

Executive summary contribution

Title: “Resolving the origin of very-high-energy gamma-ray emission from the PeVatron candidate SNR G106.3+2.7 using MAGIC telescopes”

Authors:

Tomohiko Oka, Takayuki Saito, Hidetoshi Kubo, Marcel Strzys on behalf of the MAGIC Collaboration

What is this contribution about?

In this presentation we report the result of the MAGIC observations in the vicinity of SNR G106.3+2.7.

Why is it relevant/interesting?

SNR G106.3+2.7/Boomerang PWN complex is associated with a 100 TeV gamma-ray source and thus a promising PeVatron candidate. However, it is unclear whether the gamma-ray emission originates from the SNR or PWN and whether it is caused by hadronic or leptonic processes.

What have we done?

We observed gamma-ray in the vicinity of this SNR with MAGIC and analyzed the data of ~122 hr.

What is the result?

We detected the extended gamma-ray emission spatially coincides with the radio continuum emission at the head and tail of SNR G106.3+2.7. We found a significant gamma-ray emission above 5.65 TeV only from the tail region, while no significant emission in the same band is found at the head region containing the Boomerang PWN. By modeling under an assumption that the gamma-ray emissions above 10 TeV measured with the air shower experiments are only from the tail region, the origin of gamma-ray emission from the tail region is likely a proton acceleration in this SNR.