

Inverse Compton emission from relativistic particles accelerated at shear layers in relativistic jets

Both observational evidence as well as theoretical considerations from MHD simulations of jets suggest that the relativistic jets of active galactic nuclei (AGN) are radially stratified, with a fast inner spine surrounded by a slower-moving outer sheath. The resulting relativistic shear layers are a prime candidate for the site of relativistic particle acceleration in the jets of AGN and gamma ray bursts (GRBs). In this talk, we will present results of particle-in-cell simulations of magnetic-field generation and particle acceleration in the relativistic shear boundary layers (SBLs) of jets in AGN and GRBs including the self-consistent calculation of the radiation spectrum produced by inverse Compton scattering of relativistic electrons in an external soft photon field.

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