



«ETTORE MAJORANA» FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE  
TO PAY A PERMANENT TRIBUTE TO GALILEO GALILEI, FOUNDER OF MODERN SCIENCE  
AND TO ENRICO FERMI, THE "ITALIAN NAVIGATOR", FATHER OF THE WEAK FORCES



# INTERNATIONAL SCHOOL OF NUCLEAR PHYSICS

## 36th Course: NUCLEI IN THE LABORATORY AND IN THE COSMOS

ERICE–SICILY: 16 – 24 SEPTEMBER 2014

Sponsored by the: • European Physical Society • GSI Helmholtzzentrum fuer Schwerionenforschung  
• Helmholtz International Center for FAIR • European Physical Society  
• Italian Ministry of University and Research • Sicilian Regional Government

### TOPICS AND LECTURERS

#### *Traps in Nuclear Physics*

• J. AYSTO, ..... Jyvaeskylae, FIN

#### *Results and Status of CUORE*

• O. CREMONESI, ..... Milano, IT

#### *Nuclear Astrophysics at Legnaro National Laboratories*

• G. FIORENTINI, ..... Legnaro, Padova, IT

#### *Nuclear Reactions and Astrophysics*

• B. FULTON, ..... York, UK

#### *Superfluidity in Nuclei and in the Crust of Neutron Stars*

• J. MARGUERON, ..... Lyon, FR

#### *Gamma-Ray Tracking and GRETINA Physics*

• A. MACCHIAVELLI, ..... Berkeley, US

#### *Explosive nucleosynthesis of heavy elements*

• G. MARTINEZ PINEDO, ..... Darmstadt, DE

#### *No-Core Shell Model*

• P. NAVRATIL, ..... TRIUMF, Vancouver, CND

#### *QCD and Nuclear Physics*

• F. PEDERIVA, ..... Trento, IT

#### *Challenges in Nucleosynthesis of Nuclei beyond Fe*

• T. RAUSCHER, ..... Hertfordshire, Hatfield, UK

#### *Radioactive Beams and Unstable nuclei*

• H. SAKURAI, ..... RIKEN, JP

#### *Nuclei and Hypernuclei from QCD*

• M. SAVAGE, ..... Seattle, US

#### *Nuclear Reactions, Unstable Nuclei and Astrophysical Nucleosynthesis, and the new Accelerator Project at MSU*

• B. SHERRIL, ..... Michigan State, East Lansing, US

### PURPOSE OF THE COURSE

The program concentrates on the following topics: Lattice QCD and light nuclei; Nuclear structure from chiral EFT interactions; Ab-initio methods for medium-mass nuclei; Single-particle and collective dynamics; Nuclear structure far from the line of stability; Nuclei as a laboratory for beyond the Standard Model physics Neutron star matter; Stellar burning; Exploding stars and binary mergers of compact objects; Nuclear synthesis in cosmic events; Neutrino production in stars and supernova explosions.

### APPLICATIONS

Persons wishing to attend the Course should register online at:

<http://www.physik.tu-darmstadt.de/erice/> – <http://www.uni-tuebingen.de/erice/>  
or apply in writing to:

- Professor Dr Amand FAESSLER  
Universität Tuebingen  
Auf der Morgenstelle 14 – D-72076 TUEBINGEN, Germany  
Tel +49.7071.2976370 – Fax +49.7071.295388  
e-mail: [erice@physik.tu-darmstadt.de](mailto:erice@physik.tu-darmstadt.de)
- Professor Jochen WAMBACH  
Inst. Kernphysik  
Technische Universitaet Darmstadt  
Schlossgartenstrasse 9 – D-64289 DARMSTADT, Germany  
e-mail: [erice@physik.tu-darmstadt.de](mailto:erice@physik.tu-darmstadt.de)

They should specify:

- date and place of birth together with present nationality;
- degree and other academic qualifications;
- present position and place of work;
- postal and e-mail address.

Further information on the school and application forms for fellowships can be found at the same web address.

### POETIC TOUCH

According to legend, Erice, son of Venus and Neptune, founded a small town on top of a mountain (750 metres above sea level) more than three thousand years ago. The founder of modern history — i.e. the recording of events in a methodic and chronological sequence as they really happened without reference to mythical causes — the great Thucydides (~500 B.C.), writing about events connected with the conquest of Troy (1183 B.C.) said: «After the fall of Troy some Trojans on their escape from the Achaei arrived in Sicily by boat and as they settled near the border with the Sicanians all together they were named Elymi: their towns were Segesta and Erice.» This inspired Virgil to describe the arrival of the Trojan royal family in Erice and the burial of Anchises, by his son Aeneas, on the coast below Erice. Homer (~1000 B.C.), Theocritus (~300 B.C.), Polybius (~200 B.C.), Virgil (~50 B.C.), Horace (~20 B.C.), and others have celebrated this magnificent spot in Sicily in their poems. During seven centuries (XIII-XIX) the town of Erice was under the leadership of a local oligarchy, whose wisdom assured a long period of cultural development and economic prosperity which in turn gave rise to the many churches, monasteries and private palaces which you see today.

In Erice you can admire the Castle of Venus, the Cyclopean Walls (~800 B.C.) and the Gothic Cathedral (~1300 A.D.). Erice is at present a mixture of ancient and medieval architecture. Other masterpieces of ancient civilization are to be found in the neighbourhood: at Motya (Phoenician), Segesta (Elymian), and Selinunte (Greek). On the Aegadian Islands — theatre of the decisive naval battle of the first Punic War (264-241 B.C.) — suggestive neolithic and paleolithic vestiges are still visible: the grottoes of Favignana, the carvings and murals of Levanzo.

Splendid beaches are to be found at San Vito Lo Capo, Scopello, and Cornino, and a wild and rocky coast around Monte Cofano: all at less than one hour's drive from Erice.

**More information about the «Ettore Majorana» Foundation and Centre for Scientific Culture can be found on the WWW at the following address:**  
<http://www.ccsem.infn.it>

### PLEASE NOTE

Participants must arrive on September 16, not later than 7 pm.