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# Polarization variability in a sample of gamma-ray blazars

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The low energy emission of AGN, from radio to optical wavelengths, is linked to the magnetic field of the jet and its synchrotron emission. Specifically, blazars show an extraordinarily high optical polarization with respect to other AGN types, with values that can reach a fraction of ~50%. As for the total emission, the polarization degree also exhibits strong variability in different time scales. Therefore, studying the variability and properties of the polarized emission can shed light into the features and evolution of the magnetic field, its role in the particle acceleration and in the jet dynamics, and the connection between the polarized and total emission.

In this talk I will present the results of the analysis of 10 years of polarimetric data from a large sample of gamma-ray bright blazars regularly monitored by the Steward Observatory. This 10-year monitoring provides an excellent data sample to carry out an extensive study of the behaviour and evolution of the degree and angle of the polarization, their variations, as well as possible rotations related to the global emission properties. We have analyzed the long-term variability and evolution of the polarized emission for this sample of blazars, studying possible similarities/differences between the different blazar types that can reveal the behaviour of the magnetic field and the polarization degree.

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