



«ETTORE MAJORANA» FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE
TO PAY A PERMANENT TRIBUTE TO GALILEO GALILEI, FOUNDER OF MODERN SCIENCE
AND TO ENRICO FERMI, THE "ITALIAN NAVIGATOR", FATHER OF THE WEAK FORCES



INTERNATIONAL SCHOOL ON MAGNETIC RESONANCE AND BRAIN FUNCTION

1st Course

NEW NMR STRATEGIES FOR BRAIN INVESTIGATION

ERICE-SICILY: 6 – 10 APRIL 2003

**Sponsored by the Italian Ministry of Education, University and Scientific Research
and by the Sicilian Regional Government**

TOPICS AND LECTURERS

Anatomical and Functional Architecture of the Brain as seen by MRI
Magnetic Resonance Imaging of Human Brain Function
Dynamics of Brain Function by fMRI
Magnetic Resonance Frontiers as Probes for Human Brain
Dipolar Field Contrast for enhanced MRI and fMRI
Multiple-quantum Magnetic Resonance and its Perspectives
Diffusion Tensor Imaging and Brain Physiology
Hyperpolarized Gases as new Probes
Perfusion based fMRI
Neuron and Brain Energetics

- J. FRAHM, Max-Planck Inst. for Biophysical Chemistry, Gottingen, D
- R. GOEBEL, Dept. of Neurocognition, Maastricht University, NL
- G. HAGBERG, Functional Neuroimaging Lab. Foundation Santa Lucia, Roma, I
- D. LE BIHAN, CEA/SHFJ, Orsay, F
- N. LOGOTHETIS, Max-Planck Inst. for Biological Cybernetics, Tuebingen, D
- P. MAGISTRETTI, Institut de Physiologie, Université de Lausanne, CH
- A. PINES, University of California, San Diego, CA, USA
- K. UGURBIL, University of Minnesota, Minneapolis, MN, USA
- W. WARREN, Frick Chemical Laboratory, Princeton, NJ, USA

Additional lectures and specialized seminars will be contributed by experts from University and Industry

PURPOSE OF THE COURSE

Magnetic Resonance in the last twenty years has generated a wide revolution in biomedical research and in medical diagnostics. More recently the "in vivo" studies of the human brain were added by new original ways of observing the areas of the human cortex activated by stimuli. The enormous interest in expanding the investigation of the brain is emphasizing the search for new NMR methods capable of extracting information of so far obscure aspects of the brain function. In fact perfusion imaging, diffusion tensor imaging, and other approaches were proposed in order to complement the information obtained by BOLD fMRI. The purpose of this course is to introduce, in a comparative way, all the main existing NMR tools for the brain function investigation. At the same time presentations of new NMR potentialities like Multiple Quantum imaging, hyperpolarized gases, etc, will create a stimulating base for discussion and learning.

APPLICATIONS

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

- Professor Bruno MARAVIGLIA
Department of Physics
University "La Sapienza" of Rome
Piazzale Aldo Moro 2, 00185 ROME, Italy
Tel: +39-06-4454859 +39-06-49913473 – Fax: +39-06-49913484
e-mail: bruno.maraviglia@roma1.infn.it

specifying:

- i) date and place of birth together with present nationality;
- ii) degree and other academic qualifications;
- iii) present position and place of work.

Note: Application should arrive, possibly by e-mail, within February 28.

- **PLEASE NOTE**
Participants must arrive in Erice on April 6, not later than 5 p.m.

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 Elymi: 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 paleolithic 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 Cornino, and a wild and rocky coast around Monte Cofano: all at less than one hour's drive from Erice.

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

B. MARAVIGLIA
DIRECTOR OF THE SCHOOL

A. ZICHICHI
EMFCSC PRESIDENT AND DIRECTOR OF THE CENTRE