Contribution ID: **66** Type: **not specified**

Supermassive PeVatron at the Galactic centre

Wednesday, 14 June 2023 16:15 (15 minutes)

A compact supermassive source SgrA*located at the center of our Galaxy has been observed at different wavelengths across the electromagnetic spectrum. It is the closest and largest in projection supermassive black hole candidate. At the same time, its particle acceleration capability related to the cosmic ray and neutrino messengers were not yet experimentally probed despite indirect indications of the existence of a PeVatron at the Galactic centre. In this talk, I will present a novel scenario of particle acceleration at the Galactic centre involving electromagnetic extraction of rotational energy from the central black hole. Modeling the black hole magnetosphere with the multiwavelength flaring activity of SgrA*, I will show that the maximum energy of accelerated protons may reach a few PeV at the source, contributing thus to the knee of the observed cosmic ray spectrum at the Earth's surface.

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Session Classification: Wednesday afternoon session