



detector seminar

SPEAKER: AMBROSI, G. (Universita e INFN, Perugia (IT))

TITLE: **DAMPE, a particle detector in space**

DATE: Fri 15/07/2016 11:00

PLACE: 40-S2-A01 - Salle Anderson

ABSTRACT

The DAMPE (DARk Matter Particle Explorer) satellite was launched on December 17, 2015 and is in smooth data taking since few days after. The scientific payload was designed in order to properly work for at least three years and, thanks to its large geometric factor (about $0.3 \text{ m}^2 \text{ sr}$ for protons and nuclei), is integrating a large exposure for galactic cosmic ray studies in space.

The detector, optimized for the study of electrons and gammas, provides good tracking and calorimetric performances also in the case of protons and nuclei, together with the possibility of ion identification through multiple charge measurements.

The DAMPE detector consists of a plastic scintillator detector (PSD) that serves as anti-coincidence detector, a silicon-tungsten tracker (STK) with 12 layers of position sensitive silicon detectors, a BGO imaging calorimeter of about 31 radiation lengths and a neutron detector. The total weight of scientific payload of the satellite is $\sim 1300 \text{ Kg}$ and has a power consumption of $\sim 400 \text{ W}$.

We will give a report on the mission goal and status, with a description of the detector, its construction and test and detailed on orbit performance.