

September 12th, 2023

Accademia Nazionale dei Lincei  
Roma, Palazzo Corsini Via della Lungara, 10

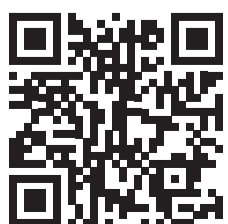
# SOLAR NEUTRINO PHYSICS AT LNGS:

## **Borexino and Gallex** EXPERIMENTS

SPEAKERS:

Giampaolo **Bellini**, Wick **Haxton**,  
Till **Kirsten**, Luciano **Maiani**,  
Giorgio **Parisi**, Alexei **Smirnov**,  
Lucia **Votano**, Antonio **Zoccoli**

For registration and info: <https://borexino-gallex.sites.lngs.infn.it>



ACCADEMIA NAZIONALE DEI LINCEI



## International Symposium on Solar Neutrino Physics at LNGS

The study of solar neutrinos is a fruitful interdisciplinary research topic that had a tremendous impact on both neutrino and astroparticle physics. It led to some of the most significant recent breakthroughs in those fields and greatly improved our understanding of the nuclear reactions that power the Sun and the other stars.

Since its establishment in the 1980s, the [Gran Sasso National Laboratory](#) (LNGS) of [INFN](#) has been deeply involved in this field, with [Gallex](#) (later prolonged as GNO) and [Borexino](#) experiments. After over 35 years, this line of research eventually ended with the shutdown of the Borexino detector in October 2021.

Two years after the conclusion of this scientific endeavor, the symposium will present a retrospective that examines themes, results and implications on both neutrino physics and stellar astrophysics of these researches. It will feature contributions from some of the most prominent scientists in the field, who will report on the achievements at LNGS as part of the international effort which began in the 1960s to investigate the properties of neutrinos from the Sun.

### Organizing Committee:

- Giovanni Losurdo (INFN Pisa e Accademia dei Lincei)
- Luciano Maiani (INFN e Università di Roma "La Sapienza", Accademia dei Lincei)
- Marco Pallavicini (INFN e Università di Genova)
- Ezio Previtali (Laboratori Naz.li del Gran Sasso, INFN e Università Milano Bicocca)
- Giocchino Ranucci (INFN Milano)

### Scientific secretariat:

- Nicola Rossi (INFN LNGS)

### Symposium web pages:

- <https://borexino-gallex.sites.lngs.infn.it> (Agenda INFN)
- <https://www.lincci.it/it/manifestazioni/solar-neutrino-physics-lngs>

### Live streaming of the symposium will be available at the following URL:

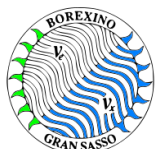
- <https://www.youtube.com/@AccademiaNazionaledeiLincei>

### For more information about the experiments:

- Borexino: <https://borex.lngs.infn.it>
- Gallex/GNO:  
[https://www.mpi-hd.mpg.de/lin/research\\_history.en#gallex](https://www.mpi-hd.mpg.de/lin/research_history.en#gallex)  
<https://en.wikipedia.org/wiki/GALLEX>  
[https://doi.org/10.1142/9789811204296\\_0003](https://doi.org/10.1142/9789811204296_0003)



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# Solar Neutrinos Astrophysics at LNGS: Borexino and Gallex Experiments

Tuesday Sep 12, 2023, 10:00 AM → 5:30 PM Europe/Rome

Accademia Nazionale dei Lincei

Marco Pallavicini (INFN e Università di Genova), Ezio Previtali (Laboratori Naz.li del Gran Sasso, INFN e Università Milano Bicocca)

## 10:00 AM → 1:05 PM Morning Session

Convener: Marco Pallavicini (INFN e Università di Genova)

10:00 AM **Welcome from Lincei** 10m  
Speaker: Giorgio Parisi (La Sapienza University & INFN Roma 1)

10:10 AM **Welcome from INFN** 10m  
Speaker: Antonio Zoccoli (Presidente INFN)

10:20 AM **Neutrinos at Gran Sasso: the beginnings** 50m  
45 min plus 5 min discussion  
Speaker: Luciano Maiani (La Sapienza University & INFN Roma 1)

11:10 AM **Coffee break** 15m

11:25 AM **The Gallex experiment** 50m  
45 min plus 5 min discussion  
Speaker: Till Kirsten (Max-Planck-Institut für Kernphysik, Heidelberg)

12:15 PM **The Borexino experiment** 50m  
45 min plus 5 min discussion  
Speaker: Gianpaolo Bellini (University of Milano & INFN Milano)

1:05 PM → 3:00 PM **Lunch break** 1h 55m

## 3:00 PM → 5:30 PM Afternoon Session

Convener: Ezio Previtali (Laboratori Naz.li del Gran Sasso, INFN e Università Milano Bicocca)

3:00 PM **Impact of the Borexino and Gallex results on the interpretation of the solar neutrino data in term of neutrino flavor conversion** 50m  
45 min plus 5 min discussion  
Speaker: Alexei Smirnov (Max-Planck-Institut für Kernphysik, Heidelberg and ICTP Trieste)

3:50 PM **Coffee break** 15m

4:05 PM **Astrophysical implications for the understanding of the Sun and the stars of the solar neutrino results from Borexino and Gallex** 50m  
45 min plus 5 min discussion  
Speaker: Wick Haxton (University of California)

4:55 PM **Closing remarks** 35m  
Speaker: Lucia Votano (INFN)