

**The 7th European Summer School
on Experimental Nuclear Astrophysics
Santa Tecla, Catania, Italy
15-27 September 2013**

Final Announcement

We have the pleasure to announce the “7th European Summer School on Experimental Nuclear Astrophysics (Santa Tecla School)”, devoted to the education of young Ph.D. students and young researchers. The school belongs to the European Network of Nuclear Astrophysics Schools (ENNAS), a network made by the European schools on nuclear astrophysics and related areas (the Santa Tecla, the Sinaia, and the Russbach schools), having the common effort of preparing and educating young physicists in nuclear physics, astrophysics and their mutual relationship in the nuclear astrophysics field.

For such a reason, the school will deal with both various astrophysical issues, ranging from primordial nucleosynthesis to stellar evolution, and nuclear topics, including novel experimental approaches, radioactive ion beams, and indirect methods. Complementary subjects of nuclear astrophysics such as neutron stars, plasma (in stars and the laboratory), short-lived radionuclides will be also covered.

The lectures of the school will be given by high-quality level scientists, selected for their didactical skills. In the spirit of the school, large room will be given to young researcher oral contributions. Specific sessions will be allocated to allow them to present their latest scientific results.

- **ENNAS**

The European Network of Nuclear Astrophysics Schools (ENNAS) is a project that aims to correlate the topics of the three European schools, to correlate their activities to better serve the community of science and students, and to correlate the efforts to obtain funds for these schools, from national and international agencies (i.e. EPS, EC...).

- **SCHOOL WEBPAGE AND CONTACT**

Updated information about the school, the program, the registration form, the fee payment will be given at the following:

- website: <http://agenda.infn.it/conferenceDisplay.py?confId=5302>

- email: astro2013@lns.infn.it.

Room reservation is now closed. For further details please contact the school secretary Mr. Salvo Prestifilippo s.prestifilippo@shougun.it

- **VENUE**

The school will be held in Santa Tecla, a small sea-shore village 15 Km North of Catania, at the Santa Tecla Palace Hotel (<http://www.hotelsantatecla.it/>), a four stars complex that will offer both double and single rooms, leisure activities, and full board.

- **TIMING**

The school will be held from Sunday, 15th September, to Friday 27st September. The twelve school days include one day for arrivals (15.09.13) and one day for departures (27.09.13). During the whole period of the school, morning and afternoon lecture sessions will be given.

The preliminary program of the school is attached at the end of this announcement. Time will be shortly allocated for students who submitted an abstract in time.

- **HISTORY**

The school is internationally re-known as a cornerstone for young-scientist formation in the field of nuclear astrophysics as well as a “melting-pot” for the discussion of the up-to-date research activity. The previous editions of the school took place in 2001, 2003, 2005, 2007, 2009, and 2011. Traditionally, particular attention is devoted to the participation of young students of less-favoured countries, especially from the southern coast of the Mediterranean Sea.

- **SOCIAL ACTIVITIES**

The school will organize a trip to the cities of Ragusa and Modica (included in the Unesco Heritage list). The trip will be on 22.09. Please book for the trip at the registration desk. A moderate fee will be charged to participants according to the number of interested people. A school dinner will be held in the Santa Tecla Hotel on 21.09 with Sicilian Folk Music (included in the registration fee). A free time night in Catania downtown (also on Unesco Heritage list) will take place on 25.09 right after dinner and is included in the registration fee.

