



«ETTORE MAJORANA» FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE
INTERNATIONAL SCHOOL OF COSMIC-RAY ASTROPHYSICS
«MAURICE M. SHAPIRO»

21st Course: Astroparticle Physics: yesterday, today, and tomorrow
The 40th anniversary of the ISCRA

1-7 August 2018

PRESIDENT AND DIRECTOR OF THE CENTRE: PROFESSOR A. ZICHICHI

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

Announcing the 21st Course

Our understanding of the high energy universe has increased exponentially since the founding of ISCRA forty years ago. Since then, research on cosmic rays and high-energy astrophysics has made great progress towards understanding the high-energy Universe. The field, currently known as Astroparticle Physics, combines observation and theory across all accessible high energy-observables (including, now, Gravitational Waves). In this 21st course we will review the progress made in the last four decades, look at today's developments, review gravitational wave physics, and assess likely directions of tomorrow's research challenges.

Astroparticle Physics encompasses a number of sub-disciplines and it is often difficult for young researchers to develop an overview and perspective of the whole field and how the field has affected our understanding of the cosmos and generated new questions yet to be resolved. This course will provide an overview from both lectures and discussions with experts in the field who have been chosen, in the ISCRA tradition, not only for their scientific work but also for their communication skills. It will also provide a perspective on the history of the sub-disciplines over the past 40 years and project to what might be learned from observatories/instruments in the future. The lunch, dinner, and Marsala room discussions provide a unique perspective of the experts' view the field, and many anecdotes that never enter scientific papers, but which influenced the scientists and their careers

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 the new space- or ground-based experiments of the near future.

More information is available on the web page <http://laspace.lsu.edu/ISCRA>.

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