



Contribution ID: 103

Type: Talk

Multiwavelength Spectral and Polarization Signatures of Shocks in Relativistic Jets

Wednesday 16 December 2015 17:20 (25 minutes)

This talk reviews recent progress in our understanding of the multiwavelength spectral and polarization signatures of relativistic shocks in the relativistic jets of active galactic nuclei and gamma-ray bursts. Spectral signatures are based on a self-consistent coupling of Monte-Carlo simulations of diffusive shock acceleration with radiation-transfer simulations. Our results indicate that, in order to reproduce the spectral energy distributions of blazars, the pitch-angle scattering mean free path of electrons has to be strongly energy dependent. Polarization signatures of relativistic shocks are based on polarization-dependent radiation transfer simulations, indicating that large polarization-angle rotations result naturally in a straight jet pervaded by a helical magnetic field. Simultaneous fits to the SEDs, multiwavelength light curves, and time-dependent synchrotron polarization signatures from the prominent polarization-angle swing event in 3C279 are presented.

Primary author: BOETTCHER, Markus (North-West University)

Co-authors: Dr SUMMERLIN, Errol (Goddard Space Flight Center); Mr ZHANG, Haocheng (Los Alamos National Lab); Prof. BARING, Matthew (Rice University)

Presenter: BOETTCHER, Markus (North-West University)

Session Classification: 19 - VHE & CR