The 6th European Summer School On Experimental Nuclear Astrophysics

Sep. 18-27, 2011
Santa Tecla, Sicily, Italy

Final Announcement

Nuclear astrophysics plays a key role for understanding energy production in stars, stellar evolution and the concurrent synthesis of the chemical elements and their isotopes. It is also a fundamental tool to explain the ashes of the early universe, to determine the age of the universe through the cosmo-chronometry, to predict the neutrino luminosity, e.g. for the Sun and for Supernovae.
The "bone structure" for the above aspects is based on nuclear reactions, whose rates need to be determined in the laboratory. Although the impressive progress over the past decades, which was rewarded by Nobel prizes, several open questions challenging the basis of the present understanding are yet to be answered.

We have the pleasure to announce the sixth European summer school on experimental nuclear astrophysics, devoted to the education of young researchers. The school will deal with various aspects of primordial and stellar nucleosynthesis, including novel experimental approaches and detectors, indirect methods and radioactive ion beams. We plan to have also lectures on complementary subjects of nuclear astrophysics such as gamma ray astronomy, neutron-induced reactions, short-lived radionuclides, weak interaction and on cutting-edge facilities used to investigate nuclear reactions of interest for astrophysics.
A special day (26.9.11) will be devoted to the celebration of the 70th birthday of prof. C. Rolfs. Lectures on this day will focus on some of the topics addressed during his outstanding scientific career.

The sixth edition, marking the tenth year's anniversary, should be regarded as a cornerstone for young-scientist formation in the field of nuclear astrophysics as well as for the discussion of the last-decade research activity. The previous editions of the school took place in 2001, 2003, 2005, 2007, 2009. Traditionally, particular attention is devoted to the participation of young students of less-favoured countries, especially from the southern coast of the Mediterranean Sea.

The ten school days include one day for arrivals (18.9.11) and one day for departures (27.9.11). From Sept. 19 to 24 there will be lectures every morning and early afternoon. In the spirit of the school, large room will be given to young researcher oral contributions. About 15 minutes per person will be allocated to allow them to present their latest scientific results. The interested participants are invited to submit a short abstract (max 100 words) to the school email address. A preliminary program is attached to the present announcement. On 18.09.11 and in the following few days, a registration desk will be available for payment and departure/excursion organization.
On Sunday 25.9.11 an excursion to Taormina, an outstanding landmark in Sicily, is scheduled. Please contact the travel agency (s.prestifilippo@shougun.it) for details about the tour and about the booking and payment.

The school takes place at the Santa Tecla Hotel (www.hotelsantatecla.it), about 15 km north-east of Catania. Catania has an international airport with connections to Rome and other European airports. Santa Tecla is located directly on the Mediterranean sea, in a comfortable and spectacular environment. The hotel has a large lecture hall and many smaller sites for discussions and informal meetings. At the time of the school the weather is ideal in Sicily (around 25^{o} C).

The organizers encourage the participation of young researchers from Europe and from non-European countries. The number of participants will be limited to 100. Participant are kindly requested to register to the school website (see below), providing the arrival and departure day and time. A pick-up service will be set-up from/to the airport. On 18.9 three buses will be scheduled (late morning, afternoon and late evening) and on 27.9 two (one early in the morning and an additional one later on). On the same website a link is available for hotel booking. The school attendants are kindly requested to fill in the hotel booking form for ease of organization. We ask for a registration fee of 300 € (which will cover the school expenses and shuttle service from/to airport) that should be paid upon arrival. Lodging expenses in full board are 85 € per day in a double room (120 € for a single room). A limited amount of funding will be available to cover the local expenses of the school attendants and to permit students from less favoured countries to waive the school fee.

The school is supported by INFN-LNS, Università di Catania (Ph.D. course in Nuclear and Particle Astrophysics), Provincia and Comune di Catania.

