



«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 BIOPHYSICS «ANTONIO BORSELLINO»

36th Course: MULTIDIMENSIONAL OPTICAL FLUORESCENCE MICROSCOPY TOWARDS NANOSCOPY

ERICE-SICILY: 19 – 29 APRIL 2008

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

TOPICS AND LECTURERS

Fluorescence Spectroscopy, GFP Photophysics

• R. BIZZARRI, NEST-INFM, SNS, Pisa, IT

Optics, Confocal Microscopy, THG

• F. BRAKENHOFF, University of Amsterdam, NL

FRAP, Single particle tracking

• K. BRAECKMANS, Ghent University, BE

Single molecule force spectroscopy

• J. BRUJIC, New York University, USA

Fluctuation Microscopies for biological tissues

GIUSEPPE CHIRICO, University of Milan-Bicocca, IT

Micro-particle manipulation

• D. COJOC, TASC, INFM, Trieste, IT

SHG, CARS, 2PE

• C. COMBS, NIH, Bethesda, USA

2PE, 3D imaging

• A. DIASPRO, University of Genoa, IT

Micro/Nano Optical Manipulation

• E. Di FABRIZIO, University of Catanzaro Magna Graecia, IT

Raster Image Correlation Spectroscopy, Photon Counting

• M. DIGMAN, UC Irvine, USA

High-content screening

• M. FARETTA, IFOM-IEO, Milan, IT

Correlative Microscopy

• U. FASCIO, University of Milan, IT

Fluorescence Lifetime, FRET

• H.C. GERRITSEN, Utrecht University, NL

FCS, Global Data Analysis

• E. GRATTON, UC Irvine, USA

Photonic crystals, nanophotonics

• M. GU, Swinburne Univ. of Technology, Victoria, AU

Time lapse imaging

• S. GUIDO, University of Naples, IT

Fluorescence Optical Nanoscopy

• S. HELL, MPI, Goettingen, DE

Scanning Microscopy, Optical aberrations

• M. MARTINEZ CORRAL, Univ. of Valencia, ES

Optical systems, Scanning Microscopy

• F. QUERCIOLI, CNR-ISC, Florence, IT

2PE, Fast scanning methods

• P. SAGGAU, Baylor College of Med. Houston, Texas, USA

Correlative Microscopy at cryo-Temperatures

• A. SARTORI, Institut Pasteur, Paris, FR

Light Scattering, FCS applications

• P.L. SAN BIAGIO, CNR-IBF, Palermo, IT

Molecular landscapes by means of AFM

• G. SCOLES, Princeton University, USA

Linear and Non linear Optical Microscopy

• C. SHEPPARD, Ntl Univ. of Singapore, Singapore

Optical Microscopy, 3D imaging, Photonic Forces

• E. STELZER, EMBL, Heidelberg, DE

Laser scissors and tweezers in cell biology

• I. TOLIC-NORRELYKKE, MPI, Dresden, DE

Fluorescence imaging in Neuroscience

• V. TORRE, SISSA, Trieste, IT

Quantitative colocalization

• C. USAI, CNR-IBF, Genoa, IT

Confocal Microscopy, Structured light methods

• T. WILSON, University of Oxford, UK

Photoswitch-activatable fluorescent proteins, Lifetime

• F. WOUTERS, Univ. of Goettingen, DE

PURPOSE OF THE COURSE

A bright new future has appeared, as the nano-era has taken and placed a whole new array of tools in the hands of biophysicists, who are keen to go deeper into the intricacies of how biological systems work. Forever pushing the boundaries, biophysicists are sliding the research focus from the micro- towards the nano- and even sub-nano scale. Now, Biophysics is a molecular science, rapidly moving to the nanoscale, demanding for an interdisciplinary approach more than in the past, as in the Antonio Borsellino's expectations. It seeks to explain biological function in terms of the molecular structures and properties of specific molecules. As part of this effort, some biophysicists are involved in inventing new methods and building new instruments for monitoring these structures. Many of the exciting new developments in microscopy and more specifically in optical microscopy, in terms of imaging and manipulation, spectroscopy and visualization, are a segment and necessity of this trend. The recent advances to the "nano" level, both as complement to electron and scanning probe microscopy and as development of the so-called optical nanoscopy, witnesses the relevance of the field. From these considerations we planned to focus on Multidimensional Optical Fluorescence Microscopy towards Nanoscopy, the theme of the 36th Course of the International School of Biophysics «Antonio Borsellino».

APPLICATIONS

Interested candidates should apply in writing to the Co-Director of the Course:

- Professor Alberto DIASPRO
Department of Physics
University of Genoa
Via Dodecaneso 33 – 16146 Genoa, Italy
e-mail: diaspro@fisica.unige.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;
- iv) postal and e-mail addresses.

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 «Ettore Majorana» Foundation and Centre for Scientific Culture can be found on the WWW at the following address:
<http://www.ccsem.infn.it>

PLEASE NOTE

Participants must arrive in Erice on April 19, not later than 5 pm.