Astrophysics Seminar

Tuesday, October 10, 2017

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Boston University IAR

Kinematics of Parsec-Scale Jets of Gamma-Ray Blazars within the VLBA-BU-BLAZAR Program

I will present the analysis of the parsec-scale jet kinematics of a sample of gamma-ray bright blazars monitored roughly monthly with the Very Long Baseline Array at 43~GHz by the BU blazar group since 2007 June. The current analysis covers the period from 2007 June to 2013 January, during which apparent speeds of 252 emission features (knots) were measured in 21 quasars, 12 BL~Lacertae objects, and 3 radio galaxies, ranging from 0.02c to 78c, with 21% of the knots identified as quasi-stationary features different from the jet cores. Using apparent speeds of components and timescales of variability from their light curves, we derive physical parameters of 120 superluminal knots, including variability Doppler factors, Lorentz factors, and viewing angles and estimate the half-opening angle of each jet based on the projected opening angle and scatter of intrinsic viewing angles of knots. We determine characteristic values of physical parameters for each jet and AGN class based on the range of values obtained for individual features. We calculate intrinsic brightness temperatures of the cores at all epochs, which allows us to compare the magnetic vs particle energetics of the different classes.

3:30pm in CAS 502. *Refreshments served at 3:15pm in CAS 500.*

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Next Week

Allison Kirkpatrick

Yale