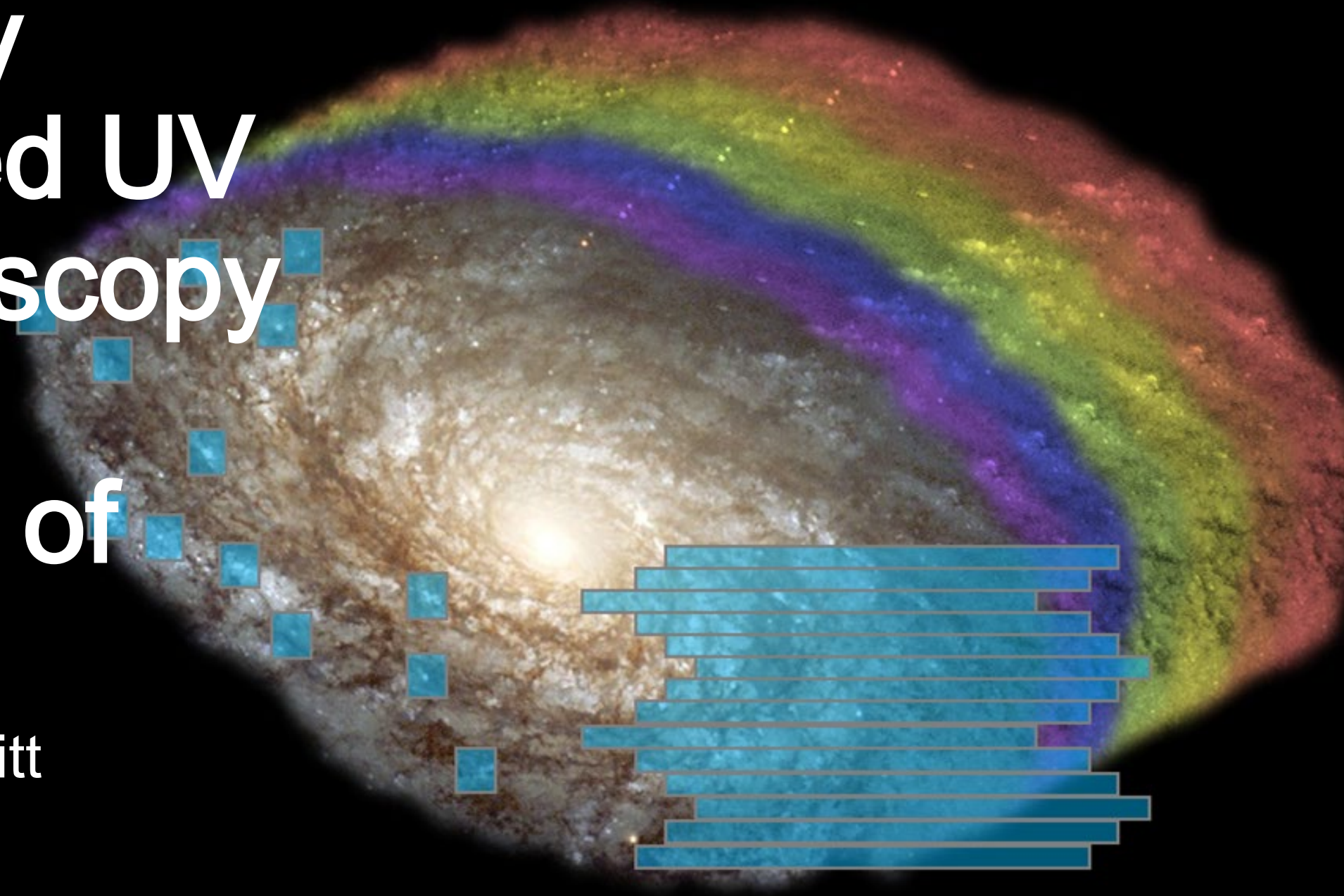
Spatially Resolved UV Spectroscopy SAG in Support of HWO



