



Contribution ID: 307

Type: oral

Galactic Center Observations with CTAO LST-1

Wednesday, 25 September 2024 14:17 (17 minutes)

Very-high-energy gamma-ray observations of the central part of the Milky Way Galaxy allow for morphological study of cosmic-ray propagation around the supermassive black hole Sgr A. *An interpretation of the diffuse gamma-ray component, which spans a few hundred parsecs in longitude, is the PeVatron scenario: the spectral energy distribution follows a power law up to a few tens of TeV, with a spatial distribution that aligns the central molecular zone and accelerated cosmic rays are propagated in the vicinity of Sgr A.* Nevertheless, differences in the findings of earlier studies persist among current-generation telescopes, each offering different interpretations based on different analytical approaches. The MAGIC telescopes for example presented a hint of a presence of a spectral turnover at around 20 TeV, possibly in tension with the PeVatron scenario.

We analyzed Galactic Center data taken by the Large-Sized Telescope prototype (LST-1) for the Cherenkov Telescope Array Observatory (CTAO), the next-generation project of a ground-based gamma-ray observatory currently under our commissioning. Despite the limited sensitivity due to the current monoscopic observation, the relatively wide field of view and the large-zenith-angle observation technique allow LST-1 to study of the diffuse emission in the TeV range. In this talk, we will report the current status of studies of the Galactic Center diffuse emission by including our results from LST-1 observations.

Primary author: ABE, Shotaro (Institute for Cosmic Ray Research, University of Tokyo)

Presenter: ABE, Shotaro (Institute for Cosmic Ray Research, University of Tokyo)

Session Classification: Searches for Galactic astrophysical sources