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Mapping the 3D magnetic field of AGN jets through spectropolarimetry study

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Here, I overview one of the available techniques for the analysis of broad-band spectropolarimetric data, the Stokes QU-fitting. Since broad-band receivers have been installed at most radio facilities, the collection of radio data, both the total intensity and the linear polarization, is revealing interesting features in their spectra. The polarized light, and therefore its properties, i.e. the fractional polarization and the polarized angle, are now finally well sampled in wide wavelength ranges. The new complex behaviors revealed by the data can be studied using the Stokes QU-fitting, which consists of modeling the Stokes parameters Q and U using wavelength-dependent analytical models, available in the literature. This technique provides a very good diagnostic of the nature and structure of the magnetized plasma, with the possibility to identify complex structures, internal or external, of the source of study. A summary of the available and most used models describing the polarization behavior, is presented. Moreover, some of the most significant observational works which use this technique are also summarized.

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