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Theoretical models to explain the TeV gamma-ray and X-ray correlations exhibited in blazars

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The broadband spectral energy distribution (SED) of blazars has two well-separated peaks, one of low energy at soft X-rays and the other of high energy at hundreds of GeVs. The SED of blazars is generally understood through the standard one-zone synchrotron self-Compton (SSC) model, where a strong correlation between X-ray and TeV gamma-ray fluxes is expected. During the last decade, a correlation among X-ray and TeV bands has been searched but not undoubtedly confirmed. Some studies have suggested serious deviations from the expected leptonic correlation. In this work, we propose a theoretical model to study the correlation between the TeV gamma-ray and X-ray emission. This leptonic model depends basically on the bulk Lorentz factor, the size of emitting region, the electron number density and the strength of the magnetic field. We explore regions of the parameter space where the current model can describe a unique correlation.

Are you presenting on behalf of collaborations or institutions?

NO

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