



«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

5th Workshop: BRAIN FUNCTION INVESTIGATION BY MAGNETIC RESONANCE, ELECTROPHYSIOLOGY AND PHARMACEUTICAL PROBES, IN COMBINATION

ERICE-SICILY: 6 – 13 MAY 2007

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

TOPICS AND LECTURERS

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- N.K. LOGOTHETIS, MPI für Biologische Kybernetik, Tübingen, D
- R.W. BOWTELL, University of Nottingham, UK
- L. LEMIEUX, University College, London, UK
- R. GRUETTER, EPFL, Lausanne, CH
- G.E. HAGBERG, "Santa Lucia" Foundation, Rome, I
- R.V. MULKERN, Children's Hospital, Boston, MA, USA
- J.C. GORE, Vanderbilt University, Nashville, TN, USA
- D. LE BIHAN, Commissariat à l'Energie Atomique, Orsay, F
- R. GOEBEL, Maastricht University, NL
- DAE-SHIK KIM, Boston University, MA, USA
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*Conventional and intermolecular multiple-quantum contrast
Neural events underlying the BOLD signal: combined electrophysiology
and fMRI
Ultra-high field functional imaging and spectroscopy
Feasibility of direct detection of neuronal currents using MRI
fMRI and EEG combination
NMR/MRI based biosensors for molecular imaging
MRI of neurocurrents
Fast spectroscopic imaging methods
Dynamics of brain function by fMRI
Anatomical and functional architecture of the brain as seen with diffusion
tensor MRI
Hypothesis- and data- driven analysis of functional MRI series
Diffusion tensor imaging and brain physiology
Imaging studies of plasticity and recovery after brain injury
fMRI studies on causality in the human brain
Magnetic resonance imaging of human brain function*

PURPOSE OF THE WORKSHOP

Magnetic Resonance in the last twenty years has generated a wide revolution in biomedical research and medical diagnostics. More recently the "vivo" studies of the human brain were extended 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.

In this Workshop, strong emphasis will be given to the new openings arising from the combination of IMRI and EEG. The acquisition of simultaneous information provided by different techniques is bound to generate important developments in the near future. The purpose of this Workshop is also 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 will create a stimulating base for discussion and learning.

APPLICATIONS

Interested candidates should download the application form from
<http://centrofermi-nmr.phys.uniroma1.it>
and send it as e-mail attachment to the Director of the School:

Professor Bruno MARAVIGLIA
e-mail: bruno.maraviglia@roma1.infn.it

Applications should arrive by April 15.

- **PLEASE NOTE**
Participants must arrive in Erice on May 6, not later than 5 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 Sicanians 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). 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 «Ettore Majorana» Foundation and Centre for Scientific Culture can be found on the WWW at the following address:
<http://www.ccsem.infn.it>