

THE INFLUENCE OF DUST ON THE INVERSE COMPTON EMISSION FROM JETS IN AGN

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The recently observed high energy γ -ray emission from more than sixty blazars is most likely caused by inverse Compton scattering of soft ambient photons, the source of which is a subject of extensive debate. We investigate the influence of a dust torus on the inverse Compton emission of the relativistic electrons in the jets of Active Galactic Nuclei. This is an extension of previous studies, in which the main focus had been on target photons emitted by the accretion disk. We show that due to the different angular distribution of the two photon fields, the beaming pattern of the respective scattered inverse Compton gamma rays are different. We also calculate the bolometric luminosity, the beaming pattern and the spectral distribution of the emitted gamma rays for the dust torus as well as for the accretion disk as the target photon source. The results show that the relative contributions of both to the γ -ray emission depend sensitively on the observer's viewing angle and the distance of the jet plasmoids from the accretion disk and the dust torus, respectively.