Contribution ID: **343** Type: **Parallel Talk**

Multi-Messenger astrophysics with the Pierre Auger Observatory

Saturday, 9 July 2022 17:00 (15 minutes)

The sensitivity of the Pierre Auger Observatory to ultra-high energy neutral particles, such as photons, neutrinos and neutrons, allows it to take active part to Multi-Messenger searches in collaboration with other observatories. Searches for photons and neutrinos are performed by exploiting the design of the Pierre Auger Observatory, which allows to use the different properties of cosmic ray, neutrino and photon induced showers to discriminate between them. Diffuse and point source fluxes of photons and neutrinos are searched for. Furthermore, photon and neutrino follow-ups of the gravitational wave events observed by the LIGO/Virgo Collaboration are conducted. The Pierre Auger Observatory is also used to search for neutrons from point-like sources. In contrast to photons and neutrinos, neutrons induce air showers that can not be distinguished from those produced by protons. For this reason, the search for neutrons from a given source is performed by searching for an excess of air showers from the corresponding direction. All these searches have resulted in stringent upper limits on the corresponding fluxes of the considered particles, allowing, together with the results obtained by other experiments, to shed some light on the most energetic phenomena of our Universe. An overview of the Multi-Messenger activities carried out within the Pierre Auger Collaboration is presented.

In-person participation

Yes

Primary authors: MASTRODICASA, Massimo; FOR THE PIERRE AUGER COLLABORATION

Presenter: MASTRODICASA, Massimo

Session Classification: Astroparticle Physics and Cosmology

Track Classification: Astroparticle Physics and Cosmology