«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 OF CARDIAC SURGERY
INTERNATIONAL SCHOOL OF SOLID STATE PHYSICS

67th and 6th Course:
SCIENTIFIC AND TECHNOLOGICAL ADVANCES IN CARDIAC AND VASCULAR SURGERY: A TRANSLATIONAL APPROACH

ERICE–SICILY: 30 APRIL – 6 MAY 2015

Sponsored by the: • Italian Ministry of Education, University and Scientific Research • Sicilian Regional Government • National Research Council • Policlinico di Monza Foundation • Italian Society for Cardiac Surgery • University of Milano-Bicocca

TOPICS AND LECTURERS

Transfer of new technology from bench to bedside.
New advances in regeneration therapy for cardiac disease.
Techniques of tissue and organ decellularization and repopulation by stem cells.
Biological and synthetic scaffolds for cardiac repair.
Cardiovascular regenerative bioengineering.
Nanoengineering strategies for tissue regeneration and for the treatment of cardiovascular diseases.
Is there a future for Xenografts?
Is surgical pathology of the heart also molecular?
Innovations in cardiac devices and their interaction with the native heart.
Total artificial heart: actuator, biocompatibility, 3D fitting, materials.
From mininvasive to robotic and to transcatheter procedures. Where are we heading?
The role of advanced technologies in treating cardiac arrhythmias.
Aorta biomechanics: anatomical-physical characteristics with special reference to aortic aneurysm and dissection and their implications for surgical repair.
Degenerative Mitral Regurgitation is a congenital lesion. A critical analysis.
Functional structures of the mitral valve and the future of mitral valve plasty
Cognition guided heart surgery: the role of computer-assisted quantitative mitral valve analysis in enhancing mitral valve reconstruction.
Intra-aortic pump for heart failure: from bench to bedside.
From engineering to medicine and back: the physiology of mechanical circulation.
Lessons from mock circulation for mechanical assistance.
Numerical simulation for the planning of surgical procedures.
Innovations in echocardiography. From magnetic tape to live streaming.
Magnetic resonance analysis of intraventricular fluidodynamic forces.
Non invasive imaging for the stratification of patients with left ventricular dysfunction.
Magnetic resonance versus nuclear medicine for tissue characterisation.
Spectroscopic techniques for imaging.
Nanomedicine for molecular imaging of atherosclerosis
Renal denervation therapy: clinical applications.

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• B. BIOCINA, University Hospital, Zagreb, HR
• C. BOWLES, Royal Brompton & Harefield Hospital,UK
• S. BROVELLI, University of Milano-Bicocca, IT
• G. CERIN, Policlinico di Monza Group, Novara IT
• P. CAMICI, San Raffaele Hospital, Milano, IT
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• S. HOERSTRUP, University Hospital, Zurich, CH
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• M. TURINA, University Hospital, Zurich, CH
• A.G. VEDDA, University of Milano-Bicocca, IT
• B.H. WALPOTH, University Hospital, Geneve, CH
• F. WELLS, Papworth Hospital, Cambridge, UK
• I. WOLF, Computer Science Institute, Mannheim, DE

PURPOSE OF THE COURSE

This interactive and translational Course, jointly organized by the Int. School of Cardiac Surgery (6th Course) and the Int. School of Solid State Physics (67th Course), is designed to convey the experience of an interdisciplinary Faculty in providing a comprehensive survey of the influence of ongoing basic sciences research in determining the advancements of the present and the future of cardiovascular surgery. The topics will include nanotechnology, materials, tissue engineering, tissue and whole organs decellularization and recellularization processes, biological and synthetic scaffolds, cell stem therapy, fluidodynamics, computational models, 3D modelling and bioprinting, novel applications of magnetic resonance techniques, updates in artificial heart technology etc. These topics will be highlighted, appraised and discussed in depth, so that upon completion of the Course participants will have had the opportunity to gain a thorough knowledge of the state of the art of the most innovative scientific and technological advances that are shaping the clinical evolution of the specialty..

APPLICATIONS

Persons wishing to attend this Workshop should apply via e-mail to:
Persons wishing to attend the Course should send an application, preferably by electronic mail, to:

- Prof. Ugo FilippoTesler, hugin@iol.it

Specifying:

i) Date and place of birth together with present nationality
ii) Present position and place of work
iii) an abstract, if they wish to give a contribution (oral or poster).

- PLEASE NOTE
  Participants should arrive in Erice on 30 April 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 Anchises, by his son Aeneas, 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 «Ettore Majorana» Foundation and Centre for Scientific Culture can be found on the WWW at the following address:
http://www.ccsem.infn.it

S. BROVELLI (ISSSP) – J.R. PEPPER – M.TURINA (ISCS)
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DIRECTORS OF THE SCHOOL

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EMFCSC PRESIDENT AND DIRECTOR OF THE CENTRE