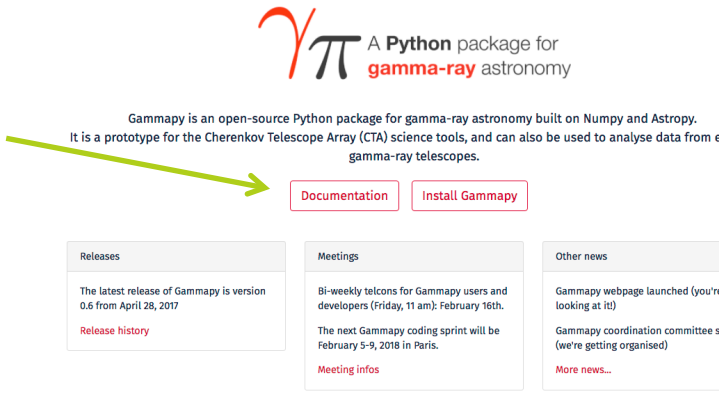



# Documentation

Roberta

# Where to find it?

**Gammapy** News About CTA Contact Team Documentation



  $\pi$  A Python package for **gamma-ray** astronomy

Gammapy is an open-source Python package for gamma-ray astronomy built on Numpy and Astropy. It is a prototype for the Cherenkov Telescope Array (CTA) science tools, and can also be used to analyse data from gamma-ray telescopes.

[Documentation](#) [Install Gammapy](#)

Releases	Meetings	Other news
The latest release of Gammapy is version 0.6 from April 28, 2017 <a href="#">Release history</a>	Bi-weekly telcons for Gammapy users and developers (Friday, 11 am): February 16th.  The next Gammapy coding sprint will be February 5-9, 2018 in Paris. <a href="#">Meeting infos</a>	Gammapy webpage launched (you're looking at it!)  Gammapy coordination committee s (we're getting organised)  <a href="#">More news...</a>

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■ <http://docs.gammapy.org/dev/>

gammapy v0.7.dev5423

## Page Contents

[Getting started](#)  
[Gammapy package](#)  
[Developer documentation](#)



Gammapy is a community-developed, open-source Python package for gamma-ray astronomy. It is a prototype for the CTA science tools. This page (<http://docs.gammapy.org>) contains the Gammapy documentation. The Gammapy webpage (<http://gammapy.org>) contains information about Gammapy, including news and contact information if you have any questions, want to report an issue or request a feature, or need help with anything Gammapy-related.

## Getting started

Gammapy works with Python 2 and 3, on Linux, Mac OS X and (partly) Windows. See [Installation](#) for information how to get started and the [Gammapy tutorial notebooks](#) to start to learn how to use Gammapy.

- [Installation](#)
- [Getting Started](#)
- [Gammapy tutorial notebooks](#)
- [Data Formats](#)
- [References](#)
- [Changelog](#)

## Gammapy package

As mentioned in the [Getting Started](#), the Gammapy package is structured as a series of sub-packages. We recommend that you start to learn Gammapy via the [Gammapy tutorial notebooks](#), and then consult the following pages for further information about each sub-package. Those pages also contain very detailed reference documentation for every function and class in Gammapy.

- Astrophysical source and population models ([gammapy.astro](#))
- Background estimation and modeling ([gammapy.background](#))
- Source catalogs and objects ([gammapy.catalog](#))
- Cube Style Analysis ([gammapy.cube](#))
- Data and observation handling ([gammapy.data](#))
- Access datasets ([gammapy.datasets](#))
- Source detection tools ([gammapy.detect](#))
- Image processing and analysis tools ([gammapy.image](#))
- Instrument response function (IRF) functionality ([gammapy.irf](#))
- Spectrum estimation and modeling ([gammapy.spectrum](#))
- Statistics tools ([gammapy.stats](#))
- Time handling and analysis ([gammapy.time](#))
- Utility functions and classes ([gammapy.utils](#))
- Data Structures for Images and Cubes ([gammapy.maps](#))
- Command line tools ([gammapy.scripts](#))

## Developer documentation

The Gammapy webpage contains information about the [Gammapy project and team](#) as well as information about Gammapy contact and communication channels. Most development takes place on the [Gammapy GitHub page](#).

