Spectral variability of blazars

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Broadband spectral characteristics of different subclasses of γ -ray blazars in different γ -ray intensity states are presented, contrasted and discussed in the framework of currently popular leptonic jet models. Recent modeling results on all available simultaneous broadband spectra of the flat-spectrum radio quasar (FSRQ) PKS 0528+134 during 6 years of EGRET observations and on a sequence of simultaneous broadband spectra of the high-frequency peaked BL Lac object (HBL) Mrk 501 during 6 months in 1997 are discussed. These and other modeling results confirm that HBLs may be fitted successfully with pure SSC models, while FSRQs require a strong component due to external inverse-Compton scattering. Flaring properties of HBLs can be understood in terms of a hardening of the electron spectra in the jet, while γ -ray flares of quasars appear to be more closely related to an intensification of the external soft photon field, possibly caused by an increasing bulk Lorentz factor. A surprising prediction of this interpretation is that the peak of the synchrotron spectrum of FSRQs is expected to shift towards lower frequencies during flares, while it is known to shift towards higher energies during flares of HBLs.