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# Variability study of misaligned active galaxies

Sanna Gulati

# Abstract

Active galactic nuclei (AGN) is a small region at the center of a galaxy characterized by extremely high luminosity. The galaxies which harbor such an active center are called Active Galaxies. Blazars are the subclass of AGN having small jet to line-of-sight angle. They are highly variable and emits throughout the electromagnetic spectrum, particularly in high energy. Majority of the identified $\gamma$-ray sources are blazars. As jet luminosity falls rapidly with increasing jet to line-of-sight angle, AGN with large jet inclination angle is expected to be less luminous than blazars. Though a significant amount of research is going on to understand the properties of blazars, due to lack of quality data in high energy, not much effort has been put in to understand the various properties of MAGNs, particularly in high energies. Observational $\gamma$-ray astronomy got a massive boost after the launch of Fermi Gamma-Ray Space Telescope (Fermi). Fermi with its much improved sensitivity and significantly higher sky coverage, has detected $\sim$ 20 MAGNs. Hence, Fermi together with Indian ground based optical observatories provides a unique platform to study this class of AGNs. In this project, we have attempted to study some of the various properties of these MAGNs. Long-term variability of a particular source (NGC 6251) in $\gamma$-ray has been studied utilizing data from Large Area Telescope onboard Fermi. The source showed no significant variability. Short-term intranight variability of NGC 2484 has been studied in optical waveband utilizing the data from 1.3m telescope at Kavalur Observatory, which showed no significant variability. Also in this work, we further extended the correlation between radio and $\gamma$-ray luminosities ,as given by Mauro et. al.(2014)[1] for MAGNs based on two years of operation; to the MAGNs as detected by Fermi from four years of operation, giving correlation separately for FRI and FRII.