Spectral Analysis with Astropy and Specutils

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Format of this Unconference Session

"The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text."

1. I’m going to do a quick intro to specutils with some live-coding
2. Y’all can take time to do a “choose your own adventure” that follows from this
3. We will take a break
4. I’ll do a quick demo of some visualization tools designed for JWST but of broader applicability
5. We will have a brainstorming session about anything you want to share, or might be missing

What are Notebooks?

"The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text."

1. 1. You can explore data in the same place you record results - a "lab notebook" for the present and future astronomer. (Lets you fail or succeed fast, but with an embedded "why".)
2. 2. You can transmit a scientific "story" as a single combined piece of code, visualization, and description - a "paper" that can write itself. (Note the prime recipient, in my experience: Future you.)

And all from your run-of-the-mill, ordinary web browser.

How to start our notebooks for today

1. Either clone https://github.com/eteq/mos-unconf-2021 if you know git, or use the ZIP download option to get the notebooks.

2. Make sure you followed the instructions you got and that are pinned in the Slack thread to install the things you need.
3. If you followed those instructions, do `conda activate mos-unconf` in a terminal
4. Cd into wherever you downloaded the notebooks
5. Do `jupyter notebook` to start jupyter - it should open a web browser.
6. If you're having trouble, don't worry, you can follow along with by screen and then once we are doing our own time I or someone else can help you.

https://github.com/eteq/mos-unconf-2021

https://jdaviz.readthedocs.io

Enter the new “viz tools”

- The viz tools are compatible with a notebook workflow, but also can work like standard desktop apps (and are designed based on the previous generation).
- This is possible because they use the Jupyter platform + scientific Python

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- What’s included? (You can bring your own data!)

1D Spectra

IFU Cubes

MOS Datasets/
NIRSpec MSA

Discussion or Exploration

Please turn on video if you can. It helps a *lot* for free-flowing discussion!

- Do you understand the toolbox approach and how it works for your science?
- What features are missing from *specutils*?
- Do you want to ask or tell about *specreduce*?
- Do you want to talk about some other tool I haven't mentioned?
- <your discussion item here!>