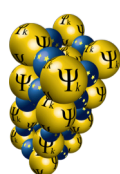
## Lecturers:

S. de Gironcoli, SISSA  
P. Giannozzi, University of Udine  
F. Giustino, University of Oxford  
X. Gonze, Univ. Catholique of Louvain  
E. Kioupakis, University of Michigan  
E. R. Margine, Binghamton University-SUNY  
G. Pizzi, EPFL  
S. Poncé, University of Oxford

## Deadlines:

**1 December 2017**  
for those needing visa and/or financial support

**15 January 2018**  
otherwise



The Abdus Salam  
International Centre  
for Theoretical Physics  
[www.ictp.it](http://www.ictp.it)  
Trieste, Italy

