The Statistics of Unresolved Point-Source Populations

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Conventional gamma-ray point-source searches involve looking for sources that are individually detectable with a predetermined statistical significance. A shortcoming of this approach is that a population of sources that are each below this statistical threshold cannot be found. Nevertheless such a population will modify the statistics of the dataset away from a Poisson distribution and can be uncovered using the recently introduced Non-Poissonian Template Fit (NPTF) method. In this talk I will outline a code package, which will be publicly released shortly, that can be used to apply the NPTF to astrophysical datasets. As I will review, this code has already been used to uncover a number of features of the gamma-ray sky, such as the likely point-source origin of the galactic centre excess, and is currently being applied to other datasets, including Icecube neutrinos.

Summary

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