- **LIST OF INVITED SPEAKERS**

M. Aliotta, C. Bertulani, D. Bemmerer, J. Blackmon, A. Bonaccorso, C. Broggin, M. Busso, A. Coc, P.G. Prada-Moroni, M. El Eid, V. Goldberg, M. Junker, M. Hass, T. Kajino, K. Kratz, S. Kubono, K.H. Langanke, F. Leone, M. Lipoglavsek, G.J. Matthews, G. Meynet, T. Motobayashi, A. Mukhamedzhanov, S. Nishimura, J. Piekarewicz, A. Raduta, G. Rogachev, D. Schurman, M. Smith, L. Trache, R. Tribble, H. Utsunomiva, R. Yarmukhamedhov, F. Zuccarello

- **ACCOMODATION & PAYMENTS**

The venue of the School is the Santa Tecla Palace Hotel, on the shore of the Ionian Sea. Rooms were booked at a special rate by the school secretary. Full board in a double room is 85 € per day (120 € for a single room) only if bookings are made through the school website. Both the registration fee and the accommodation costs have to be paid in advance via the School website (<http://www.shougun.it/CongressiScheda.aspx?IdCongresso=66&lingua=en>).

- **TRAVEL INFORMATIONS**

Catania has an international airport with connections to Rome and other European airports. On the arrival and departure day, the organization will provide a shuttle service to/from Santa Tecla. Santa Tecla is located on the banks of 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° C).

The transfer from the Catania airport to Santa Tecla (and vice versa) will be arranged by the school organization only on the arrival day (September 15) and on the last day, September 27, in connection with the flights. We invite all registrants to give all the details of their arrival and departure to the school secretary in the registration form (<http://www.shougun.it/CongressiScheda.aspx?IdCongresso=66&lingua=en>).

Only people who will submit the arrival date through the website or the email s.prestifilippo@shougun.it will be considered.

Participants who require assistance for airport transportation in the other days of the schools are asked to contact the travel agency, in the registration website, to arrange a proper shuttle service (or by email s.prestifilippo@shougun.it). Taxi is another option (<http://www.cataniataxi.it> in italian).

The school will offer a free-of-charge airport shuttle to all people arriving on 15 or departing on 27. The meeting point is set in front of the "Travelex" currency exchange office in the arrival terminal of the Catania Airport. Some members of the local committee will be waiting for students/lecturers at the meeting point with posters with the school logo. Other participants, arriving or departing on different dates can book a private shuttle (with competitive rates for school participants) from airport to Santa Tecla by contacting s.prestifilippo@shougun.it or directly at the conference desk.

- **PROCEEDINGS**

We are glad to inform you that the proceedings of the school will be published by AIP. School participants will receive information about it at the school and immediately after. A complimentary copy of the proceedings book will be sent to the address of each registered participant.

- **SPONSORS**

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

- **SCIENTIFIC COMMITTEE**

C. Spitaleri (Director, Catania), C. Rolfs (Bochum), 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 (Darmstadt), J. Josè (Barcelona), T. Motobayashi (Tokyo), A.M. Mukhamedzhanov (College Station), E. Nappi (Bari), O. Straniero (Teramo), G. Rogachev (Tallahassee), L. Trache (Bucarest), R.E. Tribble (College Station), M. Wiescher (South Bend).

- **LOCAL COMMITTEE**

R.G. Pizzone (chair), G. Agnello, S. Hayakawa, V. Potenza, G.G. Rapisarda, M.L. Sergi

- **SCIENTIFIC SECRETARY**

Livio Lamia, astro2013@lns.infn.it

**The 7th European Summer School on Experimental Nuclear Astrophysics
St. Tecla (Catania), 15-27/09/2013**

Sunday, 15/09/2013

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

Monday, 16/09/2013

08:00-09:00 Breakfast
09:00-10:10 Welcome from authorities
10:10-10:55 G. Rogachev: "Introductory Experimental Nuclear Astrophysics (I)"
11:00-11:15 Coffee break
11:15-12:00 G. Rogachev: "Introductory Experimental Nuclear Astrophysics (II)"
12:05-12:50 M. Lipoglavsek "Low-energy proton-capture reactions"
12:50-14:30 Lunch
16:00-16:50 O. Straniero: "Stellar Physics and Stellar Nucleosynthesis (I)"
17:00-17:50 O. Straniero: "Stellar Physics and Stellar Nucleosynthesis (I)"
18:00-18:20 Break
18:20-19:10 M. Junker "Low energy measurements at LNGS"
20:00-22:00 Dinner