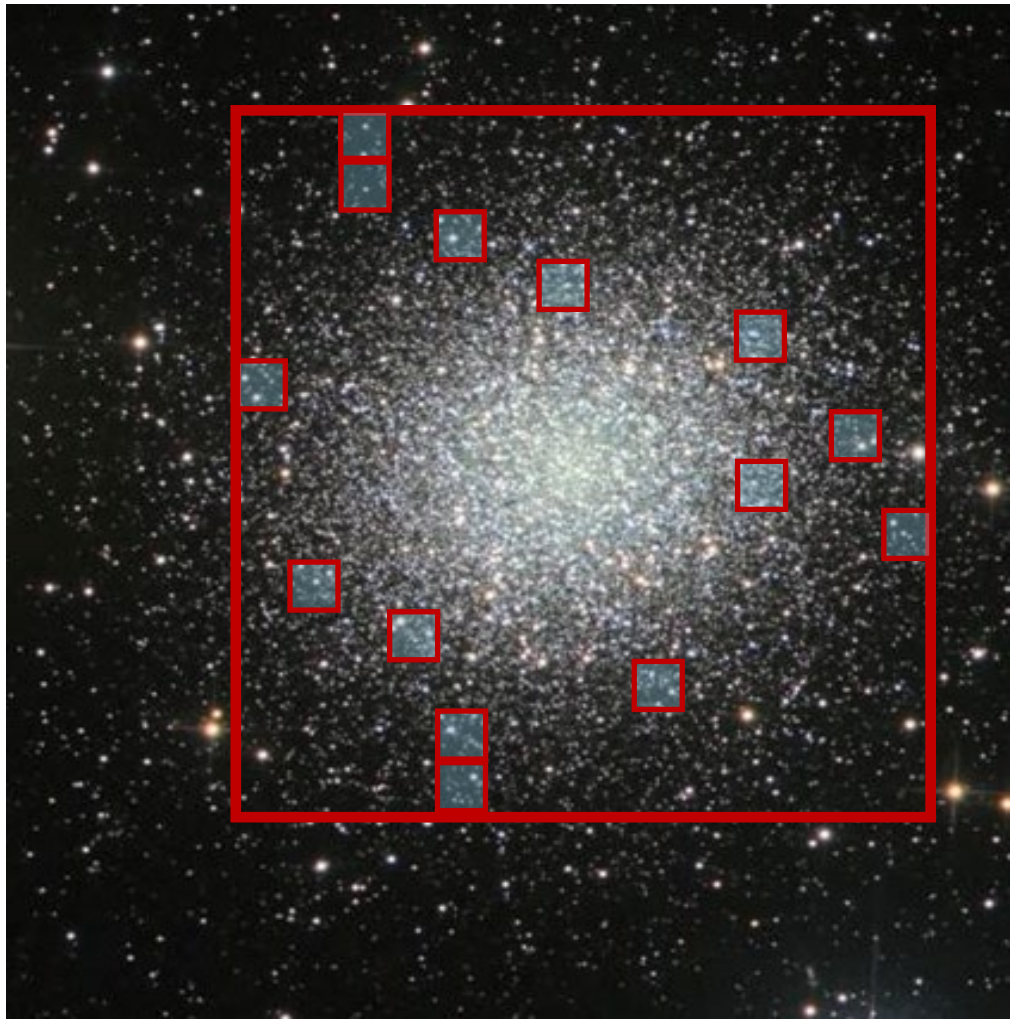
Chair: Emily Witt

AAS COPAG Splinter Session

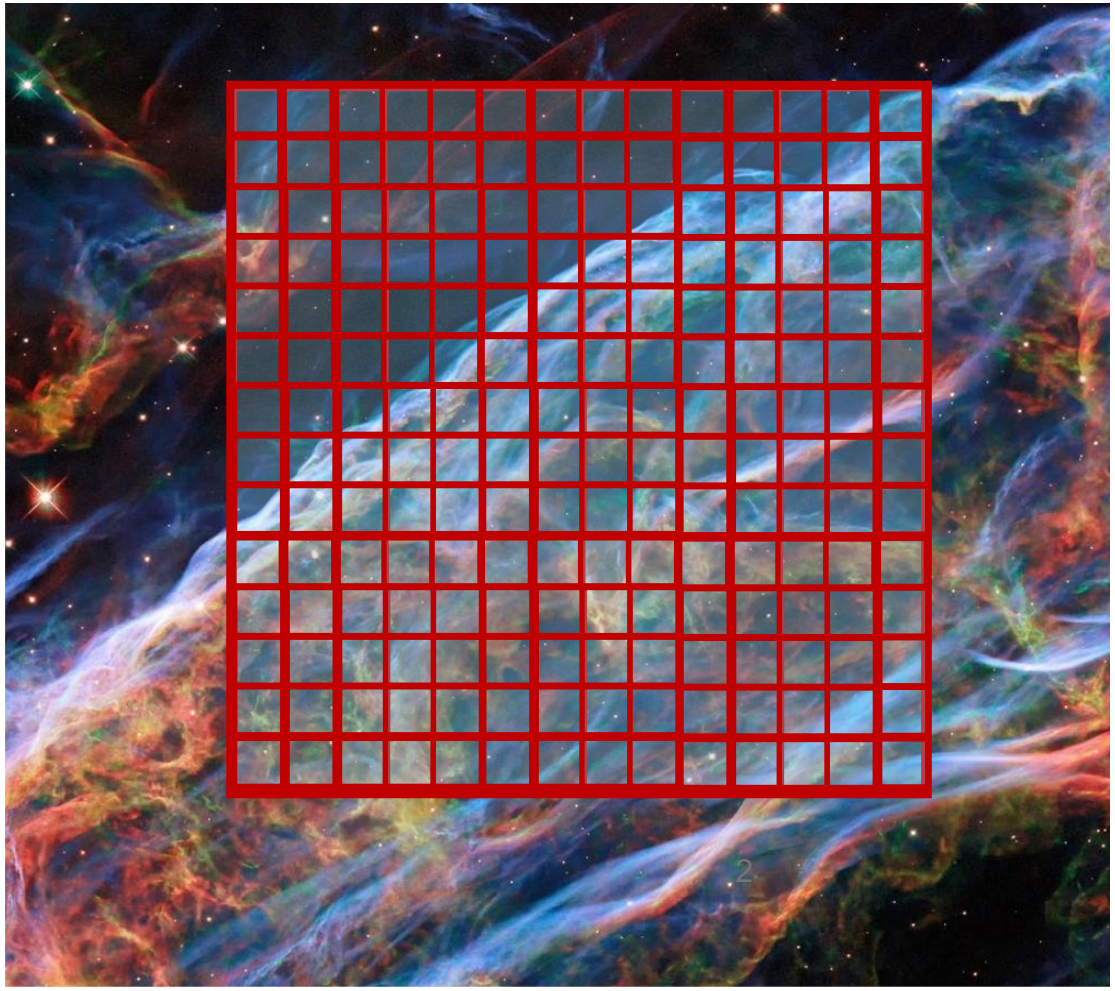
