



# MAYORANA

Multi-Aspect Young-ORiented Advanced Neutrino Academy

## FIRST CIRCULAR

The Multi-Aspect Young Oriented Advanced Neutrino Academy (MAYORANA) School&Workshop will be held in Modica (Italy) on **July 4<sup>th</sup> - 14<sup>th</sup>, 2023**. The School will take place from July 4<sup>th</sup> to 11<sup>th</sup> and the Workshop from July 12<sup>th</sup> to 14<sup>th</sup>.

This circular is also available on the event web site:

<https://agenda.infn.it/e/mayorana23>

### Event Host and Venue

The MAYORANA School&Workshop is jointly organized by Fondazione Grimaldi, Istituto Nazionale di Fisica Nucleare and University of Catania. The scientific sessions will be held downtown, at the historical *Palazzo Grimaldi*, located in Corso Umberto I, 106, Modica, Italy.

### Scope and Scientific Program

The main objective of MAYORANA is to promote a collaborative framework of young and senior researchers in the fields of nuclear, particle and astroparticle neutrino physics to discuss theories and experiments in which interdisciplinary aspects are particularly relevant.

At present, neutrino physics is developing more and more toward a cross-disciplinary approach, but still a lot needs to be done. The overlap between different communities is an unavoidable, despite demanding, feature to face several challenges of this research field. The sharing of different experimental and theoretical techniques and the exchange of technical experiences and know-how are perhaps the best resources to this ambitious goal. In this context, it is of utmost importance to allow young and senior

researchers working at the intersections of these fields to meet regularly to exchange ideas and results.

In this view the proposed School&Workshop format for MAYORANA is designed to integrate the lecture-based content of a School, targeting students and young researchers, with the advanced talks of a Workshop, addressed to experts of the field. Thus, the two event pillars give the young researchers the chance of a synergic exposure to basic as well as advanced information from top-level worldwide experts of the field. Ambitiously, the MAYORANA School&Workshop aims at evolving in the long term into a periodic meeting. The list of the topics to be developed during the School and the Workshop is given below:

- Double beta decay
- Nuclear structure in connection with neutrino physics
- Neutrino nucleus interactions at low and high energy
- Nuclear reactions for weak interactions
- Supernova models and detection of supernovae neutrinos
- Solar models
- Direct and indirect dark matter searches
- Rare beta decay of nuclei for neutrino mass measurement
- Neutrino oscillation and matter effect
- Anomalies in reactor neutrinos
- Ultra-high energy astroparticle neutrinos
- New related detection technologies
- Artificial intelligence for DAQ and data analysis

## Format

The program of the **MAYORANA School** foresees lecture, poster/discussion and mini-talk sessions.

During the lecture sessions high-ranked worldwide experts will present each one a three-four hours program focused on a specific hot topic of the field addressed to students and young researchers with different scientific background. Discussion sessions are specifically conceived to allow students and junior scientists a direct and informal interaction with teachers.

The students and young researchers are invited to prepare a poster describing their present activity and plans for the future. A permanent exposition of the posters will be arranged in dedicated rooms of the palace. The participants are also asked to prepare a short presentation to summarize the content of the poster during dedicated mini-talk sessions.

The best posters and mini-talks will be awarded with a prize.

Students who need to get a didactic credit for their attendance at the School will be examined and, in case of positive result, receive a proper certificate.

The format of the **MAYORANA Workshop** consists of plenary sessions hosting invited and contributed talks, selected among the abstracts submitted by the participants.

## Abstract Submission

The abstract submission page of the MAYORANA Workshop is available at the event website:

<https://agenda.infn.it/e/mayorana23workshop>

The deadline for abstract submission is March 31, 2023. The selection of the oral presentations will be notified before April 15, 2023.

## Proceedings

Proceedings of the posters and mini-talks of the School and of the talks of the Workshop will be published, after peer review, in indexed journals.

## Social Activities and Excursions

A public lecture will be held on July 4<sup>th</sup> at Teatro Garibaldi (<http://www.fondazioneteatrogaribaldi.it/>) C.so Umberto I, 207 - 97015 Modica. The lecture is given by Prof. Francesco Vissani of the Laboratori Nazionali del Gran Sasso, Istituto Nazionale di Fisica Nucleare and Gran Sasso Science Institute.

An appealing excursion program is going to be organized and will be defined in the forthcoming circulars. It will include guided tours to the UNESCO World heritage sites of Ragusa Ibla, Scicli, downtown Modica and a one-day excursion on Sunday to the seaside.

## Registration

The registration is open at the following link:

<https://agenda.infn.it/e/mayorana23>

Upon registration, the participants to the School will be asked to fill a questionnaire also indicating a contact person to ask for a presentation letter.

The registration fee for the School is 200 €, for the Workshop is 150 €. The full registration fee for the School&Workshop is 350 €. Students and young researchers with special motivations can ask for a specific support.

The School fee will cover coffee breaks, lunches, School social dinner, excursions, School package and proceedings.

The Workshop fee will cover coffee breaks, lunches, Workshop social dinner, evening guided tour, Workshop package and proceedings.

## Preliminary list of invited teachers of the School

- Aprile E., Columbia University, USA
- Gratta G., Stanford University, USA
- Lenske H., Giessen University, Germany
- Menendez J., Barcelona University, Spain
- Pallavicini\* M., University of Genova and INFN, Italy
- Roulet E., Centro Atomico Bariloche, Argentina
- Smirnov A., ICPT, Trieste, Italy and Max Planck Institute for Nuclear Physics, Germany
- Suhonen J., Jyvaskyla University, Finland

\* to be confirmed

## International Advisory Committee

E. Aprile (Columbia Univ., USA),  
C. Brofferio (Milano-Bicocca Univ., Italy),  
J. Cao (IHEP, China),  
H. Ejiri (Osaka Univ., Japan),  
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K. Scholberg (Duke Univ., USA),  
A. Smirnov (Max-Planck-Institute, Germany),  
F. Vissani (LNGS and GSSI, Italy),  
K. Zuber (Dresden Univ., Germany).

## Local Organizing Committee

F. Cappuzzello (School chair) (DFA Catania Univ, INFN LNS),  
R. Caruso (School chair) (DFA Catania Univ, INFN CT),  
C. Agodi (Workshop chair) (INFN LNS),  
M. Cavallaro (Workshop chair) (INFN LNS),  
G. Andronico (INFN CT),  
G. A. Brischetto (INFN LNS),

I. Ciraldo (INFN LNS),  
S. Costa (DFA Catania Univ, INFN CT),  
C. Lombardo (DFA Catania Univ, INFN CT),  
C. Petta (DFA Catania Univ, INFN CT),  
A. Spatafora (INFN LNS),  
C. Tuvè (DFA Catania Univ, INFN CT),  
G. Verde (INFN CT)  
Fondazione Grimaldi (Modica)

All correspondence and requests for further information concerning the MAYORANA School&Workshop should be sent to the e-mail address: [mayorana2023@ct.infn.it](mailto:mayorana2023@ct.infn.it)

We look forward to seeing you in Modica,

The MAYORANA School&Workshop Organizing Committee