Contribution ID: **116** Type: **Poster**

A multi-zone view on the multi-wavelength emission of blazars

Friday, December 15, 2023 2:45 PM (1 minute)

In this work, a time-dependent modeling is developed to study the emission properties of blazars in the low state. Motivated by various observations, we speculate and assume that numerous discrete radiation zones throughout the jet of a blazar contribute to the broadband emission. We model the temporal evolution of the electron spectrum in each emission zone taking into account the injection, cooling and escape of relativistic electrons. By doing so, we are able to calculate the multi-wavelength emission of each radiation zone. The observed emission of a blazar is then the superposition of the emission from all discrete radiation zones. We revisit the multi-wavelength spectral energy distributions, light curves and polarisation under the model, and discuss its potential to reproduce the flat radio spectra, the core-shift phenomena, the minute-scale gamma-ray variability, and the large polarisation-angle swings, which are difficult to explain under the conventional one-zone models simultaneously.

Primary authors: LIU, Ruoyu (Nanjing University); Mr XUE, Rui (Zhejiang Normal University); Mr WANG, Zerui (Qilu Normal University); TAN, Hongbin (Nanjing University); Mr BÖTTCHER, Markus (North-West University)

Presenter: TAN, Hongbin (Nanjing University)

Session Classification: Poster