

«ETTORE MAJORANA» FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE

INTERNATIONAL SCHOOL OF COSMIC-RAY ASTROPHYSICS
«MAURICE M. SHAPIRO»

**22nd Course: "From cosmic particles to gravitational waves: now and to come"
28 August – 5 September 2020**

PRESIDENT AND DIRECTOR OF THE CENTRE: PROFESSOR A. ZICHICHI

DIRECTORS OF THE COURSE: PROFESSORS J.P. WEFEL, T. STANEV, J.R. HÖRANDEL

Announcing the 22nd course:

21st century Astroparticle Physics has seen many exciting discoveries by international collaborations: From the Nobel Prize winning observation of gravitational waves and neutrino oscillations, images of the black hole at the centre of M87 (100 years after the confirmation of General Relativity), observation of particles of over 10^{20} eV and high-energy astrophysical neutrinos, discovery of ^{60}Fe in cosmic rays as well as terrestrial and lunar samples, possibly indicative that the Earth passed through a supernova remnant, structures in high-energy electron spectra, increasing positron to electron ratios at 100's of GeV, limits on Dark Matter, and many other observations that are constraining and guiding theoretical interpretations. How did these advances come about? How do they fit together into a better understanding of our high-energy Universe? What are the exciting prospects for new discoveries and new understandings through new technology and with re-usable rockets reducing the cost of satellites? These are some of the questions that will be explored during the 22nd biennial course (42nd year) of The International School of Cosmic Ray Astrophysics at Erice.

Through lectures by experts in the field, chosen in the School tradition for their science (several previous lecturers have won a Nobel Prize) and communication abilities, the recent history, results, and technology will be explored. The School provides many opportunities for informal discussions between participants with beginners and experts dining together and talking informally, in the relaxed ambiance of Erice, Italy. From such interactions, life-long friendships are made, new ideas emerge, and collaborations form. Most of the senior researchers in this field have attended a previous School. Non-scientific questions, e.g. how do I obtain a position or a grant, can also be explored with senior researchers. The School also offers opportunities for the participants to present their own research in order to obtain feedback and to gain experience presenting their work to international audiences of kindred spirits.

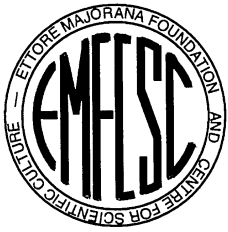
Topics include: Neutrino Astronomy, Gravitational Wave Astronomy, the highest-energy particles, acceleration and interactions of high-energy radiation, balloon, satellite, and ground based measurements of cosmic rays and gamma rays, propagation of high-energy radiation through the Universe, and new space- or ground-based experiments of the near future.

Please register at <http://agenda.astro.ru.nl/event/12/>

Secretariat of the Centre:
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INTERNATIONAL SCHOOLS OF COSMIC-RAY ASTROPHYSICS: ● Progress and Problems in Cosmic Ray Physics - 1978 ● Acceleration of Particles in Nature - 1980 ● Composition and Origin of Cosmic Rays - 1982 ● Cosmic Radiation in Contemporary Astrophysics - 1984 ● Genesis and Propagation of Cosmic Rays - 1986 ● Cosmic Gamma Rays and Cosmic Radiation - 1988 ● Cosmic Rays, Supernovae, and the Interstellar Medium - 1990 ● Particle Astrophysics and Cosmology - 1992 ● Currents in High Energy Astrophysics - 1994 ● Toward the Millennium in Astrophysics: Problems and Prospects - 1996 ● New Vistas in Astrophysics - 1998 ● Astrophysical Sources of High Energy Particles and Radiation - 2000 ● Relativistic Astrophysics and Cosmology - 2002 ● Neutrinos and Explosive Events in the Universe - 2004 ● Astrophysics at Ultra-high Energies - 2006 ● Gamma Ray and Cosmic Ray Astrophysics: From below GeV to beyond EeV Energies - 2008 ● Astro & Particle Physics: From Underground to Outer Space - 2010 ● A New Era in Particle Astrophysics - 2012: ● Exploring the High Energy Universe - 2014 ● Particle, Gamma-ray and Neutrino Astrophysics in the 21st Century - 2016 ● Astroparticle Physics: yesterday, today, and tomorrow - The 40th anniversary of the ISCRA - 2018



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Financial Matters and Logistics:

The local expense fee of 1080 Euros, payable in advance or upon arrival, covers lodging, meals, transportation between the Palermo airport and Erice (provided by the Centre) and all course activities. Participants dine at their choice of a number of Erice restaurants. (Beverages, including water, with meals are not included and must be paid for separately.)

Participants needing financial assistance should apply as soon as possible. Partial assistance with local expenses will be offered to students from overseas, i.e., those requiring trans-Atlantic or trans-Pacific travel and students who demonstrate real financial need. Requests for financial assistance should accompany the application.

Qualified applicants who can defray all of their own expenses are usually admitted.

Application / Registration:

Applications from graduate students and post-docs (theory & experiment) should include a brief CV and a statement that travel/transport funds are available. For students, a short note of endorsement by a senior scientist should be provided. Anyone interested in attending should apply as soon as possible since space is limited due to constraints at the Ettore Majorana Centre, and late applicants may have to be turned away.

Senior Participants are encouraged to attend and should contact one of the directors.

Applications should be submitted via the website <http://agenda.astro.ru.nl/event/12/>, which is an Indicio page established for this course. You will need to be prepared to upload your CV/resume, and note of endorsement as PDF files. Response will be via e-mail, with the first selection of attendees in early 2020. For questions not covered on the websites, please contact one of the directors.

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