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# Modelling a PeVatron source associated with a SNR

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The observation and modelling of the gamma-ray emission from molecular clouds (MCs) is currently the best tool to study Galactic cosmic rays. The highest energy that Galactic cosmic rays achieve is believed to be ~ 10^15 eV, this is 1 PeV, that way a PeVatron is a source accelerating protons up to this energy. The quest for PeVatron sources aims to identify the astrophysical sources of Galactic cosmic rays and is one of the major goals of gamma-ray astronomy. Recently, gamma-ray detectors have reported several Galactic PeVatrons. The identification of the sources is not clear in many of the observed PeVatrons, mainly due to source contamination. One of the favourite PeVatron candidates are supernova remnants (SNRs) associated with molecular clouds. Among the sources that LHAASO detected at energies ~ 100 TeV, only one of them is associated with a SNR+MC system - the source J1908+0621 associated with SNR G40.5-0.5. In this work, using a spatially extended model, we calculate the high-energy emission produced in the interaction of SNR G40.5-0.5 with the ambient medium. We are able to fit the observed gamma-ray emission from a wide range of energies. Our predictions might contribute with the perspectives for the next generation arrays of Cherenkov telescopes on the identification of Galactic PeVatrons.

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