Updated information will be posted at the school web-site:
http://agenda.infn.it/conferenceDisplay.py?confId=3207

Important deadlines:
Arrival/departure dates and time communication: Aug. 29 2011
Abstract submission (young-researcher oral contributions): Sept. 5 2011
Tour to Taormina registration: Sept. 9 2011

Preliminary list of lecturers: M. Aliotta (Edimburgh), C. Bertulani (Commerce), S. Bishop (TUM), M. Busso (Perugia), R. Cyburt (MSU), A. Coc (CSNSM), R. Diehl (MPE), M. El Eid (Beirut), Y. Fujita (Osaka), Z. Fulop (ATOMKI), R. Gallino (Torino), L. Gialanella (Napoli), M. Gounelle (MNHN), A. Guglielmetti (Milano), F. Hammache (IPNO), S. Harissopoulos (Demokritos), M. Hass (Weizmann), W.R. Hix (UTK), J. Josè (Barcelona),T. Kajino (Tokyo), K.L. Kratz (Mainz), S. Kubono (Tokyo), K. Langanke (GSI), M. Limongi (INAF-OAR), T. Motobayashi (RIKEN), A. Mukhamedzhanov (TAMU), O. Sorlin (GANIL), O. Straniero (Teramo), G. Rogachev (FSU), C. Rolfs (Bochum), P. Schiellebeeckx (IRMM-JRC), A. Szanto de Toledo (S. Paulo), L. Trache (TAMU), S. Wanajo (MPA), P.J. Woods (Edimburgh)

Scientific committee: C. Rolfs (Director, Bochum), C. Spitaleri (Director, Catania), M. Aliotta,(Edinburgh), M. Busso (Perugia), A. Coc (Orsay), M. El Eid (Beirut), T. Kajino (Tokyo), K.L. Kratz (Mainz), S. Kubono (Tokyo), K. Langanke (GSI), J. Josè (Barcelona), T. Motobayashi (Riken), A. Mukhamedzhanov (TAMU), O. Straniero (Teramo), Rogachev (FSU), R. Tribble (TAMU), M. Wiescher (Notre Dame).

Local committee: G. Agnello, S. Cherubini, R.G. Pizzone, V. Potenza, S. Romano, A. Tumino

Scientific Secretaries M. La Cognata, L. Lamia,
astro2011@lns.infn.it
http://agenda.infn.it/conferenceDisplay.py?confId=3207

The 6th European Summer School on Experimental Nuclear Astrophysics
St. Tecla (Catania), 18-27/09/2011

Sunday, 18/09/2011

08:00-18:00 Arrivals
18:30-20:30 Welcome cocktail
20:30-22:00 Dinner

Monday, 19/09/2011

08:00-09:00 Breakfast
09:00-10:10 Welcome from authorities
10:10-10:55 R. Cyburt "Introduction to nuclear Astrophysics I"
11:00-11:15 Coffee break
11:15-12:00 R. Cyburt "Introduction to nuclear Astrophysics II"
12:05-12:50 O. Straniero "Introduction to Stellar Evolution I"
13:00-13:45 O. Straniero "Introduction to Stellar Evolution II"
13:45-14:30 Lunch
16:30-17:20 R. Gallino "Introduction to the s-process"
17:20-17:40 Coffee Break
17:40-18:30 K.L. Kratz "Introduction to the r-process"
18:30-19:20 Contributions from young researchers
20:00-22:00 Dinner

Tuesday, 20/09/2011

08:00-09:00 Breakfast
09:00-09:50 J. Josè "General Theory on Novae I"
10:00-10:50 J. Josè "General Theory on Novae II"
10:50-11:20 Coffee Break
11:20-12:10 G. Rogachev "Detectors for experimental nuclear astrophysics I"
12:20-13:10 G. Rogachev "Detectors for experimental nuclear astrophysics II"
13:10-14:30 Lunch
15:40-16:30 M. Limongi "$^{12}C+^{12}C$ reaction and astrophysical implications"
16:30-17:20 M. Hass "The $^{3}He(\alpha,\gamma)^{7}Be$ reaction: current status and perspectives"
17:20-17:40 Coffee Break
17:40-18:30 P. Schillebeeckx "TOF experiments to support nuclear astrophysics"
18:30-19:20 Contributions from young researchers
20:00-22:00 Dinner

Wednesday, 21/09/2011

08:00-09:00 Breakfast
09:00-09:50 T. Kajino "Big Bang Models I"
10:00-10:50 T. Kajino "Big Bang Models II"

