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## Probing the gamma-ray source populations with photon count statistics and anisotropies

The global contribution of unresolved gamma-ray point sources to the extragalactic gamma-ray background has recently been measured through analyses employing the statistical properties of the observed gamma-ray counts and their anisotropies down to lower gamma-ray fluxes with respect to standard source detection techniques. However, the contribution from each specific source classes to the source-count distribution, such as blazars, misaligned Active Galactic Nuclei, or Star Forming Galaxies is affected by significant uncertainties, in particular in the unresolved flux regime. These translate into significantly different predictions for the source-count distribution as a function of energy. In this contribution we jointly exploit the statistics of photon counts and the anisotropies of more than 10 years of Fermi-LAT data to probe extra-galactic gamma-ray source populations as a function of energy.

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