



detector seminar

SPEAKER: Domenico Della Volpe
TITLE: **Next generation ground-based instruments for Astroparticle Physics**
DATE: 5 Oct 2018, 11:00
PLACE: 40-S2-A01 - Salle Anderson

ABSTRACT

Cosmic rays are messenger particles that carry information about the so called non-thermal Universe, the sources where they are produced by exploding and collapsing stars (in particular, supernovae, their remnants, and black holes), the large-scale structure of the universe, and the microwave afterglow of the big bang. Their investigation is one of the most fascinating fields of modern physics. Even if the cosmic ray were discovered more than 80 years ago, still many questions on their origin and composition are open: what are the sources of cosmic rays? What are the mechanisms of acceleration inside the source which allow to reach energy up to 10^{20} eV? What is the interplay between acceleration and propagation through the Interstellar medium, which determines what we observe? To try to address these questions, new-generation ground-based instruments are under deployment: the Cherenkov Telescope Array (CTA), a gamma-rays observatory composed of two arrays of Imaging Air-Cherenkov Telescopes (IACT) and the Large High-Altitude Air-Shower Observatory (LHAASO), an Extended Air-Shower (EAS) array. The talk will give the motivation for the two instruments, describe their detectors and their expected performances.