



SOSPEX

SOFIA Spectral Explorer



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We present *SOSPEX*, an interactive tool to display and analyze spectral cubes obtained with the *FIFI-LS* and *GREAT* instruments onboard the *SOFIA* Infrared Observatory and archived in the *SOFIA* science archive. The software package is written in Python 3.6 and it is available on *GitHub* and via the *Anaconda* Python distribution. Cubes are displayed showing their spatial and spectral dimensions. Icons allow direct interactions with the spectral cubes. User-friendly help is available through icon tooltips and inline tutorials.

Adjust relative size by dragging the splinter button.

Select a tab with an aperture or the total spectrum

The slice of the cube shown in the image. CTRL-wheel to scroll the slice.

Click to select as reference wavelength. Drag to define new redshift.

Select an image/cube

Mouse wheel to zoom/unzoom

Move and adjust apertures

Select the optimal intensity range

Crop the cube after zooming

Compute the 0 moment

Blink between two image tabs

Select favorite color map

Hide/show the intensity histogram

Mouse wheel to zoom/unzoom

Click to enter new redshift or reference wavelength

Click to switch wavelength/frequency

Click to hide/show line

Drag the legend

Zoom and pan the spectrum

Maximize x and y axes

Messages in status bar

Save the spectrum as a FITS, ASCII, or JPG file

Exit the GUI

Coming soon: fit lines and continuum

Cut the cube: save only a slice selected with the mouse

Open a new spectral cube

Zoom and pan the image

Download archival images and display them.

Save images as FITS/JPG files

Select an aperture and draw it on the image.

Overlap contours on other images

Selection

- local
- sdss-u
- sdss-g
- sdss-r
- sdss-i
- sdss-z
- panstarrs-g
- panstarrs-r
- panstarrs-i
- panstarrs-z

Download archival images and display them.

Save images as FITS/JPG files

Zoom and pan the image

Exit the GUI

Coming soon: fit lines and continuum

Cut the cube: save only a slice selected with the mouse

Select an aperture and draw it on the image.

Install

Source on github (GPL3 license):
<https://github.com/darioflute/sospex>

Install through anaconda:

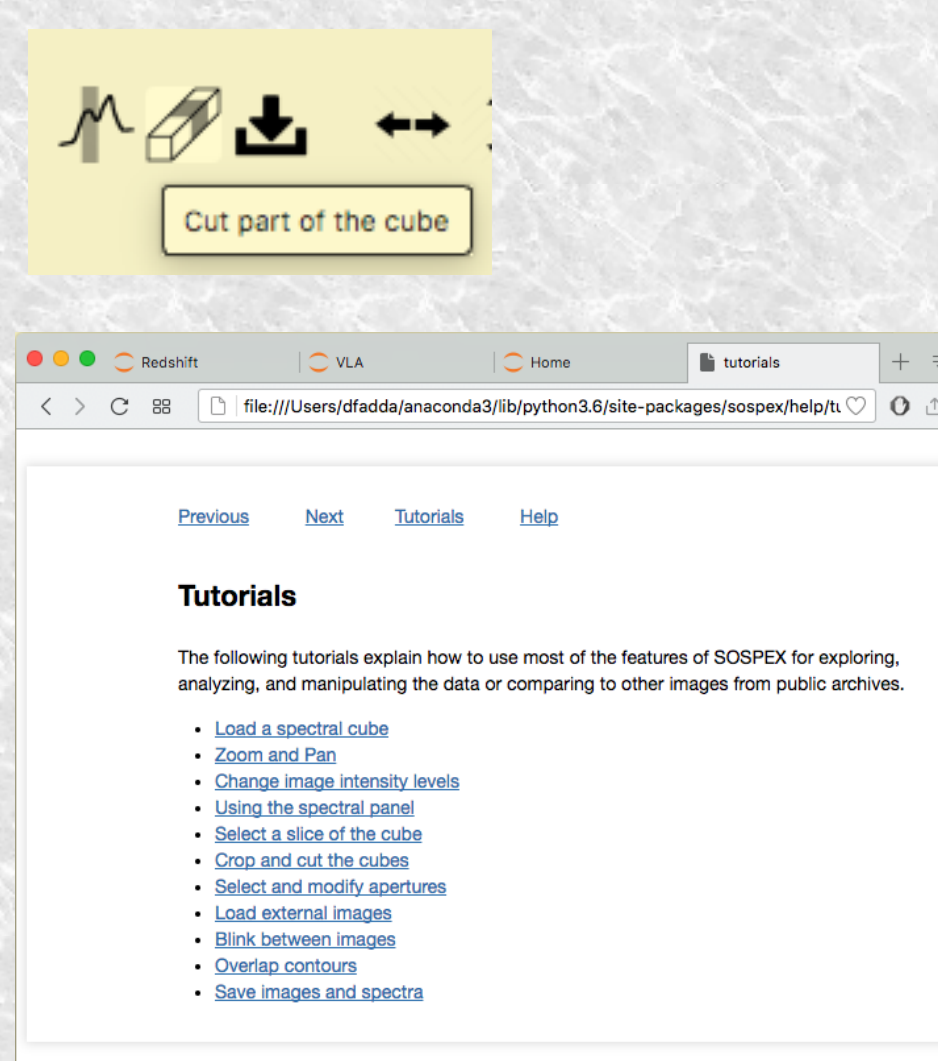
- i) install anaconda Python 3.6 from:
<https://www.anaconda.com/download>
- ii) install sospex from my channel:
`conda install -c darioflute sospex`
- iii) launch from a terminal window:
`sospex`

The package has been tested on Mac OS-X 10.11.6 (El Capitan) and Ubuntu Linux (14.04 LTS, Trusty Tahr).

Help

Hovering on icons activate tooltips which contain succinct explanations of their actions. Once clicked, the status bar shows further help messages.

By clicking the ? icon, a browser shows further help. Several tutorials illustrate the use of different functionalities.



Contribute

You can contribute by testing the code and reporting issues on the github page:
<https://github.com/darioflute/sospex/issues>

Issues can be either bug reports or request of new functionalities. Many thanks to R. Klein and J. Rho for being the first beta-testers, and:

Meet us at the SOFIA booth for a demo !

Coming soon

At the time of writing this poster, we are starting to work on fitting lines over the whole cube.

A new set of icons detailing several ways to fit continuum and line is for now inactive. This new functionality will allow to obtain intensity, velocity, and dispersion maps.

The possibility of fitting more than one component is under consideration.