4 January 2026

Spatially Resolved Spectroscopy

Multi -Object Spectroscopy

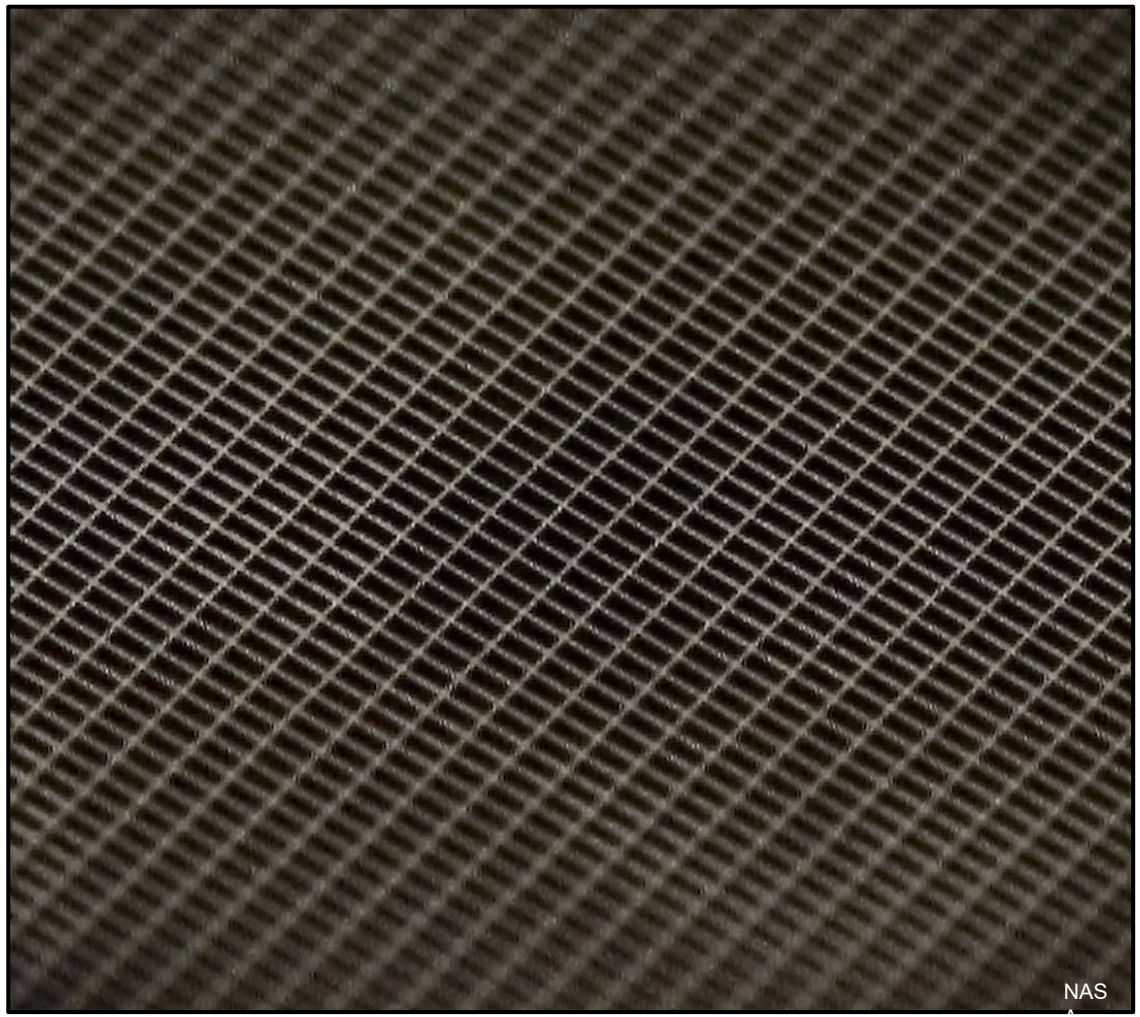


Integral Field Spectroscopy

