



# Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali / Thesis & Dissertation / Master of Science / MS-18

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/5438>

Title:	Gamma-ray Variability of VHE FSRQs
Authors:	<a href="#">Megha</a>
Keywords:	Variability of VHE FSRQs Gamma-ray
Issue Date:	May-2023
Abstract:	Flat Spectrum Radio Quasars (FSRQs) fall within the category of blazars whose relativistic jet is pointed very close to our line of sight. FSRQs are very powerful sources that emit most of the radiation in the MeV-GeV band. They exhibit a characteristic double-humped spectral energy distribution, with the first peak attributable to synchrotron emission and located in the infrared region, and the second peak located in the gamma-ray regime. Despite being strong gamma-ray emitters, they are not detected at very high energies, i.e., $E > 100\text{GeV}$ ; whereas HBLs are the most prominent sources in the VHE range. So far, only nine FSRQs have been detected at the VHE energy range. In this work, we attempt to explore the source behaviour during VHE emission by comparing it with spectral, temporal, and statistical behaviour during the non-VHE time. Additionally, we'll compare the outcomes from all the sources and seek out patterns and distinctions in the observable properties. To carry this out, we used the FERMIPIY package of the Python language for data reduction after downloading it from the FERMI space observatory. I have plotted the lightcurves and SEDs and conducted spectral analyses on all the sources. In order to distinguish between states with high and low flux, I have also performed Bayesian block analysis on the lightcurves. We discovered that all of the sources are highly variable, and we also discovered an anti-correlation between flux and spectral index. During the VHE emission, a harder spectrum was discovered. Additionally, we discovered no distinctiveness in VHE emission.
URI:	<a href="http://hdl.handle.net/123456789/5438">http://hdl.handle.net/123456789/5438</a>
Appears in Collections:	<a href="#">MS-18</a>

## Files in This Item:

File	Description	Size	Format	
<a href="#">embargo period.pdf</a>		6.04 kB	Adobe PDF	<a href="#">View/Open</a>

Show full item record



Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.