accessible asteroseismology with

lightkurve

Oliver J. Hall
+ the Lightkurve Collaboration

TASC5/KASC12
MIT - Cambridge

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notebooks!

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What does lightkurve do for seismology?

It does:

It does not (yet?):

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provide uncertainties for parameters

replace a pipeline (or an email to a seismologist)

better to show than tell

we'll work through a quick tutorial

feel free to join in!

Characterising KIC 10963065 (Rudy) with lightkurve

The star KIC 10963064 (hereafter Rudy) is a high signal-to-noise main sequence Kepler target. Its a perfect candidate to showcase `lightkurve`'s asteroseismology tools, as they are best suited to long *Kepler* timeseries and high signal-to-noise. This notebook will talk you through:

1. Searching for the data
2. Downloading and correcting the data
3. Stitching the data together into a single lightcurve
4. Creating a bespoke periodogram
5. Manipulating and plotting a periodogram
6. Calculating a rudimentary numax and deltanu
7. Plotting an echelle diagram
8. Calculating a rudimentary asteroseismic mass, radius and surface gravity

You can learn more and find tutorials at https://docs.lightkurve.org/ !

This notebook, along with others that deal with asteroseismic analysis of K2 and TESS, can be found on this GitHub repository.

In [1]:
```
import warnings
warnings.filterwarnings('ignore')
```

tinyurl.com/lk-s

asteronomer

you can help out on this too!

by

[1] *reporting issues (please do this!)*

[2] *joining in conversations*

[3] *contributing yourself!*

[4] *getting others involved (e.g. undergrads!)*

you can do really simple quick-look asteroseismology with lightkurve

and so can your undergraduates, colleagues, and anybody else with a basic grasp on Python!

you can get started with this right now

Read the documentation	https://www.lightkurve.org
Install lightkurve with pip	`pip install lightkurve --user`
Work with us on GitHub	https://github.com/KeplerGO/lightkurve

Enjoy!