The **Italian Society of Neutron Spectroscopy** 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 focus on **Diffraction and Structural Imaging**, while the topic of **2023** will be **Inelastic Scattering** and in **2024** it will be **Small Angle Scattering** and **Reflectometry.**

## Program coordinator

R. Magli (Univ. Milano)

## Directors of the 2022 School

M. Ceretti (ICGM, CNRS Montpellier)
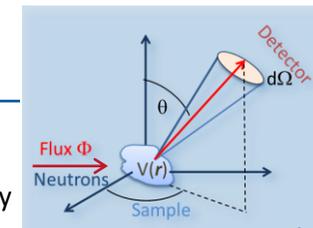F. Grazzi (CNR-IFAC,Sesto Fiorentino, INFN-CHNet)
F. Formisano (CNR-IOM, Grenoble)
A. Pietropaolo (ENEA, Frascati)



# TRAINING ON NEUTRON TECHNIQUES

## First Edition

# DIFFRACTION AND STRUCTURAL IMAGING

San Giovanni in Valle Aurina (BZ, Italy)
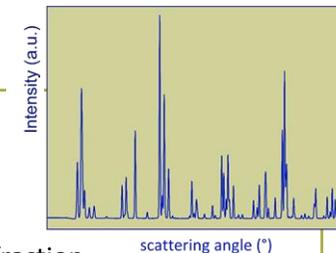12 – 18 June 2022



## Fundamentals

- Neutron Scattering Theory
- Neutron Sources and Instrumentation



## Neutron diffraction

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



## Neutron Imaging

- Basic principles
- Neutron 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

## 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 by 7:00 pm on Sunday June 12th.

## Registration & 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 funds at hand.

A pre-registration is required: people interested 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.
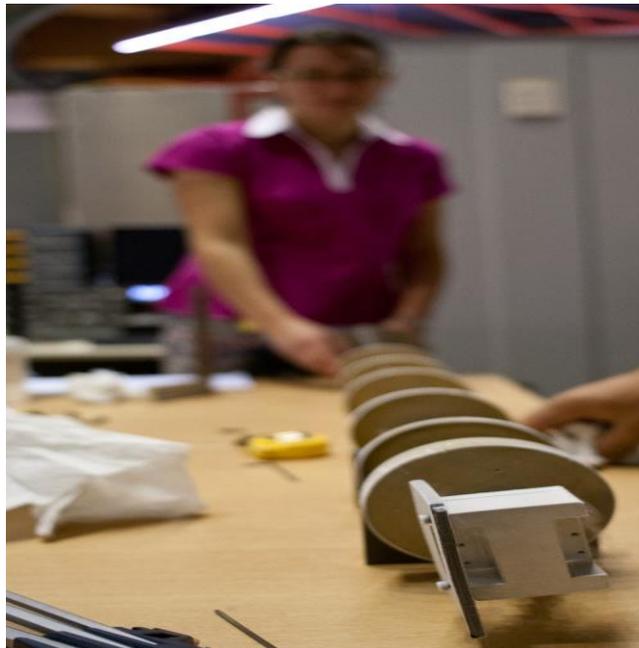
## Important dates

- Pre-registration deadline: April 10, 2022
- Preliminary acceptance: April 20, 2022
- Fee payment deadline: April 30, 2022
- Final acceptance: May 10, 2022

## Further information

http://www.sisn.it/

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

(please refer to these e-mail addresses in case of any question, etc.)

The school will be held in-person. However, we will keep you updated in due time on the evolution of the COVID pandemic situation and you can find the latest information here.

### Scientific committee

U. Bafile (CNR-IFAC, Sesto Fiorentino)
M. Celli (CNR-IFAC, Sesto Fiorentino)
M. Ceretti (ICGM, CNRS Montpellier)
D. Colognesi (CNR-IFAC, Sesto Fiorentino)
A. De Francesco (CNR-IOM, Grenoble)
L. del Rosso (CNR-IFAC, Sesto Fiorentino)
F. Grazzi (CNR-IFAC, Sesto Fiorentino & INFN-CHNet)
E. Guarini (Univ. Firenze)
A. Luchini (ESS, Lund)
M. Maccarini (CNRS Grenoble)
F. Spinozzi (Univ. Politecnica delle Marche)
L. Ulivi (CNR-IFAC, Sesto Fiorentino)