

Time Dependent Modeling of the X-ray and VHE Emission of the BL Lac Object Mkn 501 in the Framework of Synchrotron Self Compton Models

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In this contribution we discuss detailed modeling of the temporal *and* spectral characteristics of Mkn 501 as observed in 1997 and 1998 during several X-ray and Very High Energy (VHE) multiwavelength campaigns. The analysis is based on comparing time-dependent synchrotron-Compton (SC) emission model calculations with simultaneous X-ray data taken with the RXTE and Beppo Sax instruments and VHE data from the HEGRA, CAT, and Whipple Cherenkov telescopes. The data are of sufficient quality and sampling that serious tests, based on time variability, are starting to become possible for at least the relatively simple versions of the SC models. Assuming the SC emission hypothesis holds up, robust predictions can be made for the intrinsic VHE spectrum of Mkn 501 using the observed synchrotron spectrum. The comparison of the intrinsic and the observed VHE spectrum yields an estimate of the intergalactic extinction of the VHE γ -rays due to pair production processes on the Diffuse Extragalactic Background Radiation.