



GALILEO GALILEI FOUNDATION  
 WORLD FEDERATION OF SCIENTISTS  
 ETTORE MAJORANA CENTRE FOR SCIENTIFIC CULTURE  
 INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS  
**GALILEO GALILEI CELEBRATIONS**  
*Four Hundred Years Since the Birth of  
 MODERN SCIENCE*

# INTERNATIONAL SCHOOL OF SUBNUCLEAR PHYSICS

## 32nd Course: FROM SUPERSTRING TO PRESENT-DAY PHYSICS

ERICE-SICILY: 3 - 11 JULY 1994

*In collaboration with the **World Laboratory**  
 and under the auspices of the Presidency of the Council of Ministers of Italy*

Sponsored by the: • Academies of Estonia, Georgia, Lithuania, Russia and Ukraine •  
 • Chinese Academy of Sciences • Commission of the European Communities • European Physical Society •  
 • Italian Ministry of Education • Italian Ministry of University and Scientific Research • Sicilian Regional Government  
 • Weizmann Institute of Science

### PROGRAMME AND LECTURERS

#### OPENING LECTURE

*The Glorious Future of Particle Physics*  
 • D.J. GROSS, Princeton University, NJ, USA

#### STATUS OF THE STANDARD MODEL

*First Evidence for Electroweak Radiative Effects from the Latest High Precision Data*  
 • L.B. OKUN, ITEP, Moscow, Russia

#### QCD

*Towards a String Theory of QCD*  
 • D.J. GROSS, Princeton University, NJ, USA

#### STATUS OF THE SUPERWORLD

*The BOTTOM-UP Approach*  
 • A. ZICHICHI, CERN, Geneva, Switzerland

*The TOP-DOWN Approach*  
 • D.V. NANOPOULOS, Texas A&M Univ., College Station, USA

*Searching for SUSY Dark Matter*  
 • R. ARNOWITT, Texas A&M Univ., College Station, USA

#### NEUTRINO PHYSICS

*Implications of Solar Neutrinos*  
 • P. LANGACKER, Univ. of Pennsylvania, Philadelphia, PA, USA

*Neutrino Masses*  
 • D.R.O. MORRISON, CERN, Geneva, Switzerland

#### SPECIALIZED TOPICS

*Matter Antimatter Symmetry*  
 • L. MAIANI, INFN, Rome, Italy

*Theoretical Expectations for the Top Quark Mass*  
 • J.L. LOPEZ, Texas A&M Univ., College Station, USA

#### RESULTS FROM HIGH ENERGY LABORATORIES

*DESY - DIS in Electroweak Processes*  
 • B. WIJK, DESY, Hamburg, Germany

*LEP - High Precision Electroweak Data*  
 • S.C.C. TING, CERN, Geneva, CH and MIT, Cambridge, MA, USA

*FNAL - Search for Top, Trileptons and Other Effects from New Physics*  
 • J. PEOPLES, FNAL, Batavia, IL, USA

#### CLOSING LECTURE

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 \* **THE GLORIOUS DAYS OF PHYSICS** \*  
 \* *My Life* \*  
 \* • N.F. RAMSEY, Harvard University, Cambridge, MA, USA \*  
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Invited Scientists: P.W. HIGGS, University of Edinburgh, UK  
 M. GOURDIN, Université Paris, France  
 V. KHOZE, PNPI, St. Petersburg, Russia  
 P. NATH, CERN, Geneva, Switzerland  
 M. ROOS, University of Helsinki, Finland

#### PURPOSE OF THE SCHOOL

The high precision data from LEP and the other experimental results from High Energy Labs, the world over, have given with unprecedented accuracy a picture-perfect agreement between Theory and Experiment. The problem of present-day physics is how to reconcile the successes of the Standard Model with the compelling reasons for the existence of new physics beyond it. In fact there is no question that the ultimate theory is Superstring: the Standard Model being an intermediate step towards the TOE (Theory of Everything).

Purpose of the School is to review and discuss the theoretical and phenomenological aspect of these problems together with the most recent experimental data.

#### 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 great historian Thucydides (~500 B.C.) said that the Elymi - founders of Erice - were survivors of the destruction of Troy. Ancient historians agreed that Erice was the oldest city in Europe.

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. In Erice you can admire the Castle of Venus, the Cyclopean Walls (~800 B.C.) and the Gothic Cathedral (~1300 A.D.). Erice is 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 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.

#### APPLICATIONS

Interested candidates should send (before June 20, 1994) a letter to the Director of the School:

Professor Antonino 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.

#### SCHOLARSHIPS

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

JOHN S. BELL	ROBERT HOFSTADTER	ISIDOR I. RABI
PATRICK M.S. BLACKETT	GUNNAR KÄLLÉN	GIULIO RACAH
EDUARDO CAIANIELLO	ANDRÉ LAGARRIGUE	BRUNO ROSSI
JAMES CHADWICK	GIUSEPPE P.S. OCCHIALINI	ANDRIJ D. SAKHAROV
AMOS DE-SHALIT	BRUNO PONTECORVO	JUN J. SAKURAI
PAUL A.M. DIRAC		

The scholarships cover registration fees and full board and lodging in Erice. They will be awarded in consultation with the Board of Lecturers and Invited Scientists at the end of the Course, in order to allow a more direct judgement of all applicants.

● PLEASE NOTE

Participants must arrive in Erice on July 3, not later than 5 p.m.

A. ZICHICHI - DIRECTOR