

# Computational School on Electronic Excitations in Novel Materials Using the Yambo Code



**27 - 31 January 2020**  
**Trieste, Italy**

Further information:  
<http://indico.ictp.it/event/9018/smr3421@ictp.it>

The Computational School on Electronic Excitations in Novel Materials Using the Yambo Code introduces participants to post-DFT simulations, specifically many-body perturbation theory (MBPT) approaches, and provides training in the calculation of electronic and optical properties of materials.

## Description:

The program will offer theoretical and technical lectures as well as dedicated hands-on sessions where students will learn the use of the Yambo code in a massively parallel environment as well as post processing tools for the analysis of the results. The main topics covered range from introductory lessons on MBPT concepts to more advanced topics in materials science. General topics include the diagrammatic approach, self-energy and quasiparticles, the GW approximation, linear response, and the Bethe-Salpeter equation. Strong focus is given to connections with experimental observables (from photoemission, absorption, photoluminescence). Advanced topics will address real time evolution of equations of motion, time dependent polarization in terms of the Berry phase, and computation of non-linear optical properties.

Participants are required to have a pre-existing background in DFT and in running DFT simulations.

## Directors:

D. VARSANO, CNR-NANO, Italy  
M. PALUMMO, University of Rome Tor Vergata, Italy  
A. MOLINA-SANCHEZ, IINL, Portugal  
C. D. HOGAN, CNR-ISM, Italy  
D. SANGALLI, CNR-ISM, Italy

## Local Organizers:

R. GEBAUER, ICTP, Italy  
I. GIOTTO, ICTP, Italy

## Speakers:

C. ATTACALITE, CNRS, CINAM, Aix-Marseille Université, France  
S. BARONI, SISSA, Italy  
A. FERRETTI, CNR-NANO, Italy  
A. MARINI, CNR-ISM, Italy  
P. MELO, University of Liege, Belgium  
A. MOLINA-SANCHEZ, IINL, Portugal  
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M. J. VAN SETTEN, IMEC, Belgium  
D. VARSANO, CNR-NANO, Italy  
L. WIRTZ, Université du Luxembourg, Luxembourg

## Tutors:

S. S. ATAEI, CNR-NANO, Italy  
M. ATAMBO, The Technical University of Kenya, Kenya  
M. BONACCI, University of Modena and Reggio Emilia, Italy  
A. SEIDU, Aalto University, Finland

## How to apply:

Online application:  
<http://indico.ictp.it/event/9018/>

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:

For applications needing financial support and/or visa:

**30 November 2019**

For applications not needing financial support and/or visa:

**15 December 2019**

