

# Ultra High Energy Cosmic Rays and the Highest Energies Universe (INVITED)

*Tuesday, 9 October 2018 12:00 (30 minutes)*

We review the physics of the highest energy cosmic rays, i.e. those astrophysical particles with energies larger than 100 PeV, the so-called Ultra High Energy Cosmic Rays (UHECR). We will review the main experimental evidences connected to UHECR and discuss the details of propagation of these high energy particles, their interaction with astrophysical photon backgrounds and the production of secondary cosmogenic particles associated to their transport. The discovery of UHECR sources, still unknown, will reveal the most energetic astrophysical objects in the universe. We will examine different models of acceleration, reviewing the principal astrophysical objects that could energise cosmic rays until the highest energies.

## Affiliation

**Primary author:** ALOISIO, Roberto (Gran Sasso Science Institute)

**Presenter:** ALOISIO, Roberto (Gran Sasso Science Institute)

**Session Classification:** The non thermal world: multi-messenger and jets