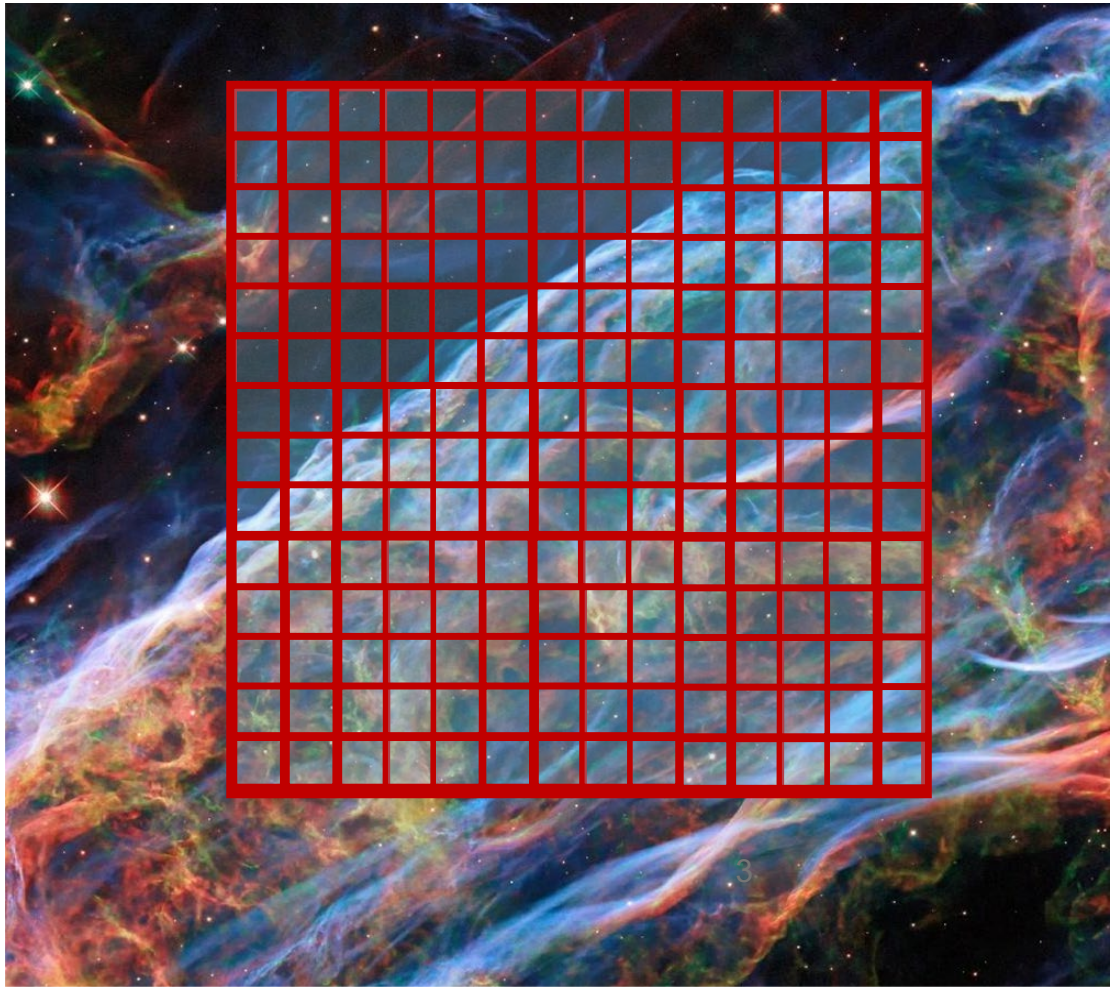


Spatially Resolved Spectroscopy

Microshutter Array



Integral Field Spectroscopy



