



«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 ATOMIC AND MOLECULAR SPECTROSCOPY

27th Workshop: LUMINESCENCE OF INORGANIC MATERIALS AND BIOIMAGING: METAL-TO-METAL ENERGY AND ELECTRON TRANSFER

ERICE-SICILY: 22 – 28 JUNE 2010

Sponsored by the: • Italian Ministry of University and Scientific-Technological Research • Sicilian Regional Government

TOPICS AND LECTURERS

Luminescence properties of eutectic crystals and glasses activated with rare earth ions

• R. BALDA, Universidad del Pais Vasco, Bilbao, ES

Energy transfer in multichromophoric supramolecular arrays based on transition metal and lanthanide complexes connected through organic bridging ligands

• A. BARBIERI, ISOF - CNR, Bologna, IT

Energy transfer to lanthanide ion acceptors in oxide materials

• M. BETTINELLI, Università di Verona, Verona, IT

Segregation of rare earth ions in optical ceramics

• G. BOULON, Université Claude Bernard- Lyon I, Villeurbanne, France and Tohoku University, Sendai, JP

Metal-to-metal charge transfer in closed shell transition metal oxides doped with Pr³⁺, Tb³⁺ and Bi³⁺

• P. BOUTINAUD, Clermont Université, Clermont-Ferrand, FR

Detection and Molecular Imaging with Luminescent Upconversion Nanoparticles

• J.A. CAPOBIANCO, Concordia University, Montréal, Québec, CA

Lasers and Optical Ceramics

• X. CHEN, Wheaton College, Norton, MA, US

Spectroscopy of YPO₄ Crystals Doped with Praseodymium

• J. COLLINS, Wheaton College, Norton, MA, US

Problems in Site-Selective Spectroscopy

• B. DI BARTOLO, Boston College, Chestnut Hill, MA, US

A review on electron transfer processes and methods to locate the lanthanide levels in inorganic compounds

• P. DORENBOS, Delft University of Technology, Delft, NL

One and two photon pumped solid state random lasing in dye-doped silica gels

• J. FERNANDEZ, Universidad del Pais Vasco, Bilbao, ES

Optical spectroscopy of transition metal ions in unusual oxidation states

• H. GÜDEL, University of Bern, Bern, CH

Luminescence and Up-Conversion Emissions in Thin Films and Ceramics

• H. JIANG, Boston Applied Technologies, Inc., Woburn, MA, US

Stimulated emission in ZnO nano rods and random lasing in ZnO powders

• C. KLINGSHIRN, Universitaet Karlsruhe, Karlsruhe, DE

Photon management for solar cells

• A. MEIJERINK, University of Utrecht, Utrecht, NL

Structure and Photoluminescent Properties of Y₂O₃: Nd³⁺ Nanophosphors

• G. OZEN, Istanbul Technical University, Istanbul, TK

Nanoparticles doped with lanthanide ions for medical imaging

• F. PELLÉ, Université Pierre et Marie Curie, Paris, FR

Energy flow in luminescent materials

• C. RONDA, Philips GmbH, Aachen, DE

The luminescence of Eu²⁺ in octahedral coordination

• A. SRIVASTAVA, GE Global Research, Niskayuna, NY, US

Up-conversion process in RE doped nanocrystalline powders and nanoceramics- optical heating

• W. STREK, Polish Academy of Sciences, Wroclaw, PL

Upconversion luminescence in mixed systems. Luminescence at high pressure

• R. VALIENTE, University of Cantabria, Santander, ES

Luminescence, amplification, and lasing action with Nd³⁺ doped electro-optic lead lanthanum zirconate titanate ceramics

• J. ZHANG, Boston Applied Technologies, Inc., Woburn, MA, US

The luminescence of Nanostructure ZnO/organic material heterostructure devices

• S. ZHAO, Beijing Jiatong University, Beijing, CN

PURPOSE OF THE WORKSHOP

Energy and electron transfer processes between metal ions are very important phenomena that are relevant to luminescent systems playing crucial roles in biophysics and materials science. In recent years, these processes have been exploited in such diverse fields, as quantum cutting, upconversion, electron transfer quenching, persistent phosphors, solar energy harvesting, thermoluminescence, molecular machines, bioimaging and bioassaying, innovative lighting. The purpose of this workshop is to review and discuss the experimental and theoretical work that is being carried out in this area of research. We will also examine the connections of luminescence with biophysics and the advances and promises of new applications that have emerged, for instance in the field of photovoltaic cells and solar energy.

In addition to pursuing the merely scientific goals, the meeting will aim at designing initiatives that foster a closer collaboration between industrial and academic researchers and finding ways by which we may create a greater awareness on the part of faculty advisors of the great potential of luminescence spectroscopy as a theme for scientific education of graduate and undergraduate students.

APPLICATIONS

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

- Professor Baldassare DI BARTOLO
Department of Physics, Boston College
CHESTNUT HILL, MA 02467, US
e-mail: dibartob@bc.edu

Participation by invitation only

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>

- PLEASE NOTE
Participants must arrive on June 22, not later than 7 pm.