COMPTEL Observations of the γ-ray blazar 3C 279

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Shortly after the launch of the Compton Gamma-Ray Observatory (CGRO), the blazar-type quasar 3C 279 was detected as an emitter of γ-rays (mainly above 100 MeV) by the EGRET experiment aboard CGRO [Kniffen et al. 1993]. This detection stimulated a search in the contemporaneous COMPTEL data between 0.75 and 30 MeV, which led to the discovery of 3C 279 at MeV-energies as well [Williams et al. 1995]. 3C 279 was re-detected by COMPTEL roughly two years later [Collmar et al. 1996]. We have consistently analysed all COMPTEL data of 3C 279 collected during the first 5.5 years of the CGRO-mission - from April 1991 to September 1996 - by applying the most recent COMPTEL analysis techniques and tools.

3C 279 shows a time-variable MeV-flux along the CGRO-mission. During a recent observation in 1996 a flux change by a factor of 4 was observed within 10 days [Collmar et al. 1997b]. This represents the shortest time variability yet observed by COMPTEL from any blazar. Spectral variability is indicated as well. There is a trend that the MeV-spectrum during γ-ray flares is harder than on average (left figure below) [Collmar et al. 1997a]. The time-averaged COMPTEL spectrum of 3C 279 over a four-year period is consistent with a photon power-law slope of $\sim$ -1.9. This spectrum smoothly connects to the simultaneous 30 MeV to 10 GeV spectrum obtained from an analysis of combined EGRET observations. In contrast to other γ-ray blazars no spectral break is required to fit the MeV- to GeV-spectrum of 3C 279 (right figure below).

Assuming isotropic emission, γ-ray luminosities up to $1.5 \cdot 10^{48}$ erg/s are derived for the 1-30 MeV band. For Eddington limited accretion this converts to a minimum BH-Mass of $\sim 5 \cdot 10^{8}$ $M_{\odot}$ in the center of 3C 279.

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