Title:	Exploring Extragalactic Background Light through Gamma-ray Spectrum of Blazars
Authors:	Yadav, Sameer
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Abstract:	In this theis, we investigated the Extragalactic Background Light (EBL), cumulative radiation produced throughout the cosmic history, through the study of the VHE spectrum of LBL objects. The tight correlation between X-ray and VHE spectrum have been used to estimate and probe the EBL. The estimated EBL by this approach is the maximum EBL possible as no other cause for the VHE spectrum steepening has been taken into account. During the flare activity in 2016-2017 of OJ287 a new HBL-like component has ap- peared. Calculations have shown that the scattering of seed photons to produce VHE spec- trum occurred in the Thomson regime therefore providing a constraint on the VHE spectral index. However, for OT 081 and AP Librae no such constraint can be derived as their SEDs have a very high variability and so far have no conclusive explanation. VHE γ-rays on interacting with low energy EBL photons get attenuated via pair pro- duction leaving a unique imprint on the observed spectra. To determine the best shape that describes the interacting EBL range three plausible shapes, Power-Law (PL), Parabola (PB) and Polynomial (PM), inspired by our present knowledge were considered. We employed the maximum likelihood Bayesian fitting with MCMC to determine the best-fit model based on observed data. The model fitting suggests Power Law (PL) is the best explanation for the absorbed EBL range by VHE γ-rays. The best-fit EBL density resulted for OJ287 at 1.4μm of νI ν = 17.700nW m −2 sr −1 which is good agreement with constraints from galaxy counts and the direct measurements.
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