Tuesday, 17/09/2013

08:00-09:00 Breakfast
09:00-09:50 A. Coc "Nuclear physics and cosmology (I)"
10:00-10:50 A. Coc "Nuclear physics and cosmology (II)"
10:50-11:20 Coffee Break
11:20-12:10 T. Kajino "Supernovae neutrinos and explosive nucleosynthesis"
12:20-13:10 T. Kajino "Supernovae neutrinos and explosive nucleosynthesis"
13:10-14:30 Lunch
16:00-16:50 H. Utsonomiya "Laser-Compton backscattering for nuclear astrophysics"
17:00-17:50 S. Nishimura "Neutron rich nuclei lifetimes for r-processes"
18:00-18:20 Break
18:20-18:50 N. De Serevillé "Nuclear astrophysics: recent experiments at IPNO"
18:50-19:20 Contribution from young researchers (15'+15')
20:00-22:00 Dinner

Wednesday, 18/09/2013

08:00-09:00 Breakfast

09:00-09:50 G. Matthews "Primordial Nucleosynthesis: a cosmological point of view" 10:00-10:50 G. Matthews "Primordial Nucleosynthesis: a cosmological point of view"

10:50-11:20 Coffee Break

11:20-12:10 S. Kubono "Experimental approach to explosive nucleosynthesis (t.b.d)"

12:20-13:10 S. Kubono "Experimental approach to explosive nucleosynthesis (t.b.d)"

13:10-14:30 Lunch

16:00-16:50 Y. Leifels "Experimental approaches to neutron stars"

17:00-17:50 M. Barbui "Laser applications to nuclear astrophysics"

18:00-18:20 Break

18:20-18:50 Contribution from young researchers (15'+15')

18:50-19:20 Contribution from young researchers (15'+15')

20:00-22:00 Dinner

Thursday, 19/09/2013

08:00-09:00 Breakfast

09:00-09:50 R. Tribble "ANC Experiments for nuclear astrophysics"

10:00-10:50 R. Tribble "ANC Experiments for nuclear astrophysics"

10:50-11:20 Coffee Break

11:20-12:10 P. Prada Moroni "Pre-main sequence stars and related nucleosynthesis"

12:20-13:10 P. Prada Moroni "Pre-main sequence stars and related nucleosynthesis"

13:10-14:30 Lunch

16:00-16:50 V. Goldberg "Alpha Clusterization: Nuclear Reactions and Structure"

17:00-17:50 A. Raduta "EOS and phase transition in stellar matter"

18:00-18:20 Break

18:20-19:10 M. La Cognata "The Trojan Horse Method for nuclear astrophysics"

20:00-22:00 Dinner

Friday, 20/09/2013

08:00-09:00 Breakfast

09:00-09:50 F. Zuccarello "Solar physics and observations"

10:00-10:50 F. Zuccarello "Solar physics and observations"

10:50-11:20 Coffee Break

11:20-12:10 F. Leone "Abundance measurements in stellar environments"

12:20-13:10 F. Leone "Abundance measurements in stellar environments"

13:10-14:30 Lunch

16:00-16:50 R. Yarmukamedhov "Indirect methods of determination of the asymptotic normalization coefficients and their application for nuclear astrophysics"

17:00-17:50 G. Imbriani "Direct measurements of cross section of astrophysical interest and their impact on stellar modelling"

18:00-18:20 Break

18:20-18:50 G. G. Kiss "Low-energy spectrometer in activation measurements"

18:50-19:20 Contribution from young researchers (15'+15')

20:00-22:00 Dinner

Saturday, 21/09/2013

08:00-09:00 Breakfast

09:00-09:50 A. Mukhamedzhanov "Indirect methods in nuclear astrophysics: ANC and THM"

10:00-10:50 A. Mukhamedzhanov "Indirect methods in nuclear astrophysics: ANC and THM"

10:50-11:20 Coffee Break

11:20-12:10 T. Motobayashi "Coulomb dissociation experiments "

