Contribution ID: **89** Type: **oral**

Modelling the X-ray emission of the Boomerang Nebula

Thursday, 28 October 2021 09:30 (20 minutes)

The Boomerang Nebula, a pulsar wind nebula associated with the supernova remnant G106.3+2.7, is a possible counterpart of the ultrahigh-energy gamma-ray source LHAASO J2226+6057. The SNR-PWN complex is considered as a PeVatron candidate, acting as a factory accelerating particles to PeV energies. In this work, we model the extended nonthermal X-ray emission around the pulsar PSR J2229+6114, which is believed to power the Boomerang Nebula. We find that the X-ray intensity profile and the spectral index profile can be explained by the transport of relativistic electrons from the inner region of the nebula to the outer region, taking into account the transition from the quasi-ballistic regime to the diffusive regime. The required magnetic field in the nebula is found to be about 200 microGauss in the model. This result may imply that the inverse Compton radiation of electrons inside the nebula is suppressed, and support the hadronic origin of the gamma-ray emission.

Please choose the session this abstract belongs to

Galactic sources

Primary author: Mr LIANG, Xuan-Han (Nanjing University)

Co-authors: Mr PAN, Jiashu (Nanjing University); Mr WU, Qizuo (Nanjing University); Dr LIU, Ruo-Yu (Nanjing University)

Presenter: Mr LIANG, Xuan-Han (Nanjing University)

Session Classification: Session 1