



«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 SOLID STATE PHYSICS

41th Workshop: STRUCTURE AND DYNAMICS OF FREE AND SUPPORTED NANOPARTICLES USING SHORT WAVELENGTH RADIATION

52nd IUVESTA Workshop

ERICE-SICILY: 21 – 26 JULY 2007

Sponsored by the: • Italian Ministry of Education, University and Scientific Research • Sicilian Regional Government
• IUVESTA-International Union for Vacuum Science, Technique, and Applications
• University of Milano • SILS - Societa' Italiana Luce di Sincrotrone • Tethis srl

TOPICS AND LECTURERS

Dynamics of nanoparticle growth from small-angle X-ray scattering
• G. BEAUCAGE, University of Cincinnati, OH, USA

Synchrotron radiation studies of magnetic nanoparticles and nanoparticle-assembled materials
• C. BINNS, University of Leicester, UK

Femtosecond diffractive imaging of nanoparticles
• M. BOGAN, Lawrence Livermore National Laboratory, CA, USA

Insight to the structure of molecular clusters from XPS and theoretical modeling
• K. BØRVE, University of Bergen, N

Magnetic properties of free and supported transition metal clusters by magnetic circular dichroism in X-ray absorption
• H. EBERT, University of Munich, D

Synchrotron radiation characterization of supported nanoparticles
• M. KISKINOVA, Elettra, Trieste, I

Intermolecular interaction and multi-electron processes in photoionization of free molecular clusters
• N. KOSUGI, Institute for Molecular Science, UVSOR, J

Interatomic coulombic decay induced by helium droplets
• N. V. KRYZHEVOI, University of Heidelberg, D

High intensity laser-cluster interaction
• K.-H. MEIWES-BROER, Rostock University, D

Local structure of metallic nanoparticles by X-ray Absorption Spectroscopy
• S. MOBILIO, Roma Tre University, I

Free electron laser characterization of nanoparticles
• T. MOELLER, Berlin Technical University, D

Studies on structure and dynamics of free clusters by using hard x-ray
• K. NAGAYA, University of Kyoto, J

X-ray absorption spectroscopy of free clusters in supersonic beams
• P. PISERI, University of Milano, I

Hydration of ions and biomolecules studied by X-ray absorption spectroscopy of liquid microjets
• R. SAYKALLY, University of California, Davis, CA, USA

X-ray photoelectron spectroscopy on free clusters: from perfect dielectrics to metallic nanoscale particles
• M. TCHAPLYGUINE, MAX-Lab, Lund, SE

Interatomic energy and charge transfer in rare-gas clusters after Auger decay by multicoincidence momentum imaging
• K. UEDA, Tohoku University, J

Magnetic dichroism in x-ray absorption, photoemission, and resonant scattering applied to magnetic nanostructures
• G. VAN DER LAAN, Daresbury Laboratory, UK

Light scattering from free nanoparticles
• B. WASSERMANN, Free University, Berlin, D

PURPOSE OF THE WORKSHOP

The ability to synthesize and to manipulate nanoscale building blocks promises to lead to fundamentally new advances in materials science and engineering and to exciting opportunities for innovation in technology. Short wavelength radiation in the vacuum ultraviolet- as well as in the soft and hard X-ray regimes (synchrotron radiation, free electron laser, laboratory-based radiation sources) are being increasingly applied to free and supported clusters using specific spectroscopic approaches. These experimental tools provide invaluable probes to achieve fundamental information on structural and dynamical size effects in condensed matter. Tightly related to experiments are novel theoretical approaches. Recent development and perspectives of this rapidly evolving research area will be presented and discussed with particular emphasis on the combination of novel nanoparticle production methods with high-brilliance photon sources and the particular aspects of the interaction of short wavelength radiation with nanoscale confined systems.

APPLICATIONS

Persons wishing to attend the Workshop should apply on the Workshop webpage (recommended) or in writing to:

- Professor Paolo MILANI
Dipartimento di Fisica
Università di Milano
Via Celoria 16
20133 MILANO, Italy
e-mail: barbara.martini@mi.infn.it

specifying:

- full name, address, age, nationality;
- academic qualification, present position and affiliation;
- their specific interest in the workshop.

PLEASE NOTE

Participants should arrive in Erice on July, 21 no 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 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>

More information about the 41st Workshop of the International School of Solid State Physics can be found on the WWW at the following address:
<http://pcluster.mi.infn.it/erice-2007>