INTERNATIONAL SCHOOL OF NUCLEAR PHYSICS

28th Course: RADIOACTIVE BEAMS, NUCLEAR DYNAMICS AND ASTROPHYSICS

ERICE-SICILY: 16 - 24 SEPTEMBER 2006

Sponsored by the: Deutsche Forschungsgemeinschaft • European Physical Society • Italian Ministry of Education, University and Scientific Research • Sicilian Regional Government

TOPICS AND LECTURERS

Prospects of Nuclear Structure at the Future GSI Accelerators
• Th. AUMANN, GSI, Darmstadt, D

Shell Model Calculations and Nuclear Structure
• E. CAURIER, IRIS, Strasbourg, F

Symmetry Principles and Nuclear Structure
• J. JOLIE, University of Cologne, D

Nuclear Structure and Astrophysics at RIKEN
• T. MOTOBAYASHI, RIKEN, Saitama, J

Structure of Exotic Nuclei
• W. NAZAREWICZ, Oak Ridge National Laboratory, TN, USA

Nuclear Reactions in Stars far below the Coulomb Barrier
• C. ROLFS, University of Bochum, D

New Many-body Approaches for Nuclear Structure, Nuclear Matter and Stars
• P. SCHUCK, University of Orsay, F

RIA (Radioactive Ion Accelerator) and Nuclei far from Stability
• B. SHERRILL, Michigan State University, MI, USA

Nucleosynthesis for medium-heavy and heavy Elements
• F. THIELEMANN, University of Basel, CH

Modern Aspects of Nuclear Structure Theory
• J. WAMBACH, Technical University of Darmstadt, D

Pulsars as an Astrophysical Laboratory for Nuclear and Particle Physics
• F. WEBER, San Diego State University, CA, USA

Astrophysical Nuclear Reactions
• M. WIESCHER, University of Notre Dame, IN, USA

PURPOSE OF THE COURSE

Radioactive beams open the prospect to explore the structure and dynamics of complex nuclei in the region of the nuclear reactions which lie far away from the valley of stability. This enables to study nuclear reactions which are important for the process in stars (heavy element formations in regular burning, novae and supernovae explosions, involve short-living isotopes) and even in the big bang. Exotic nuclei far from the valley of stability display many astonishing regularities and simple excitation patterns, for instance, creation of new closed shells and disappearance of the familiar ones. The reasons for the emergence of regularities and simple modes will be discussed at this School along with the fundamental role of the nucleon-nucleon interaction and symmetries of the many-body proton-neutron-system.

Participants will have the opportunity to speak about their work.

APPLICATIONS

Persons wishing to attend the Course should apply in writing to:

• Professor Amand FAESSLER
  Universität Tübingen
  Auf der Morgenstelle 14
  D-72076 TUEBINGEN, Germany
  Tel +49.7071.2976370 - Fax +49.7071.295388
  e-mail: erice2006@uni-tuebingen.de

They should specify:

i) date and place of birth together with present nationality;
ii) degree and other academic qualifications;
iii) present position and place of work.

• PLEASE NOTE
  Participants must arrive in Erice on 16 September, not later than 5 pm.

A. FAESSLER
DIRECTOR OF THE SCHOOL

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 (~450 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 Achaean 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 Anchise, by his son Enea, 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