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Gammapy: a python package for (not only) gamma-ray astronomy

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Gammapy is a community-driven open-source Python package to analyse very high-energy gamma-ray astronomical data. Created in 2014, it has since expanded to support analysis methods in multiwavelength and multimessenger astrophysics. Currently, in version 1.2, Gammapy is utilized by various instruments like HESS, VERITAS, HAWC, and Fermi-LAT, and tested with X-ray and neutrino data, and is the base for the science analysis tools of the Cherenkov Telescope Array. Operating on the common open FITS-based data format GADF, it ensures interoperability between different experiments. The package's analysis pipeline handles data, instrument response functions, and dependencies on time, energy, and sky location. It offers diverse methods for background estimation and data reduction, producing standardized datasets. Gammapy includes spatial, spectral, and temporal models, supporting custom model integration and permitting maximum-likelihood fitting on datasets. Additionally, it provides tools for accessing flux points, likelihood profiles, and light curves, facilitating comprehensive time-domain analyses. Gammapy has de facto become the reference software for VHE gamma-ray analysis, and strives to be integrated in the open science framework with the FAIR4RS guidelines, and will adopt the VODF format in future versions.

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