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Mechanisms of high energy emission from Mkn 180 BL Lacertae object

Mkn 180 is the BL Lac object with spectrum has been measured through radio and X-ray band to high energy gamma-rays. This object is considered as a potential candidate for the source of high-energy leptonic and\or hadronic cosmic-ray acceleration. Also, it has been proposed to be a GeV –TeV gamma-ray source. The very high energy gamma-rays from Mkn 180 were detected due to the trigger switched on by an optical burst. Mrk 180 was monitored in the optical wave band and in high and very high energy gamma-rays for a long period and its light curve was obtained. The spectral energy distribution of Mkn 180 blazar was obtained in the wide energy range as well. The spectral energy distributions of blazars consist of two broad peaks. The first, lower frequency peak occurring between radio and soft X-ray energies is due to the synchrotron emissions of relativistic electrons population. Leptonic and hadronic emission mechanisms are considered to describe the second, higher frequency spectrum part between X-ray and VHE ɣ -ray energies. The Inverse Compton emissions of the same electrons (synchrotron self-Compton model) or combined with an external Compton mechanism originating from the broad-line region, or the accretion disk are considered in the leptonic scenario. Also, the high energy spectrum part is supposed to be generated due to the processes of photohadronic or hadronuclear interactions of cosmic rays with radiation or matter in the AGN's jet emission region. The multiwavelength observations of Mkn 180 including the GeV –TeV energy data can help to clarify the dominant mechanism of generation of high-energy ɣ -ray emission in this object.

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