Contribution ID: **145** Contribution code: **EGAL** Type: **Oral**

Stochastic acceleration in Extreme TeV BL Lacs

Tuesday 3 September 2024 17:00 (15 minutes)

Active Galactic Nuclei (AGN) are the most powerful persistent sources in the Universe. Blazars, AGN whose jet is pointed towards the Earth, present the most energetic emission. Lately a specific kind of blazar drew the attention of the gamma ray astronomy community: the Extreme TeV Bl Lacs. These sources exhibit a peak of radiation at TeV energies and a hard intrinsic spectrum at sub-TeV range. In most cases their exceptional TeV emission appears to be steady over years. These properties are difficult to reproduce using models based on a single shock, so several alternative solutions have been proposed. Starting from recent works on recollimation instability in relativistic jets with low magnetization, we proposed a hybrid scenario: non-thermal particles are first accelerated by the recollimation shock and later energized by the turbulence developed in the downstream region. The idea was initially tested on the prototypical extreme TeV Bl Lacs 1ES 0229+200 without considering the damping of the turbulence, which was later included for self-consistency. Afterwards the model was compared with other Extreme TeV Bl Lacs, using a Markov chain Monte Carlo ensemble sampler (i.e. emcee) to automate the search in the large parameters space of the model.

Primary author: SCIACCALUGA, Alberto (Istituto Nazionale di Astrofisica (INAF))

Co-authors: COSTA, Agnese (Istituto Nazionale di Astrofisica (INAF)); TAVECCHIO, Fabrizio (Istituto Nazionale di Astrofisica (INAF)); LANDONI, Marco (Istituto Nazionale di Astrofisica (INAF))

Presenter: SCIACCALUGA, Alberto (Istituto Nazionale di Astrofisica (INAF))

Session Classification: Parallel 2