Spatially Resolved Spectroscopy

Microshutter Array

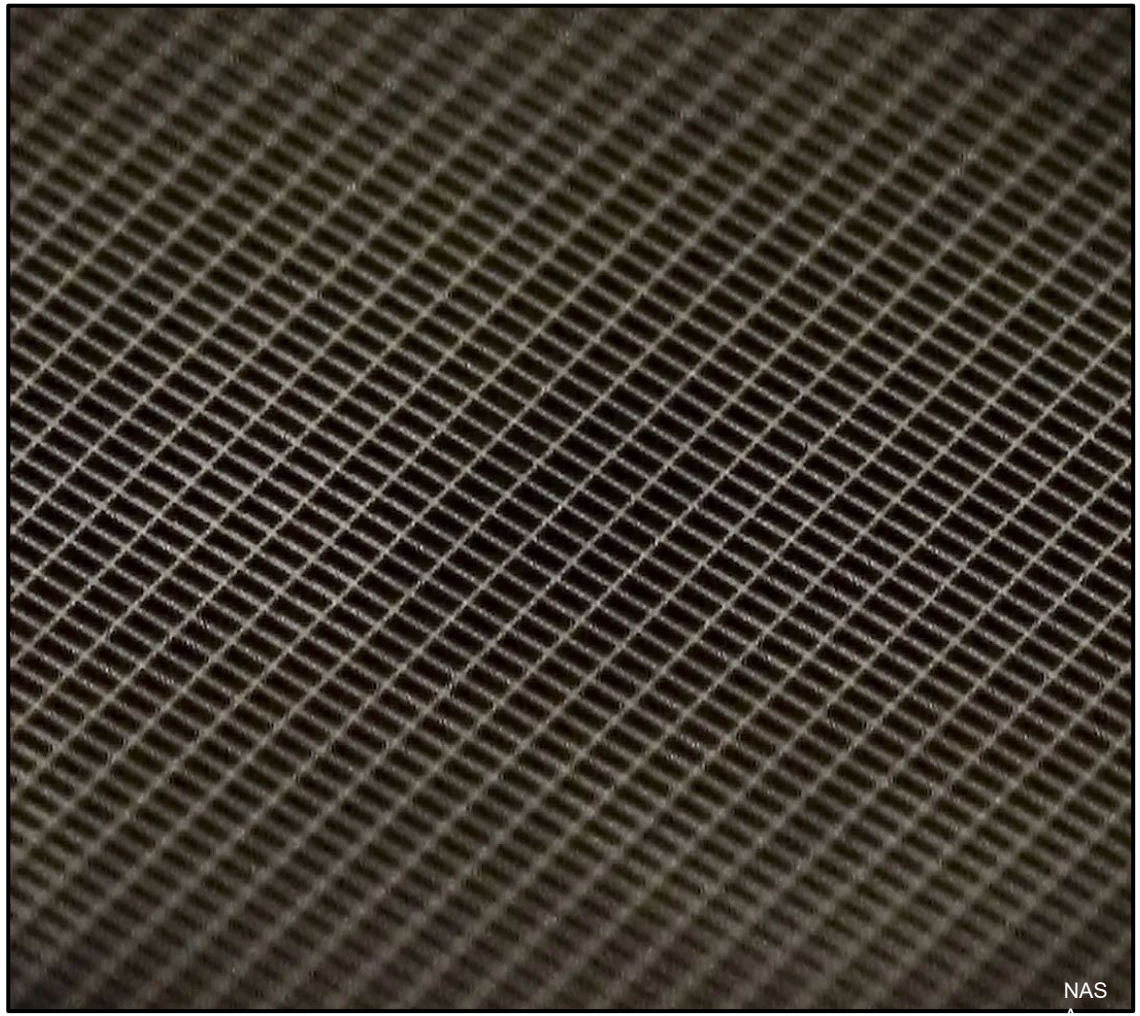
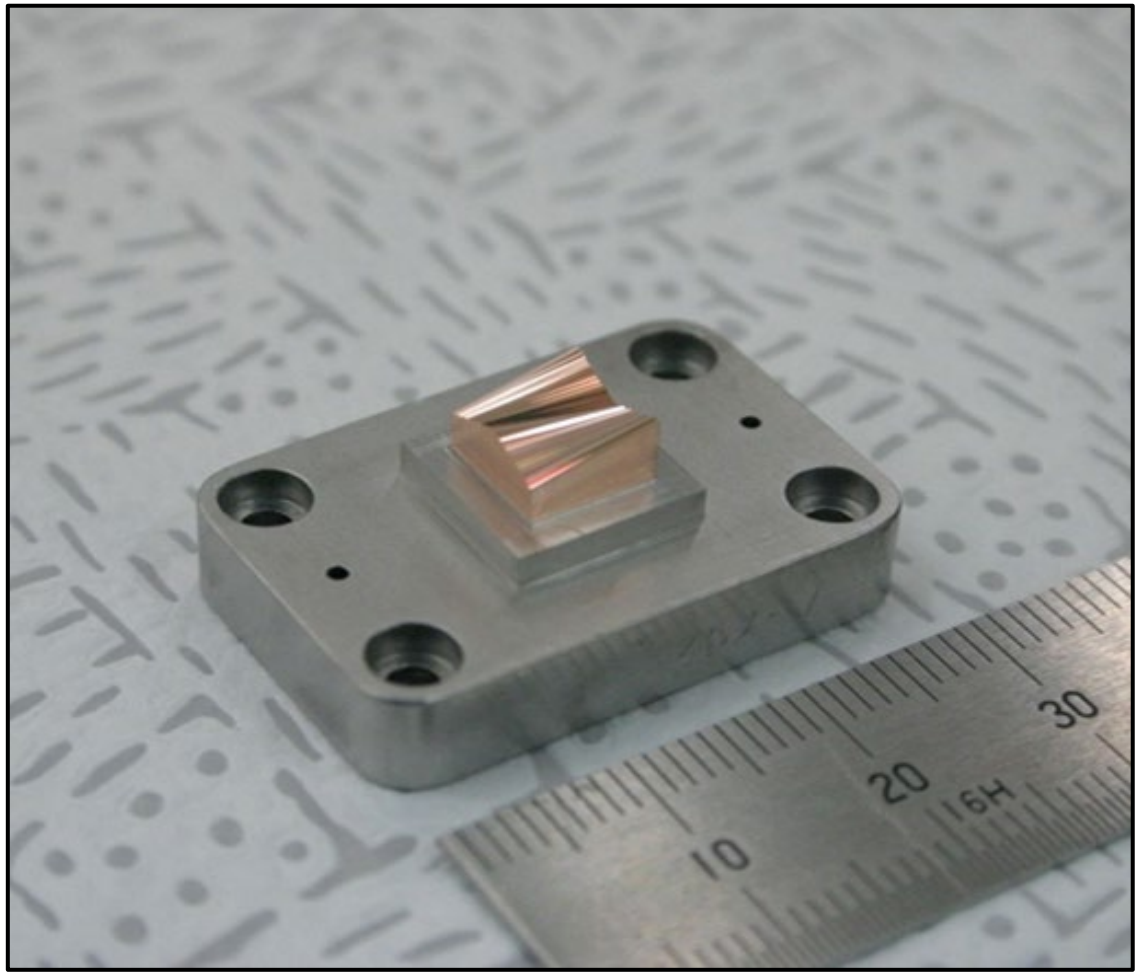


