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## Studies of bright flat-spectrum radio quasar 3C454.3 at high and very-high energies

The radio-loud active galactic nuclei having the radio emission arising from a core region rather than from lobes are often referred to as "blazars" and include Flat Spectrum Radio Quasars (FSRQ) and BL Lacertae (BL Lac) objects. The extragalactic source of radio emission source 3C454.3 is a well-known flat-spectrum radio quasar (FSRQ) at redshift z = 0.859. It has shown remarkably high activity since 2000. 3C454.3 has been very bright in the MeV-GeV gamma-rays and is intensively studied by the Fermi-LAT and AGILE. Spectral characteristics of 3C454.3 at MeV-GeV energies were found to exhibit a complex shape. 3c454.3 shows the significant flux variability in the different energy ranges including high and very high energies. At the end of 2010, 3c454.3 demonstrated extraordinary activity at high energies which was detected by Fermi-LAT. The long-term observations of 3C454.3 at 800 GeV–100 TeV energies with the SHALON telescope were started in the 1998 year. A number of activity periods were found. The most significant flaring state of 3c454.3 at TeV energies was detected in the SHALON observational period of Nov. - Dec. 2010. This increase is correlated with the flares at a lower energy range in observations of Fermi-LAT. The direct association of the significant gamma-ray flux changes with strong core radio-flares are not absolutely clear but observed correlations and lags in multiwavelength activity point to the complexity of the emission processes in blazars connected with disturbance propagating in the jet.

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