

INTERNATIONAL SCHOOL OF QUANTUM ELECTRONICS

54th Course

Atoms and Plasmas in Super Intense Laser Fields

Erice - Sicily
21-31 July 2013



Sponsored by: • Italian Ministry of Education, University and Scientific Research • Sicilian Regional Government
• University of Rome "Tor Vergata" • European Science Foundation "SILMI" Programme

<http://virgilio.mib.infn.it/plasmibatani/conferences/erice2013.html> supererice2013@gmail.com

Topics and lecturers

- S. ATZENI, University of Rome "La Sapienza", IT: Fundamentals of inertial fusion physics and relevant modeling
- D. BATANI, University of Bordeaux 1, FR: Studies of warm dense matter and high energy density physics
- J. BIEGERT, Institute of Photonic Sciences, Barcelona, ES: High harmonics and new possibilities with long wavelengths lasers
- H. CRESPO, University of Porto, POR: Sources of super-intense and ultrashort laser pulses
- L. DI MAURO, Ohio State University, USA: Intense laser-atom interactions: from optical to x-rays
- L.J. FRASINSKI, Imperial College London, UK: Molecules in intense laser fields: from infrared to x-rays
- R. FREEMAN, Ohio University, USA: The fundamentals of controlled fusion energy
- C. JOACHAIN, Université Libre, Brussels, BEL: Atoms in intense laser fields
- J.C. KIEFFER, INRS, Varennes, CDN: High power ultrafast laser matter interaction and applications to health science
- P. MULSER, University of Darmstadt, DE: Electric fields in laser plasmas: from waves to high energy photons
- H. NISHIMURA, ILE, Osaka University, JAP: X-ray generation from laser-produced plasmas and applications
- M. NISOLI, Politecnico di Milano, IT: Attophysics
- M. PASSONI, Politecnico di Milano, I: Laser-driven ion acceleration
- A. SCRINZI, Ludwig-Maximilian Universität, München, DE: Computational approaches in laser-induced electron dynamics
- J. TISCH, Imperial College, London, UK: Clusters in intense laser fields
- V. TIKHONCHUK, CELIA, Université Bordeaux, FR: Fast electron generation and transport in inertial confinement fusion

Purpose of the Course:

The goal of the Course is to inform and train PhD students on the recent advances in the physics of interaction of atoms, molecules and plasmas with short-pulse high intensity laser fields. Both experimental approaches and theoretical descriptions will be addressed by well-know scientists from Europe and elsewhere working in the field. Topics include applications like the study of ultra-fast dynamics in atomic and molecular systems, high order harmonic generation and applications, attosecond science and technology, acceleration of electrons and ions, the fast ignition approach to inertial confinement fusion, laboratory experiments which are relevant to astrophysics.

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.csem.infn.it>

Applications:

People wishing to attend the Course should apply in writing to the Scientific Secretary of the Course:

Professor Maria RICETTA Dipartimento di Ingegneria Industriale,
Università degli Studi di Roma "Tor Vergata" Via del Politecnico 1, Roma, Italy
Tel. +39.06.72597233 Fax +39.06.7259.7207 E-mail: supererice2013@gmail.com

They should specify:

- full name(s), address, age, nationality;
- academic qualifications and degree;
- present position and place of work;
- current research activity;
- list of publications.

Closing date: applications must be received (by email) no later than June 15, 2013. No special application form is required. Admission to the Course will be decided by the Directors. All applicants will be notified about acceptance by June 20. They will need to pay the registration fee before June 28 by bank transfer to the following account:

Banca CARIPARMA-Credit Agricole, Piazza Udine 3, Milano 20132, Italy
BIC/SWIFT CRPPIT2P057 IBAN IT60E062300956200030125557 Subject: 54th Erice School

Copy of the transfer order must be sent to supererice2013@gmail.com. The total fee, which includes full board, a copy of the proceedings and lodging arranged by the school, is 1000 €. Grants covering half the fee (500 €) are available: these should be explicitly requested and strongly motivated in the application. No grants will be given to cover travel expenses. Priority will be given to groups already sending other paying students and to students presenting a poster. Persons receiving the grants need in any case to register. The deadline for request of grants is June 10, 2013. By June 20, all grants applicants will be notified about the result of their request.

Advanced research papers by participants are welcome for poster presentation, and will be considered for publication in the Proceedings of the Course, together with the invited lectures. PowerPoint files of the posters (in several pages with A4 format) must be provided to be included in the proceedings. A prize for best poster presented by young students will be awarded.

Participants should arrive in Erice on July 21, not later than 5 pm and leave not before July 31. Detailed information and the final programme of the Course, including the timetable of lectures, will be sent to successful applicants together with the letter of acceptance.