12:20-13:10 T. Motobayashi "Coulomb dissociation experiments "

13:10-14:30 Lunch

16:00-16:50 V. Greco "Quark-Gluon Plasma in the evolution of the primordial Universe"

17:00-17:50 K. Balasi "Neutrino-nucleus reactions in supernovae"

17:50-18:10 Break

18:10-19:10 Contribution from young researchers (15'+15')

20:00-22:00 Conference Dinner (Music & Sicilian Folk)

Sunday, 22/09/2013

08:00-09:00 Breakfast

09:15-18:30 Trip to Ragusa & Modica

20:00-22:00 Dinner

Monday, 23/09/2013

08:00-09:00 Breakfast

09:00-09:50 M. Busso "AGB Stars and grains (I)"

10:00-10:50 M. Busso "AGB Stars and grains (II)"

10:50-11:20 Coffee Break

11:20-12:10 M. El Eid "AGB Stars nucleosynthesis"

12:20-13:10 K.L. Kratz "Origin of Anomalous Xe-H in presolar Diamonds"

13:10-14:30 Lunch

15:40-16:00 M. Mazzocco "RIB In-Flight Production: the facility EXOTIC at LNL"

16:00-16:30 Wang Youbao "Nuclear astrophysics at CIAE: recent measurements and results"

16:30-17:00 J. Mrazek "ANC experiments for nuclear astrophysics at ASCR"

17:00-17:20 Break

17:20-17:50 V. Burjan "Recent ANC results"

17:50-18:10 Contribution from young researchers (15'+15')

20:00-22:00 Dinner

Tuesday, 24/09/2013

08:00-09:00 Breakfast

09:00-09:50 G. Meynet "Evolution of massive stars (I)"

10:00-10:50 G. Meynet "Evolution of massive stars (II)"

10:50-11:20 Coffee Break
11:20-12:10 J. Piekarewicz “Neutron Stars”
12:20-13:10 J. Piekarewicz “Neutron Stars”
13:10-14:30 Lunch
15:45-16:30 M. Aliotta “Scientific Academic writing”
16:30-17:15 M. Aliotta “Scientific Academic writing”
17:15-17:30 Break
17:30-18:00 D. Schurman “ $^{12}\text{C}(\alpha,\gamma)^{16}\text{O}$: a review on the recent studies”
20:00-22:00 Dinner

Wednesday, 25/09/2013

08:00-09:00 Breakfast
09:00-09:50 A. Tumino “Experimental studies performed via the THM”
10:00-10:50 A. Bonaccorso “Reaction theory for exotic nuclei”
10:50-11:20 Coffee Break
11:20-12:10 M. Hass “Low-energy nuclear reactions for Astrophysics”
12:20-12:50 O. Tesileanu “ELI-NP, a new European facility”
13:10-14:30 Lunch
16:00-16:30 Contribution from young researchers (15'+15')
16:30-17:00 Contribution from young researchers (15'+15')
17:00-17:20 Break
17:20-17:50 Contribution from young researchers (15'+15')
17:50-18:10 Contribution from young researchers (15'+15')
19:30-21:00 Dinner
21:00-23:30 Catania by night

Thursday, 26/09/2013

08:00-09:00 Breakfast
09:00-09:50 C. Broggini “LUNA and the Sun”
10:00-10:50 L. Trache “Decay spectroscopy for Nuclear Astrophysics”
10:50-11:20 Coffee Break
11:20-12:10 K. Langanke “Perspectives in experimental nuclear astrophysics”
12:20-13:10 M. Smith “Experiment with RIB”
13:10-14:30 Lunch
16:00-16:30 Contribution from young researchers (15'+15')
16:30-17:00 Contribution from young researchers (15'+15')
17:00-17:20 Break
17:20-17:50 Contribution from young researchers (15'+15')
17:50-18:10 Final discussion
20:00-22:00 Farewell dinner

Friday, 27/09/2013

Departures