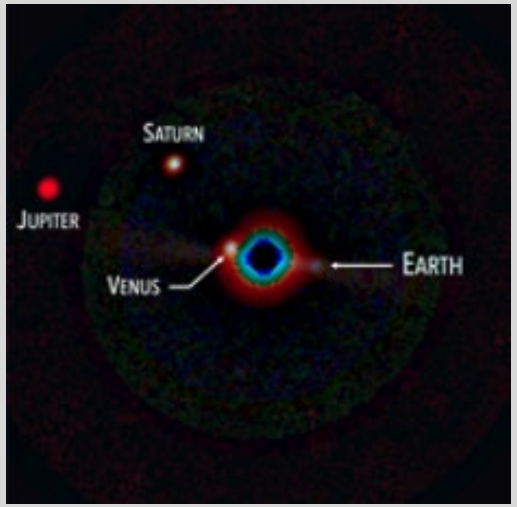
Image Slicer



HWO Candidate Instruments

Coronagraph

High-contrast imaging and imaging spectroscopy



High-Resolution Imager

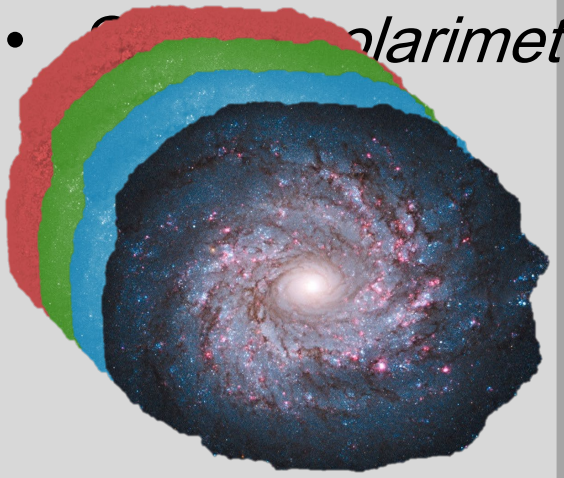
UV/Vis and NIR imaging

UV Multi-Object Spectrograph

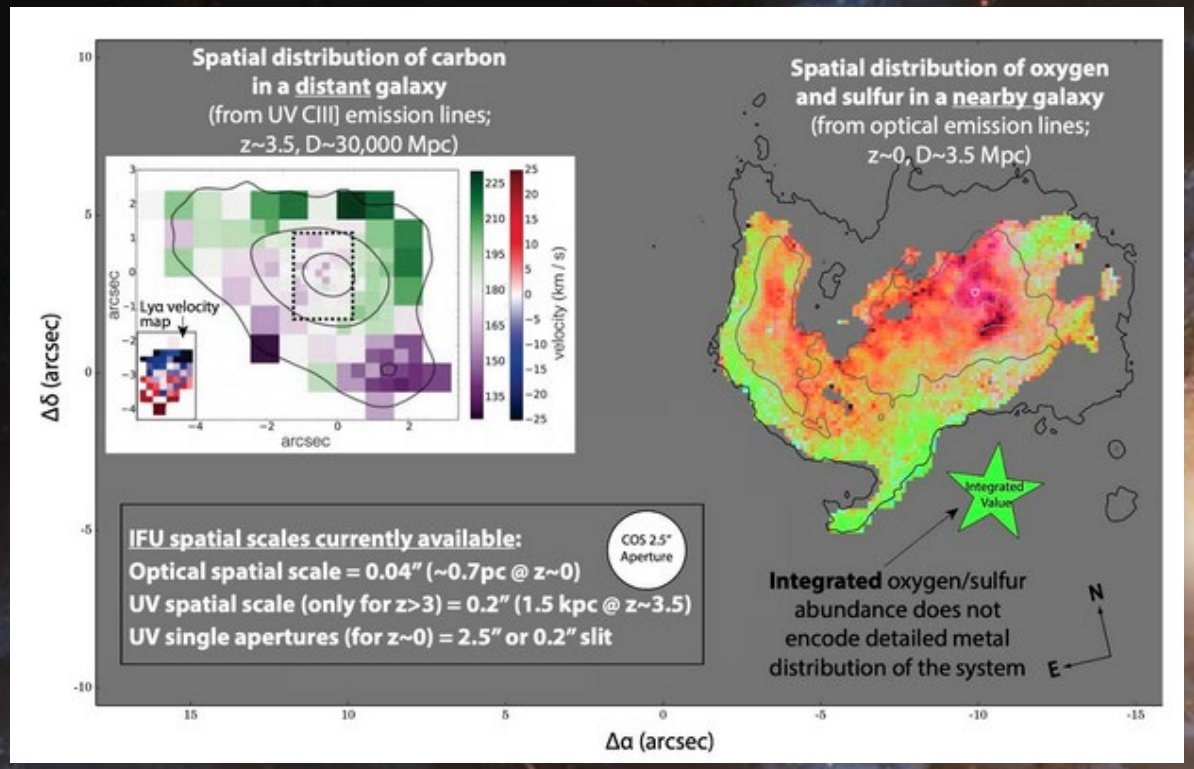
UV/Vis and multi-object spectroscopy

Other Possible Instrument(s)

- *NUV coronagraph*
- *NUV starshade*
- *UV/Vis IFS*
- *Coronagraph polarimet*

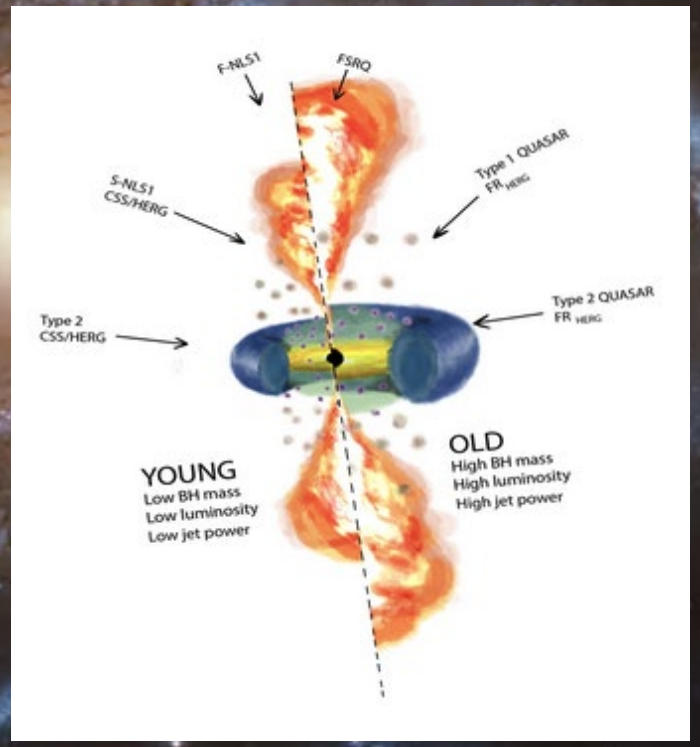


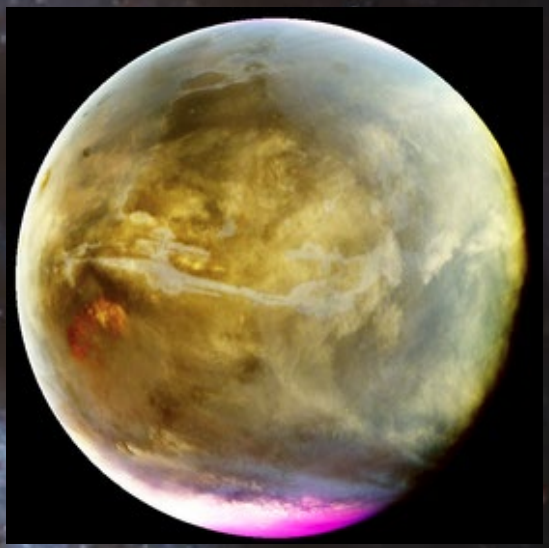
Science!



