The Echelle Visualization Tool (Working Title)

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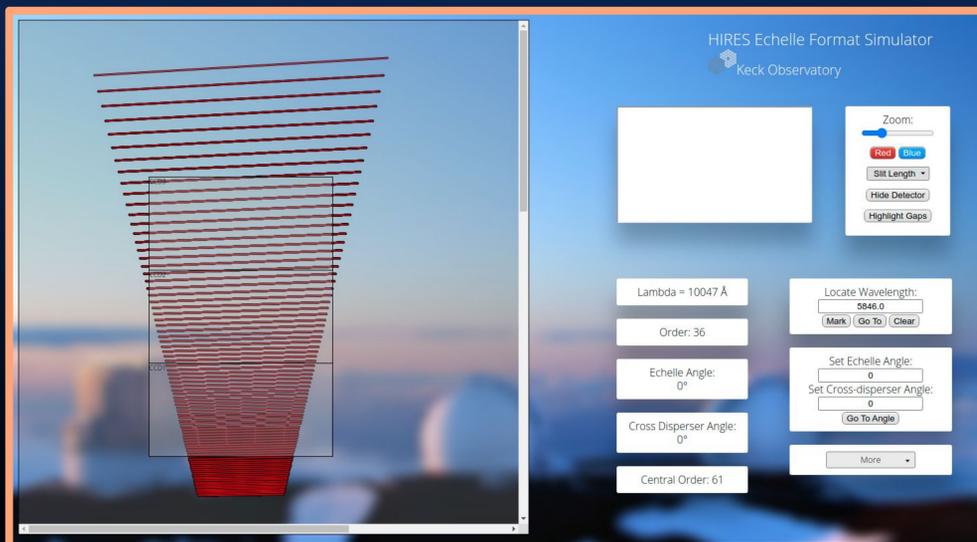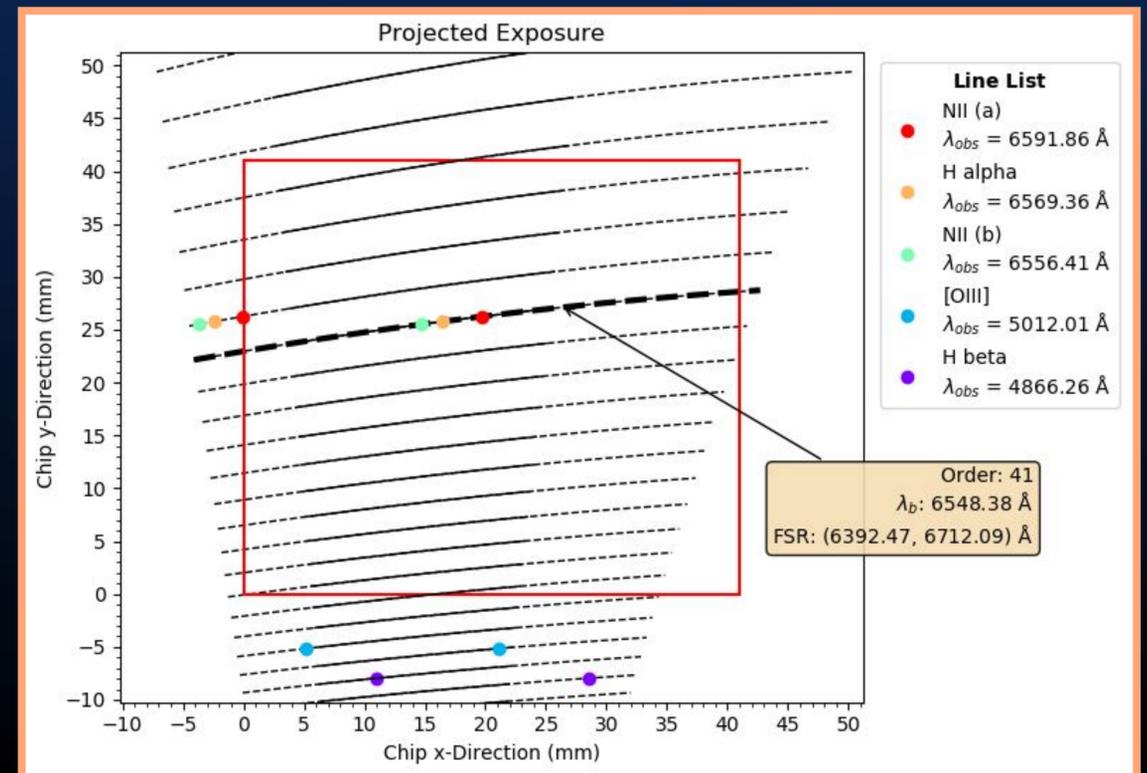
NMSU ASTRONOMY

Source: Sarah Kovac and Candace Gray

Purpose

The Echelle Visualization Tool (EVT) will allow ARCES users to visualize their raw data before and during observing runs. The EVT will accurately display the position of each echelle order and each spectral line of interest as it will appear on the CCD. This will provide an intuitive visual aid as observers check their incoming data as the night wears on; an important asset when our brains our tired at odd hours of the night and morning.

Status

- Code foundation written using gratings; will be adapted to mimic ARCES as development progresses
- Displays blaze wavelength and free spectral range for each echelle order
- Can identify unique wavelength ranges vs. wavelengths that are contained in multiple orders
- Takes an input spectral line list and displays the locations of each given line everywhere it is present in the echelle exposure
- Code written to allow for relatively simple adaptation if/when ARCES is replaced someday

Projected Exposure

Line List

NII (a) — $\lambda_{obs} = 6591.86$ Å
H alpha — $\lambda_{obs} = 6569.36$ Å
NII (b) — $\lambda_{obs} = 6556.41$ Å
[OIII] — $\lambda_{obs} = 5012.01$ Å
H beta — $\lambda_{obs} = 4866.26$ Å

Order: 41
λ_b: 6548.38 Å
FSR: (6392.47, 6712.09) Å

Chip y-Direction (mm) / Chip x-Direction (mm)

HIRES Echelle Format Simulator
Keck Observatory

Zoom:
Red Blue
Slit Length
Hide Detector
Highlight Gaps

Lambda = 10047 Å
Order: 36
Echelle Angle: 0°
Cross Disperser Angle: 0°
Central Order: 61

Locate Wavelength:
5846.0
Mark Go To Clear
Set Echelle Angle: 0
Set Cross-disperser Angle: 0
Go To Angle
More

Keck Observatory HIRES Echelle Format Simulator (link below)

Community Survey to get YOUR input

The purpose of this poster is to gather input from the APO community to inform the direction of the EVT's development. Does this seem like a tool that you would use? What features would make the EVT a tool that you would use regularly? If you have any thoughts on how to make the EVT more useful to ARCES users, please take 3-5 minutes to fill out a survey using this link: https://forms.gle/K3iGauGrBq6amY8X9.

This project is inspired by the Keck Observatory HIRES Echelle Format Simulator.