PhD School of Astrophysics "Francesco Lucchin"
Naples, May 23-27, 2016

This is the first announcement of the National School in Astrophysics for PhD to be held at the INAF - Osservatorio Astronomico di Capodimonte Naples on May 23-27, 2016.

Aims of the School

The school is mainly designed for students of PhD program in Astronomy and Physics. It is also open to interested young researches. The school consists of a series of lectures aiming at presenting the state of the art of two of the most forefront research topics in Astrophysics with a glance to future developments in the context of new generation international facilities. The topics covered by the school are:

Stellar Explosions: Novelty and Rarity (Directors: E.Cappellaro and M. Della Valle)

Stellar explosion are among the most powerful and luminous events in the Universe. Their progenitors require special conditions to form and upon their explosive death, they release energy and heavy elements back into the environment and a new cycle of star-formation begins with different initial conditions. Stellar explosions play an important role in the evolution of galaxies across the entire history of the universe. The lectures will be devoted to CV/Novae, massive SNe and GRBs, SNe Ia and the quest on their progenitors as well as the role of current and future facilities to catch transient events in different energy regimes.

Plan of the Lectures (16h)

• A. Pastorello (Padova Observatory – INAF-Padova): Supernovae Core Collapse (3h)

• S. Campana (Brera Observatory, INAF-Milano): Gamma Ray Bursts (2h)

• F. Mannucci (Arcetri Observatory, INAF-Firenze): Supernovae-Ia (3h)

• D. de Martino (Capodimonte Observatory, INAF-Napoli): CV/Novae (2h)

• S. Kulkarni (California Institute of Tehnology, USA): The Dynamical Optical Sky (3h)

• M. Branchesi (Dipartimento Scienze Pure ed Applicate, Università di Urbino): Electromagnetic Counterparts of Gravitational Waves (2h)

• *Guest Lecture* by G. Longo (Dipartimento di Fisica, Università Federico II, Napoli): Data Flow in the next decade: VLT, E-ELT, JWST, SKA (1h)

Cosmology with Large Surveys (Director: M.Viel)

Cosmology overlaps with theoretical physics in studying the properties of space and time, their connection with gravitation, and the formation of structure in the universe. Observational cosmology relies on the study of galaxies and the dependence of their properties with distance and epoch to constrain the history of the universe. The lectures will be devoted to reconstruction of large scale structure, galaxy clustering, physics of the inter-galactic medium and galaxy formation with ongoing and future large surveys.

Plan of the Lectures (15h)

• L. Guzzo (Brera Observatory, INAF-Milano): Clustering with Large Redshift Surveys: the road to Euclid (3h)

• T. Kithcing (Mullar Space Science Laboratory, University College London, UK): Weak Lensing with Euclid (3h)

• C.Porciani (Argelander Institut fur Astronomie, Bonner Universitat, D): Cosmology with large Scale Structure (4h)

• P. Bull (California Institute of Technology, USA): Cosmology with SKA and pathfinders (3h)

• *Guest Lecture* by S.Capozziello (Dipartimento di Fisica, Università Federico II, Napoli): Cosmology in the Gravitational Waves Era (2h)

Pratical Information

All details about the school site, hotel accomodation and organization are given in the web page: http:/eventi.na.astro.it/en/scuola-lucchin/

The registration fee is 150,00 Euros including coffee breaks, lunches and bus shuttle from downtown to/from the INAF – Capodimonte Observatory. Online payments will be available starting from April 15.

Students are expected to arrive in Naples on Sunday May 22.

For more information send an email to: loc_lucchin@oacn.inaf.it

IMPORTANT DEADLINES:

Preliminary registration: **April 15**, **2016**

Fee payment for confirmation of registration: **May 2**, **2016**