Contribution ID: **27** Type: **not specified**

A quantitative analysis of the similarity of gamma-ray pulsar light curves

In this talk, I will present a method to measure the morphological similarity of pulsar light curves and apply it to those recorded in the Third Fermi Pulsar Catalog. The method produces a quantitative determination for the similiarity of time series, something that is usually only qualitatively discussed via light curve features (such as the number of peaks, their relative height and separation, the peak widths, etc.). Using such quantitative determination, it is possible to cluster the population into groups of pulsars with similar light curves and to explore the connection of these groups with respect to other pulsar features. The methodology is of general nature, and can be applied to light curves at different frequencies beyond gamma-rays, e.g., in radio or X-rays, to bursts, and also used with different aims, e.g., to analyze the similarity of mode changing between confirmed transitional pulsars and candidates.

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