INTERNATIONAL SCHOOL OF SUBNUCLEAR PHYSICS
43rd Course: TOWARDS NEW MILESTONES IN OUR QUEST TO GO BEYOND THE STANDARD MODEL
ERICSE, SICILY: 29 AUGUST - 7 SEPTEMBER 2005
Sponsored by the: • Academies of Sciences of Estonia, Georgia, Lithuania, Russia and Ukraine • Chinese Academy of Sciences • Commission of the European Communities • European Physical Society • Italian Ministry of Education, University and Scientific Research • Sicilian Regional Government • Weizmann Institute of Science • World Federation of Scientists • World Laboratory

PROGRAMME AND LECTURERS

Standard Model and Beyond
• T. APPELQUIST, Yale University, New Haven, CT, USA

Latest Results on Lattice QCD
• R.D. MAWHINNEY, Columbia University, New York, NY, USA

Experimental Signatures of Strings and Branes
• L. ANTONIADIS, CERN, Geneva, CH

Updates on Local Supersymmetry and its Spontaneous Breaking
• S. PERARRA, CERN, Geneva, CH; & Univ. of California, Los Angeles, CA, USA

The Longest-Misting Mystery of High-Energy Physics: The Origin of Cosmic Rays
• A. DE RUIJLA, CERN, Geneva, CH

The Physics of the Black Holes
• G. 'T HOOFT, Utrecht University, NL

Complexity at the Fundamental Level
• A. ZICHICHI, CERN, Geneva, CH; INFN & University of Bologna, I

HIGHLIGHTS FROM
BNL: Experimental Status of QCD Glue-Balls
S. J. LINDENBAUM, The City University of New York, NY, USA
SLAC: CP Violation in the B Sector
M. GIORGI, INFN & University of Pisa, I
FERMILAB: Topon Physics
D. DENISOV, Fermilab, Batavia, IL, USA
AAR: S.C. TING, MIT, Cambridge, MA, USA
CERN: The LHC Supercollider
L. ROSSI, CERN, Geneva, CH
CERN: The CLIC Project for a future e+e- linear collider
F. TECKER, CERN, Geneva, CH
FRASCATI: The Never Ending Story: The Nuclear Form Factors
R. BALDINI, Enrico Fermi Centre, Roma, I

Board of Lecturers and Invited Scientists: In addition to the Lecturers of the School, a group of distinguished physicists is invited to contribute to the lively intellectual atmosphere of the School by participating in the discussions following the Lectures. Lecturers and Invited Scientists moreover will take part in the selection of "New Talents", in the choice of the "Best Student(s)" and in the award of the various scholarships and grants open for competition.

Special Sessions for New Talents and "E. Fermi" Junior Grants: One of the aims of the School is to encourage and promote young physicists to achieve recognition at an international level. There will be poster sessions whereby each student has the privilege of presenting the results of current studies and interacting with other participants to their mutual benefit. Each student may also propose a contribution for open presentation. The Board of Lecturers and Invited Scientists will select the best proposals. Priority will be given to new material of either an experimental or theoretical nature, especially if the candidate has made an important contribution to the results to be presented. A review paper has lower priority and, as before, will only be selected if the candidate can point out new features in the field reviewed. Due to the large number of students and the limited time available, it is obvious that only selected "New Talents" can be given the possibility of making themselves known. The selection will be based solely on "scientific excellence", without favour to geographical distribution, the laboratory or the university of origin.

Purposes of the School
Programmatic and theoretical developments in Gauge Theories, as well as in global and local Supersymmetry and in all the other sectors of Subnuclear Physics, will be the centre of this year's Course where the experimental highlights from the most recent relevant subjects of new data will be presented and discussed. An original feature of the School is the Special Sessions for New Talents and "E. Fermi" Junior Grants, a selected number of whose contributors will be published in the proceedings. As it is in the tradition of this School - the first and the oldest Subnuclear one in the world - the Special Sessions represent the unique occasion for young scientists to show their ability to contribute to the development of our understanding of the infinite problems in Subnuclear Physics.

DPS OMAS for Best Students
The following Diplomas have been established in honour of, and named after, the late physicist:

JOHN N. BELL
PAUL A. BLACKCOTT
CARLO CASTAGNOLO
P. A. M. DIRAC
VLADIMIR N. DRAGOV
ROBERT FROST

These Diplomas will be awarded at the end of the Course by the Board composed of the Lecturers and the invited Scientists.

APPLICATIONS
Interested candidates should send a letter to the Director of the School:
Professor Antonino ZICHICHI
CERN
CH-1211 GENEVA 23, Switzerland

Necessary:
• a copy of birth and present activity;
• a letter of recommendation from a senior physicist.

To honour the memory of Victor Weisskopf, the WORLD FEDERATION OF SCIENTISTS (WFS) has established a comprehensive fund to support young scientists. Students in need of financial support should apply for this fund, specifying their needs (i.e. participation fee only or also travel expenses) at the time of the application to the School.

G. 'T HOOFT AND A. ZICHICHI DIRECTORS OF THE COURSE

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 medivial and chronologial sequence as they really happened without reference to mythical causes — the great Thucydides (+460 B.C.), writing about events concerned with the creation of the Hellenic world, in "the year of the Delian League" (479 B.C.), said: "the fall of Troy some Trojans on their escape from the Achaik people in Ithaka by land and as they reached near the border with the Lykians they all together..." Tissandier (1869) says: "It is a unique event in the life of the human race. Its name was Egerszög and Erice. +3" This inspired Virgil's description of the arrival of the Heroic army at the mouth of the Febba in Rome +300 B.C.). The Romans (+250 B.C.), the Saracens (+250 B.C.) and the Crusaders (+200 B.C.) all wanted to conquer the site in Rome for their poems. During seven centuries (500-1250) the site of Erice was under the control of a local oligarchy, whose wisdom assumed 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 tomo you can visit the Castello di Venus, the Cyclopean Walls (+800 B.C.) and the Gothic Cathedral (+1300 A.D.). Erice is at present a museum of ancient civilization. Other masterpieces of ancient civilization are to be found in the near-by neighborhood at Moira (Phoenician), Segesta (Byzantine), Ortigia (Sicilian) and Syrakus (Greek). On the Aegadian Islands — the site of the heroic naval battle of the first Punic War (264-241 B.C.) — suggestive neolithic and paleolithic vestiges are still visible: the grotto of Figguvana, the caveg and walls of Messina. Spectacular beaches are to be found at San Vito Lo Capo, Scopello, and Corinna, and a wild and rocky coast around Monte Cofano: all at less than one hour's drive from Erice.

* PLEASE NOTE
Participants must arrive in Erice on August 25, not later than 7 p.m.

More information about the other activities of the "ETTORE MAJORANA" FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE can be found on the WWW at the following address:
http://www.omsa.inln.it

A. ZICHICHI DIRECTOR OF THE SCHOOL