



GALILEO GALILEI FOUNDATION
WORLD FEDERATION OF SCIENTISTS
ETTORE MAJORANA FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE

GALILEO GALILEI CELEBRATIONS

Four Centuries Since the Birth of Modern Science

INTERNATIONAL SCHOOL OF SUBNUCLEAR PHYSICS

38th Course

THEORY AND EXPERIMENT HEADING FOR NEW PHYSICS

ERICE-SICILY: 27 AUGUST - 5 SEPTEMBER 2000

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 University and Scientific Research • Sicilian Regional Government •
• Weizmann Institute of Science • World Laboratory

PROGRAMME AND LECTURERS

OPENING LECTURE

• T.D. LEE, Columbia University, New York, USA

MINI-COURSES ON BASICS

Continuum and Lattice Gauge Theories

• M. LUESCHER, CERN, Geneva, CH

Strings, Branes and extra Dimensions

• J. POLCHINSKI, University of California, Santa Barbara, USA

New Physics from new Dimensions

• I. ANTONIADIS, Ecole Polytechnique, Palaiseau, F

Flavour Dynamics

• A.J. BURAS, Technische Universität München, Garching, D

HOT ISSUES

Status of e'/e

Evidence for a Cosmological Constant

The Future of Subnuclear Physics

Sessions for New Talents: 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 some 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. These Special Sessions will be chaired by Gerardus 't Hooft.

Invited Scientists: A group of distinguished physicists has been invited to contribute to the lively intellectual atmosphere of the School by participating in the discussions following the Lectures. Moreover they will take part in the selection of the "New Talents", in the choice of the Best Student and in the award of the various scholarships open for competition.

PURPOSE OF THE SCHOOL

During the past year the study of Subnuclear Phenomena was further developed through the theoretical investigation of several basic issues, including: i) The understanding of gauge theories both in their continuum and in their lattice versions. ii) The possible existence and relevance of large extra dimensions together with the resulting lowering of the Planck/string scale down to the TeV range. iii) The origin and structure of flavour mixing in the quark and lepton (neutrino) sectors.

These theoretical and phenomenological developments will be the centre of this year's Course where the experimental highlights from the most relevant sources of new data will be presented and discussed. Special sessions on hot issues like the status of e'/e , of the cosmological constant and the future of Subnuclear Physics will be one of the attractive features of this year's Course. The other original feature of the school are the Special Sessions for New Talents whose contributions 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 Discussion Sessions represent another unique occasion for young talents to show their ability in contributing to the development of our understanding of the frontier problems in Subnuclear Physics.

APPLICATIONS

Interested candidates should send a letter to the Director of the School:

Professor Antonio ZICHICHI
CERN
CH-1211 GENEVA 23, Switzerland

specifying:

- i) date of birth and present activity;
- ii) nationality.

Please enclose a letter of recommendation from the group leader or the Director of the Institute or from a senior physicist.

PLEASE NOTE

Participants must arrive in Erice on August 27, not later than 5 p.m.

More information about the other activities of the Ettore Majorana Centre can be found on the WWW at the following address:
<http://www.ccsen.infn.it>

G. 't HOOFT, G. VENEZIANO AND A. ZICHICHI
DIRECTORS OF THE COURSE

EXPERIMENTAL HIGHLIGHTS FROM

LEP

• U.F. BECKER, MIT, Cambridge, USA

HERA

• G. WOLF, DESY, Hamburg, D

FERMILAB

• B.D. WINSTEIN, University of Chicago, USA

SUPERKAMIOKANDE

• Y. TOTSUKA, University of Tokyo, Kamioka, Gifu, J

AMS

• S.C.C. TING, MIT, Cambridge, MA, USA

SPECIAL SESSIONS FOR NEW TALENTS

CLOSING LECTURE

• G. 't HOOFT, Rijksuniversiteit Utrecht, Utrecht, NL

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 methodical 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 Achaes arrived in Sicily by boat and as they settled near the border with the Sicilians all together they were named Elymii: 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 palaeolithic 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 Corino, and a wild and rocky coast around Monte Cofano: all at less than one hour's drive from Erice.

SCHOLARSHIPS

The following scholarships have been established in honour of, and named after, the late physicists:

JOHN S. BELL	ROBERT HOFSTADTER	BRUNO BOSSI
PATRICK M.S. BLACKETT	GUNNAR KALLEN	ANDREI D. SAKHAROV
JAMES CHADWICK	GIUSEPPE P.S. OCCHIALINI	JUN J. SAKURAI
AMOS DE-SHALIT	BRUNO PONTECORVO	EUGENE P. WIGNER
PAUL A.M. DIRAC	ISIDOR I. RABI	BJORN H. WIK
VLADIMIR N. GRIBOV	GIULIO RACAH	CHEN SHUNG WU

The scholarships cover registration fees and full board and lodging in Erice. In order to allow a more direct judgement of all applicants these scholarships will be awarded at the end of the Course by a Committee composed of the Lecturers and the Invited Scientists.

A. ZICHICHI
DIRECTOR OF THE SCHOOL