INTERNATIONAL SCHOOL OF COSMIC RAY ASTROPHYSICS

15th Course

ASTROPHYSICS AT ULTRA-HIGH ENERGIES

ERICE-SICILY: 20 - 27 JUNE 2006

Sponsored by: • Italian Ministry of Education, University and Scientific Research • Sicilian Regional Government • European Physical Society • Astrophysics Associates, Inc.

PROGRAMME AND LECTURERS

Ultra-high Energy Cosmic Rays / AUGER Results
• J. CRONIN, University of Chicago, IL, USA

Gamma Ray Bursts (GRB)/SWIFT Results
• N. GEHRELS, NASA Goddard, Greenbelt, MD, USA

GRB Models and Sources
• P. MESZAROS, Pennsylvania State University, University Park, PA, USA

Optical Detection of Neutrinos and Kilometer Scale Telescopes
• C. SPIERING, DESY, Zeuthen, D

Detection Techniques and Searches for UHE Neutrinos
• D. SECKEL, University of Delaware, Newark, DE, USA

Propagation and Sources of Cosmic Rays
• V. PTUSKIN, Russian Academy of Science, Troitsk, RU

VHE Gamma Ray Astronomy and Galactic and Extragalactic Sources
• H. VÖLK, Max Planck Institute for Kernphysik, Heidelberg, D

Air Shower Detection Techniques and Results from Milagro
• J. GOODMAN, University of Maryland, College Park, MD, USA

Historical Perspectives on the Origin of Cosmic Rays
• M.M. SHAPIRO, University of Maryland, College Park, MD, USA

Sources and Fluxes of Ultra-High Energy Neutrinos from Astrophysical Processes
• T. STANEV, University of Delaware, Newark, DE, USA

Nuclues and Electrons in the TeV Range - ATIC results
• J.P. WEFEL, Louisiana State University, Baton Rouge, LA, USA

POURSUITE OF THE COURSE

This Course will introduce young researchers to the exciting field of Ultra-high energy astrophysics including charged particles, gamma rays and neutrinos. At ultra-high energy the radiation is produced by interactions of cosmic ray particle accelerated in explosive events such as supernovae or hypernovae, black holes or, possibly, the Big Bang. Through direct contact with senior scientists, now actively planning the next generation of experiments/models, the excitement and motivation for research at Ultra-high energy will be conveyed. The underpinning of these fields is a synthesis of knowledge and techniques from nuclear and particle physics, astronomy and cosmology.

Informing the students of this background, how it was derived, and the new challenges for the future are the major goals. Further, the Course will help to foster new astrophysical research and will promote contacts, which, in previous Schools, have often resulted in new collaborations.

APPLICATIONS

Interested candidates should send a letter to the Co-Director of the Course:
Professor John P. WEFEL
Department of Physics and Astronomy
Louisiana State University
BATON ROUGE, LA 70803-4001, USA
Tel ++1.225.5786996 - Fax ++1.225.5781222
e-mail: wefel@phards.phys.lsu.edu

specifying:

i) date and place of birth, together with present nationality;
ii) affiliation;
iii) address, e-mail address.

• PLEASE NOTE

Participants must arrive on June 20, not later than 7 pm.

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 methodic 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 Achaei 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.), Polyebios (~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 (XII–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 paleolithic vestiges are still visible: the grottoes of Favignana, the carvings and murals of Levinzio. Splendid beaches are to be found at San Vito Lo Capo, Scopello, and Corinno, and a wild and rocky coast around Monte Cofano: all at less than one hour’s drive from Erice.

More information about the "Ettore Majorana" Foundation and Centre for Scientific Culture can be found on the WWW at the following address:
http://www.cesem.infn.it

J.P. WEFEL • T. STANEV • M.M. SHAPIRO
DIRECTORS OF THE COURSE
M.M. SHAPIRO
DIRECTOR OF THE SCHOOL
A. ZICCHI
EMFCSC PRESIDENT AND DIRECTOR OF THE CENTRE