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First: Update your repo every day



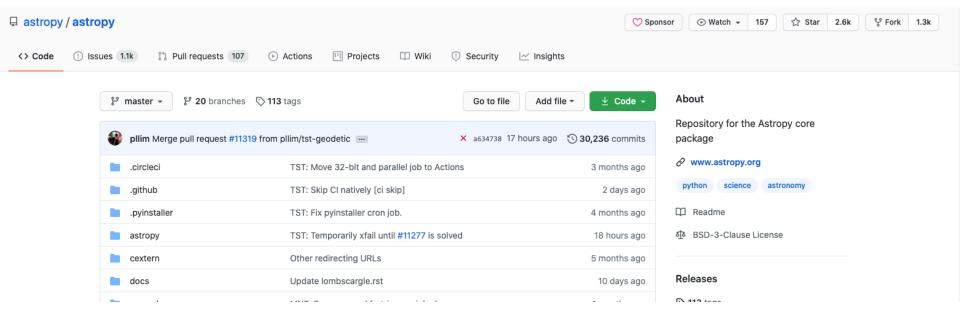
- git remote add upstream https://github.com/rlopezcoto/introiact-analysis.git
- git pull

 Slack account? Please send me your e-mail and I can invite you to the ctapipe slack

What is astropy



- Astropy is a common core package for Astronomy in Python
- As core package, it also acts as link between different python astronomy packages (e.g. gammapy)
- Current release is v4.2



Data structures and transformations



- Constants (astropy.constants)
- Units and Quantities (astropy.units)
- N-dimensional datasets (astropy.nddata)
- Data Tables (astropy.table)
- Time and Dates (astropy.time)
- Astronomical Coordinate Systems (astropy.coordinates)
- World Coordinate System (astropy.wcs)
- Models and Fitting (astropy.modeling)
- Uncertainties and Distributions (astropy.uncertainty)

Files, I/O, and Communication



- Unified file read/write interface
- FITS File handling (astropy.io.fits)
- ASCII Tables (astropy.io.ascii)
- VOTable XML handling (astropy.io.votable)
- Miscellaneous: HDF5, YAML, ASDF, pickle (astropy.io.misc)
- SAMP (Simple Application Messaging Protocol (astropy.samp)

```
from astropy.io import fits
fits_image_filename = fits.util.get_testdata_filepath('test0.fits')
hdul = fits.open(fits_image_filename)
```

Computations and utilities



- Cosmological Calculations (astropy.cosmology)
- Convolution and filtering (astropy.convolution)
- Data Visualization (astropy.visualization)
- Astrostatistics Tools (astropy.stats)

```
In [1]: from astropy.cosmology import Planck15
In [2]: Planck15.lookback_time(3)
Out[2]: <Quantity 11.649047657532195 Gyr>
In [3]: Planck15.kpc_proper_per_arcmin(2.2)
Out[3]: <Quantity 508.41661819801976 kpc / arcmin>
In [4]: Planck15.luminosity_distance(1.1)
Out[4]: <Quantity 7638.990927720774 Mpc>
```

Hands on



- Run notebooks in the notebooks/astropy folder
 - astropy_lesson.ipynb

