



Training on Neutron Techniques: Diffraction and Structural Imaging

S.Giovanni, Bolzano, Italy 12 - 18 June 2022

The **Italian Society of Neutron Spectroscopy SISN** organizes a three-year program of Advanced School called **Training on Neutron Techniques**.

Scopes and Topics

The physical bases of the neutron scattering techniques for the study of condensed matter will be presented and discussed, with examples and applications in various scientific fields. Specific attention will be paid to recent developments and to those in progress and expected for the current decade.

The scientific potentialities of the experimental methods will be discussed for instruments accessible both at reactor-based facilities and at spallation sources, also in view of the European ESS project (the future European Neutron Scattering facility).

The 2022 edition will be focused on *Diffraction and Structural Imaging*, while the 2023 topic will be *Inelastic scattering* and in 2024 it will be *Small Angle Scattering and Reflectometry*.

Fundamentals

- Neutron Scattering Theory
- Neutron Sources and Instrumentation

Neutron Diffraction

- Crystallography
- Powder/Single Crystal/Disordered Systems
- Magnetic Structures
- Applications in Biophysics, Engineering, Energy Materials, Cultural Heritage

Neutron Imaging

- Basic Principles
- Tomography and Data Reconstruction
- Advanced Techniques (Bragg Edge Analysis, Phase Contrast, Grating Interferometry, Polarized neutrons, Resonance Imaging, etc.)

Tutorials

- Small groups of students with tutors.

Program coordinator

R. Magli (Università di Milano)

Directors of the 2022 School

M. Ceretti (ICGM, CNRS Montpellier)

F. Grazzi (CNR-IFAC, Sesto Fiorentino, INFN-CHNet)

F. Formisano (CNR-IOM, Grenoble)

A. Pietropaolo (Enea, Frascati)

General Information

The School is open to **Graduate** and **PhD students** and to **Post-Docs** working in scientific disciplines as Biology, Chemistry, Earth Sciences, Material Sciences, Physics, Sciences for Cultural Heritage Conservation, and similar.

The language of the School will be English. The School will start on Monday morning June 13rd and finish on Saturday morning June 18th, 2022.

General lessons will be held each morning, while the afternoons will be mainly devoted to applicative seminars and tutorial activities with small groups of students.

The School will be hosted at Hotel Steinpent, S. Giovanni, Valle Aurina (Bz), Italy, and the students will be accommodated in shared rooms. Students are requested to arrive at the Hotel within 7.00 pm on Sunday June 17th.

Registration and Fees

A maximum of 25 students will be accepted. The registration fees of 400€ include full board accommodation at the Hotel Steinpent and handouts of the lectures. Travels costs to and from S.Giovanni are not included. A limited amount of fellowships is available, depending on the available funds.

A pre-registration is required: interested people should complete the Registration form present at <http://www.sisn.it/formazione/tnt-summer-school>, uploading also a short CV.

The SISN will evaluate the CVs and will communicate on the scheduled time the acceptance of applications.

The School will be held in-person. The Organizers will keep updated in due time the SISN web site (www.sisn.it) on the evolution of the COVID-19 pandemic situation.

Further information (Registration form, Program, etc.): please visit the SISN web site (www.sisn.it) or contact the School Directors:

monica.ceretti@umontpellier.fr, f.grazzi@ifac.cnr.it

Important dates for the 2022 edition:

Pre-registration deadline:	April 10	Preliminary acceptance:	April 20
Fee payment deadline:	April 30	Final acceptance:	May 10