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The X-Ray Counterpart of the Gamma-Ray Sky

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All-sky exploration by Fermi-LAT has revolutionized our view of the gamma-ray Universe. While its ongoing all-sky survey counts thousands of sources, essential issues related to the nature of unassociated sources call for more sensitive all-sky surveys at hard X-ray energies that allow for their identification. This latter energy band encodes the hard-tail of the thermal emission and the soft-tail of non-thermal emission thereby bridging the non-thermal and thermal emission mechanisms of gamma-ray sources.
All-sky surveys at hard X-rays are best performed by current coded-mask telescopes Swift/BAT and INTEGRAL/IBIS. To boost the hard X-ray all-sky sensitivity, we have developed an ad hoc technique by combining photons from independent observations of BAT and IBIS. The resulting Swift-INTEGRAL X-ray (SIX) survey has an improved source-number density. This improvement is essential to enhance the positive hard X-ray – gamma-ray source matches. We present the results from the scientific link between the neighboring gamma-ray and hard X-ray bands in the context of galactic and extragalactic source classes of the second catalog Fermi Gamma-ray LAT (2FGL).

Collaboration

– not specified –

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