- [Developer documentation](#)

# Kinds of documentation

## ■ Sub-package documentation:

- Introduction
- Getting started
- Examples
- API documentation

## ■ Notebook tutorials

### Notebooks

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For a quick introduction to Gammapy, go here:

- [First steps with Gammapy](#) | *first\_steps.ipynb*

Interested to do a first analysis of simulated CTA data?

- [CTA first data challenge \(1DC\) with Gammapy](#) | *cta\_1dc\_introduction.ipynb*
- [CTA data analysis with Gammapy](#) | *cta\_data\_analysis.ipynb*

To learn how to work with gamma-ray data with Gammapy:

- [IACT DL3 data with Gammapy](#) (H.E.S.S. data example) | *data\_iact.ipynb*
- [Fermi-LAT data with Gammapy](#) (Fermi-LAT data example) | *data\_fermi\_lat.ipynb*

2-dimensional sky image analysis:

- [Image analysis with Gammapy \(run pipeline\)](#) (H.E.S.S. data example) | *image\_pipe.ipynb*
- [Image analysis with Gammapy \(individual steps\)](#) (H.E.S.S. data example) | *image\_analysis.ipynb*
- [Source detection with Gammapy](#) (Fermi-LAT data example) | *detect\_ts.ipynb*
- [CTA 2D source fitting with Sherpa](#) | *image\_fitting\_with\_sherpa.ipynb*

1-dimensional spectral analysis:

- [Spectral models in Gammapy](#) | *spectrum\_models.ipynb*
- [Spectral analysis with Gammapy \(run pipeline\)](#) (H.E.S.S. data example) | *spectrum\_pipe.ipynb*
- [Spectral analysis with Gammapy \(individual steps\)](#) (H.E.S.S. data example) | *spectrum\_analysis.ipynb*
- [Spectrum simulation and fitting](#) (CTA data example with AGN / EBL) | *cta\_simulation.ipynb*
- [Fitting gammapy spectra with sherpa](#) | *spectrum\_fitting\_with\_sherpa.ipynb*
- [Flux point fitting with Gammapy](#) | *sed\_fitting\_gammacat\_fermi.ipynb*

3-dimensional cube analysis:

- [Cube analysis with Gammapy \(part 1\)](#) (compute cubes and mean PSF / EDISP) | *cube\_analysis\_part1.ipynb*
- [Cube analysis with Gammapy \(part 2\)](#) (likelihood fit) | *cube\_analysis\_part2.ipynb*

Time-related analysis:

- [Light curve estimation with Gammapy](#) | *light\_curve.ipynb*

### Extra topics

These notebooks contain examples on some more specialised functionality in Gammapy.

Most users will not need them. It doesn't make much sense that you read through all of them, but maybe browse the list and see if there's something that could be interesting for your work (or contribute to Gammapy if something is missing!).

- [Template background model production with Gammapy](#) | *background\_model.ipynb*
- [Continuous wavelet transform on gamma-ray images](#) | *cwt.ipynb*
- [Interpolation using the NDDataArray class](#) | *nddata\_demo.ipynb*
- [Rapid introduction on using numpy, scipy, matplotlib](#) | *using\_numpy.ipynb*

# Restructuration

- Global restructure needed
  - Many duplications
  - Often not reader friendly
  - If you want to take part in this service work, drop me an email ([Roberta.Zanin@mpi-hd.mpg.de](mailto:Roberta.Zanin@mpi-hd.mpg.de))
- In few months from now
  - First prioritizing the building blocks development
  - Call around March/April?

This does not prevent you from commit your new notebooks