

INTERNATIONAL SCHOOL OF SUBNUCLEAR PHYSICS

23rd Course: OLD AND NEW FORCES OF NATURE

ERICE - TRAPANI - SICILY: 4 - 14 AUGUST 1985

Sponsored by the:

- European Physical Society ● Italian Ministry of Education
- Italian Ministry of Scientific and Technological Research
- Sicilian Regional Government ● Weizmann Institute of Science

PROGRAMME AND LECTURERS

OPENING LECTURE

New forces of nature.

- H. HARARI, Weizmann Inst. of Science, Rehovot, Israel

THEORETICAL LECTURES

Why new forces of nature should exist.

- H. HARARI, Weizmann Inst. of Science, Rehovot, Israel

The challenge of supersymmetry.

- S. FERRARA, CERN, Geneva, Switzerland

Search for supersymmetry.

- J. ELLIS, CERN, Geneva, Switzerland

Superstring theories as new candidates for unification.

- J.H. SCHWARZ, CALTECH, Pasadena, CA, USA

Topological aspects of QFT: monopoles, Skyrmions, strings and all that.

- C.G. CALLAN Jr, Princeton University, Princeton, NJ, USA

SEMINARS ON SPECIALIZED TOPICS

The muon bottle.

- H. HOFER, ETH, Zurich, Switzerland

Recent advances in high-energy physics instrumentation.

- U. BECKER, MIT, Cambridge, MA, USA

REVIEW LECTURES

Collider physics beyond W^+Z^0 .

- C. RUBBIA, CERN, Geneva, Switzerland

Universality properties in non-perturbative QCD effects.

- A. ZICHICHI, CERN, Geneva, Switzerland

Status of QCD: models versus first principles.

- A. ALI, DESY, Hamburg, FRG

Review of e^+e^- physics.

- M. CHEN, MIT, Cambridge, MA, USA

Heavy flavours in e^+e^- .

- Y. EISENBERG, Weizmann Inst. of Science, Rehovot, Israel

Hadron production at the CERN ($p\bar{p}$) collider.

- G. EKSPONG, University of Stockholm, Stockholm, Sweden

THE GLORIOUS DAYS OF PHYSICS

Dedication of the EMCSC Main Lecture Hall to Paul Adrien Maurice Dirac.

- E.P. WIGNER, Princeton University, Princeton, NJ, USA

Ten years since the discovery of the J.

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

Twenty-five years of electroweak interactions.

- A. SALAM, Imp. College, London, UK and ICTP, Trieste, Italy

CLOSING LECTURE

The Gran Sasso Lab. and the Eloisatron project:

- new prospects for European physics.* ● A. ZICHICHI

PURPOSE OF THE SCHOOL

In spite of the spectacular results obtained in recent times, subnuclear physics is still far from reaching the asymptotic limit of a field without a future. This is testified by the large number of problems which open up at a rate at least comparable with that of new results.

This year's programme is devoted to the key point of present times: do new substructures and therefore new forces of nature exist, in addition to the well-known ones? This key point will be reviewed from the theoretical point of view, keeping both eyes open on the checking of theories versus experimental facts.

POETIC TOUCH

According to legend, Erice, son of Venus, founded a small town on top of a mountain (750 metres above sea level) more than three thousand years ago.

Homer (~ 1,000 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. Among the sights there, the Castle of Venus and the Cyclopean Walls can be admired. Other masterpieces of ancient Greek civilization such as Motya, Segesta and Selinunte, are to be found in the neighbourhood. On the Aegadian Islands, which can be reached by cable car plus hydrofoil boat in about two hours, there are prehistoric murals in the famous grotto of Levanzo, the Grotte Marine of Marettimo, and the recently discovered paleolithic grottoes of Favignana. There are splendid beaches, the farthest about 40 minutes' drive from Erice, at San Vito Lo Capo, Scopello and Cornino, and wild beaches around Monte Cofano.

Participation by invitation only

SPECIAL SCHOLARSHIPS

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

PATRICK M.S. BLACKETT	JAMES CHADWICK	AMOS DE-SHALIT
PAUL A.M. DIRAC	V. JURGO GLASER	GUNNAR KALLEN
ANDRÉ LAGARRIGUE	GIULIO RACAH	J. JOHN SAKURAI

These scholarships cover registration fees and full board and lodging in Erice.

● **PLEASE NOTE** that the special scholarships as well as any other form of financial support will be awarded in consultation with the Board of Lecturers at the end of the Course, in order to allow a more direct judgement of all the applicants.

Participants must be in Erice on 4 August, not later than 5 p.m.