10:50-11:20 Coffee Break
11:20-12:10 A. Coc “Primordial Nucleosyntheis: theory vs observations I”
12:20-13:10 A. Coc “Primordial Nucleosyntheis: theory vs observations II”
13:10-14:30 Lunch
15:40-16:30 M. El Eid “Heavy-ion element synthesis and cosmology”
16:30-17:20 W.R. Hix “Core-collapse Supernovae”
17:20-17:40 Coffee Break
17:40-18:30 S. Wanajo “Core-collapse supernovae (and neutron star mergers) as the origin of elements beyond iron”
18:30-19:20 Contributions from young researchers
20:00-22:00 Dinner

Thursday, 22/09/2011
08:00-09:00 Breakfast
09:00-09:50 C. Bertulani “Theory of the Coulomb Dissociation I”
10:00-10:50 C. Bertulani “Theory of the Coulomb Dissociation II”
10:50-11:20 Coffee Break
11:20-12:10 A. Mukhamedzhanov “General Theory on indirect methods in nuclear astrophysics I”
12:10-13:10 A. Mukhamedzhanov “General Theory on indirect methods in nuclear astrophysics II”
13:10-14:30 Lunch
15:40-16:30 O. Sorlin “Nuclear forces and shell evolution towards drip line”
16:30-17:20 L. Trache “Decay spectroscopic for nuclear astrophysics”
17:20-17:40 Coffee Break
17:40-18:30 Y. Fujita “Weak interaction in nuclear astrophysics”
18:30-19:20 G. Imbriani “(t.b.d.)”
20:00-22:00 Dinner

Friday, 23/09/2011
08:00-09:00 Breakfast
09:00-09:50 A. Szanto de Toledo “Experimental studies for nuclear astrophysics”
10:00-10:50 F. Hammache “Transfer reactions as a tool for nuclear astrophysics”
10:50-11:20 Coffee Break
11:20-12:10 T. Motobayashi “Recent results from CD experiments”
12:20-13:10 S. Kubono “Recent results on explosive nucleosynthesis with low-energy RI-beams”
13:10-14:30 Lunch
15:40-16:30 M. Gounelle “Short-lived radionuclides”
16:30-17:20 Contributions from young researchers
17:20-17:40 Coffee Break
17:40-18:30 Contributions from young researchers
18:30-19:20 Contributions from young researchers
20:00-22:00 Dinner

Saturday, 24/09/2011
08:00-09:00 Breakfast
09:00-09:50 M. Busso “Introduction to AGB stars I”
10:00-10:50 M. Busso “Introduction to AGB stars II”
10:50-11:20 Coffee Break
11:20-12:10 R. Diehl “Astronomy with cosmic nuclei”
12:20-13:10 S. Bishop “Recent results on novae nucleosynthesis”
13:10-14:30 Lunch
16:30-17:20 P.J. Woods “Experiments in explosive nuclear astrophysics”
17:20-17:40 Coffee Break
17:40-18:30 Contributions from young researchers
18:30-19:20 Contributions from young researchers
20:00-22:00 Dinner

Sunday, 25/09/2011
08:00-09:00 Breakfast
09:15-18:30 Social Trip
20:00-22:00 Dinner

Monday, 26/09/2011
08:00-09:00 Breakfast
09:00-09:40 K.H. Langanke “Core collapse Supernovae”
09:40-10:20 M. Aliotta “Underground laboratories”
10:20-10:40 Coffee Break
10:40-11:20 A. Guglielmetti “Nuclear astrophysics at LUNA: recent results”
11:20-12:00 L. Gialanella “Nuclear astrophysics with recoil separators”
12:00-12:40 Z. Fulop “General Introduction to the p-process”
12:40-13:20 S. Harissopulos “Nuclear physics aspects of p-process nucleosynthesis: an experimentalist’s (over)view”
13:30-14:30 Lunch
15:30-16:10 S. Cherubini “Measurements of the ^{8}Li(α,n)^{11}B reaction and astrophysical implications”
16:10-16:50 R.G. Pizzone “Bare-nucleus cross section measurements for electron screening evaluation”
16:50-17:10 Coffee Break
17:10-17:50 C. Rolfs “Concluding remarks”
20:30-22:00 Dinner

Tuesday, 27/09/2011
Departures