Probing the Full Depth of ISM Properties (James & Berg SCDD)

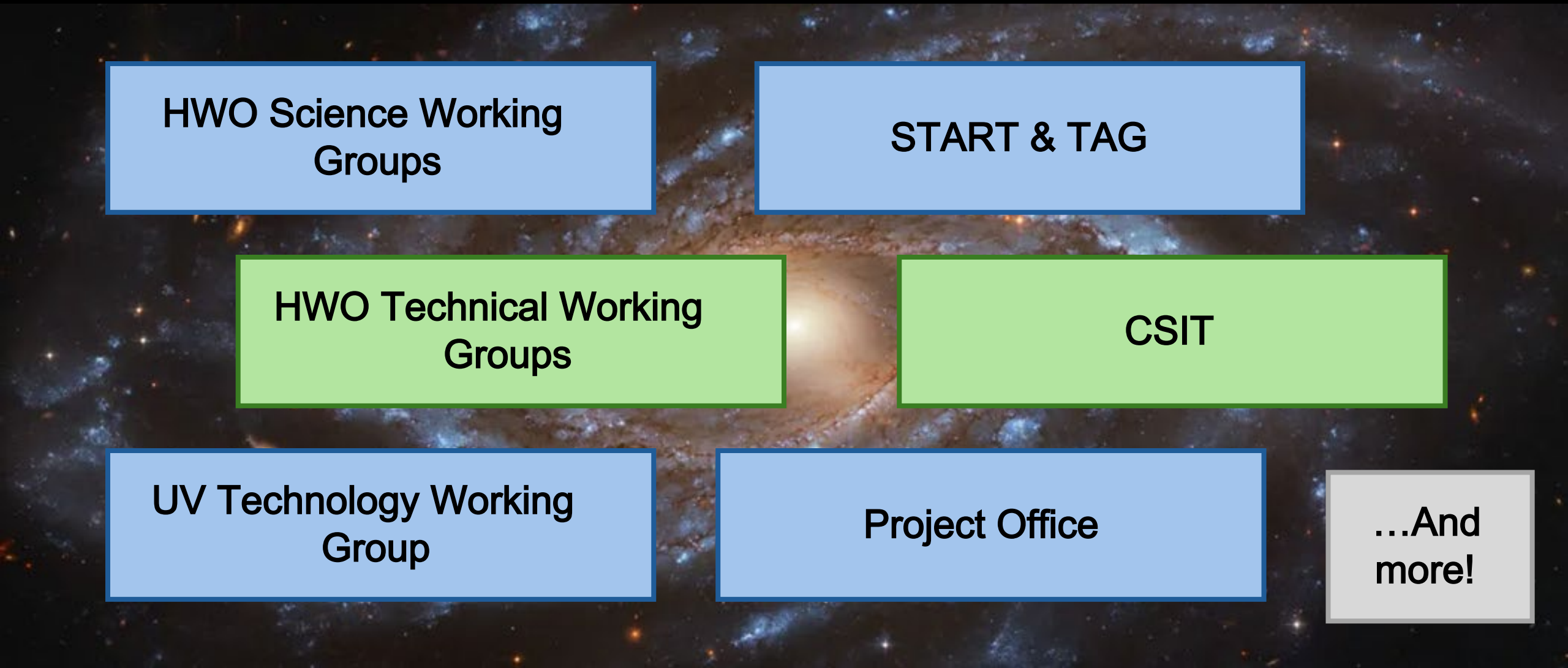
AGN Outflows (Zhang et al. SCDD)

