

INTERNATIONAL SCHOOL OF SUBNUCLEAR PHYSICS

19th Course: THE UNITY OF THE FUNDAMENTAL INTERACTIONS

ERICE-TRAPANI-SICILY: 31 JULY-11 AUGUST 1981

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• Italian Ministry of Scientific and Technological Research
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PROGRAMME AND LECTURERS

OPENING LECTURE

Grand unification and the end of the high-energy frontier
• S.L. GLASHOW, MIT, Cambridge, Mass., USA

THEORETICAL LECTURES

Monopoles revisited
• S. COLEMAN, Harvard University, Cambridge, Mass., USA

Numerical studies of gauge field theories
• M.J. CREUTZ, Brookhaven National Lab., Upton, NY, USA

Lepton structure
• S.D. DRELL, SLAC, Stanford, Calif., USA

What can we learn from the next generation of experiments?
• G. ROSS, University of Oxford, Oxford, UK

Unification without fundamental scalars
• L. SUSSKIND, Stanford University, Stanford, Calif., USA

Unification and cosmology
• F. WILCZEK, University of California, Santa Barbara, USA

New ideas in neutrino physics
• E. WITTEN, Princeton University, Princeton, NJ, USA

Unification and dimensional reduction
• E. WITTEN, Princeton University, Princeton, NJ, USA

SEMINARS ON SPECIALIZED TOPICS

Progress report and physics objectives of ISABELLE
• K. JOHNSEN, Brookhaven National Laboratory, Upton, NY, USA
• N. SAMIOS, Brookhaven National Laboratory, Upton, NY, USA

Status of the SPC at SLAC
• B. RICHTER, SLAC, Stanford, Calif., USA

Proposal for the Cornell 100 GeV e^+e^- colliding-beam accelerator
• K. BERKELMAN, Cornell University, Ithaca, NY, USA

Derivation of the direct equation from first principles
• J. WARD, MacQuarie University, New South Wales, Australia

What we can learn from high-energy, soft pp interactions
• A. ZICHICHI, CERN, Geneva, Switzerland

REVIEW LECTURES

The epsilon family
• K. BERKELMAN, Cornell University, Ithaca, NY, USA

Hadronic jets
• R. CASHMORE, University of Oxford, Oxford, UK

Review of e^+e^- physics at PETRA energy
• P. DUINKER, NIKHEF, Amsterdam, NL/DESY, Hamburg, FRG

An update on CP violation
• V.L. FITCH, Princeton University, Princeton, NJ, USA

Deep inelastic lepton scattering
• E. GABATHULER, CERN, Geneva, Switzerland

Particle physics without accelerators
• S.L. GLASHOW, MIT, Cambridge, Mass., USA

Neutrino physics at Fermilab
• D. JOVANOVIĆ, Fermilab, Batavia, Ill., USA

Hadron production in electron-positron annihilation
• R. SCHWITTERS, Harvard University, Cambridge, Mass., USA

Heavy flavour production in hadronic collisions
• A. ZICHICHI, CERN, Geneva, Switzerland

HIGHLIGHTS IN OTHER FIELDS

• L. DADDA, Computers, Polytechnical Institute, Milan, Italy
• J. C. ECCLES, The Brain, Contra, Locarno, Switzerland
• L. ESAKI, Solid State, IBM, Yorktown Heights, NY, USA
• E. TELLER, Nuclear Energy, University of California, Livermore, USA

THE GLORIOUS DAYS OF PHYSICS

• CHIEN SAN-QIAN, Chinese Academy of Sciences, Peking, China
• P.A.M. DIRAC, Florida State University, Tallahassee, USA
• E. TELLER, University of California, Livermore, Calif., USA
• E.P. WIGNER, Princeton University, Princeton, NJ, USA

CLOSING LECTURE

What have we learned?
• E. TELLER, University of California, Livermore, Calif., USA

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 to 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 a review of the most significant results, both in theory and experiment, obtained in the field of high-energy interactions. The final goal is the unity of all forces. The outcome of the School will be to present a clear picture of how far we are along the fascinating route towards understanding the deep meaning of the natural laws of hadronic and leptonic matter.

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
GUNNAR KÄLLEN ANDRÉ LAGARRIGUE GIULIO RACAH
These scholarships cover registration fees and full board and lodging in Erice.

POETIC TOUCH

According to a 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.

S. COLEMAN - S.D. DRELL - A. ZICHICHI
DIRECTORS OF THE COURSE

A. ZICHICHI
DIRECTOR OF THE SCHOOL

SPECIAL ANNOUNCEMENT

Information about the Schools and the activities of the CENTRE can be found in the official Journal of the CENTRE:



Progress in Scientific Culture
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