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Cross-match between the latest Swift/BAT and Fermi/LAT catalogs toward MeV all sky simulation

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We report the results of cross-match between the hard X-ray and GeV gamma-ray catalogs, by making use of the latest 105-month Swift/BAT and 10-yr Fermi/LAT catalogs, respectively. We found 181 matched sources in total, which include 36 of false-match, unidentified, and ambiguous sources. The firmly matched sources consist of blazars (> 60%), pulsars and pulsar wind nebulae (~10%), radio galaxies (~ 7%), binaries (~ 5%), and others. Compared to the original catalogs, the matched sources are characterized by double-peaked photon index distributions, higher flux, and larger gamma-ray variability index. This difference arises from the different population of sources, particularly the large proportion of blazars (i.e., FSRQs and BL Lac types). We also report 13 cross-matched and unidentified sources. The matched sources in this study would be promising in the intermediate energy band between the hard X-ray and GeV gamma-ray observations, that is the unexplored MeV gamma-ray domain.

Primary author: TSUJI, Naomi

Presenter: TSUJI, Naomi

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