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ixpeobssim: a Simulation and Analysis Framework for the Imaging X-ray Polarimetry Explorer

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ixpeobssim is a simulation and analysis framework, based on the Python programming language and the associated scientific ecosystem, specifically developed for the Imaging X-ray Polarimetry Explorer (IXPE). Given a source model and the response functions of the telescopes, it is designed to produce realistic simulated observations, in the form of event lists in FITS format, containing a strict super-set of the information provided by standard IXPE level-2 files. The core ixpeobssim simulation capabilities are complemented by a full suite of post-processing applications, allowing for the implementation of complex, polarization-specific analysis pipelines, and facilitating the inter-operation with the standard visualization and analysis tools traditionally in use by the
X-ray community.
We emphasize that, although a significant part of the framework is specific to IXPE, the modular nature of the underlying implementation makes it potentially straightforward to adapt it to different missions with similar polarization capabilities.

Collaboration

IXPE

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