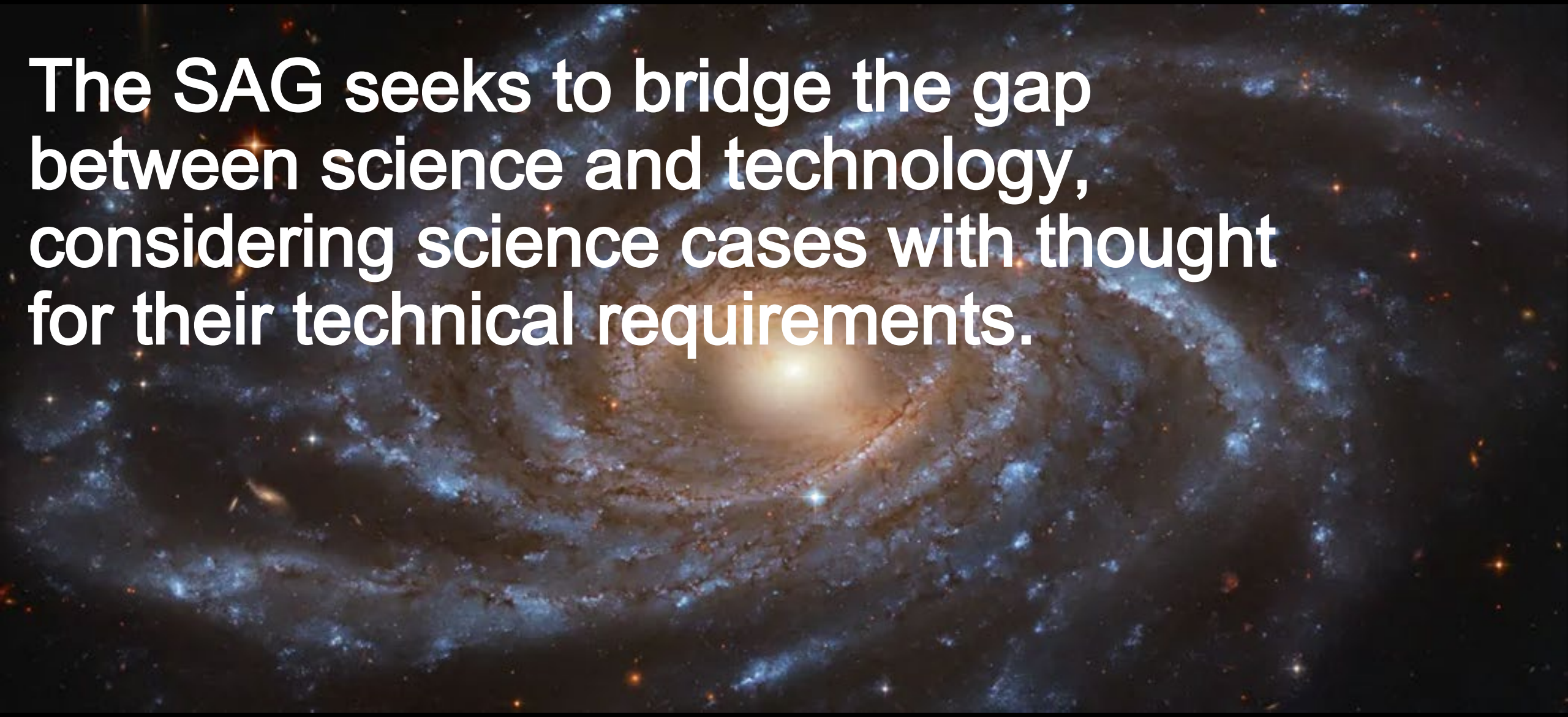




Mars, a Post Habitable Planet? (Crismani et al. SCDD)

Many Efforts Toward FUV Spatially Resolved Spectroscopy





The SAG seeks to bridge the gap between science and technology, considering science cases with thought for their technical requirements.

Objective #1: Review UV spectroscopy requirements for astrophysics and planetary science.

What science cases are enabled by a FUV MOS/IFU?

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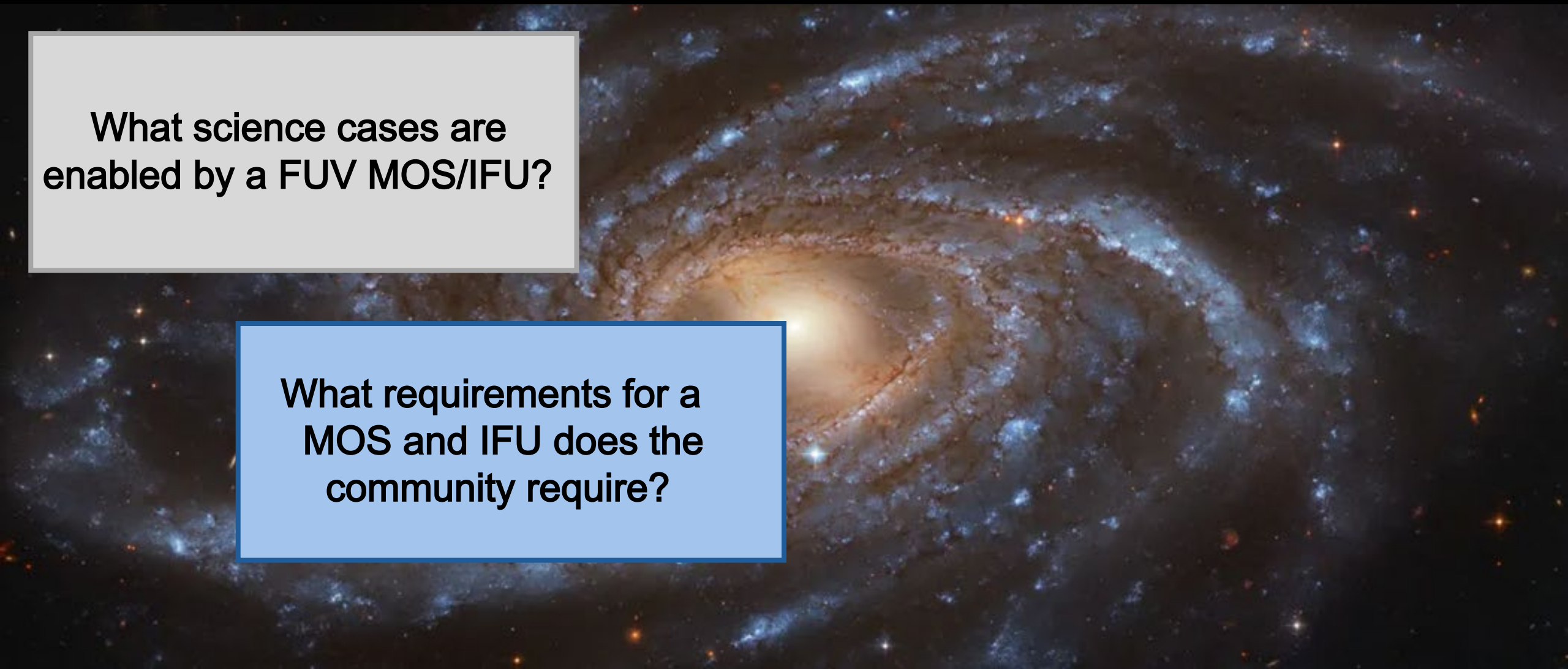

What science cases are enabled by a FUV MOS/IFU?

What requirements for a MOS and IFU does the community require?

Objective #1: Review UV spectroscopy requirements for astrophysics and planetary science.

What science cases are enabled by a FUV MOS/IFU?

Are there requirements that would cover the majority of science cases?

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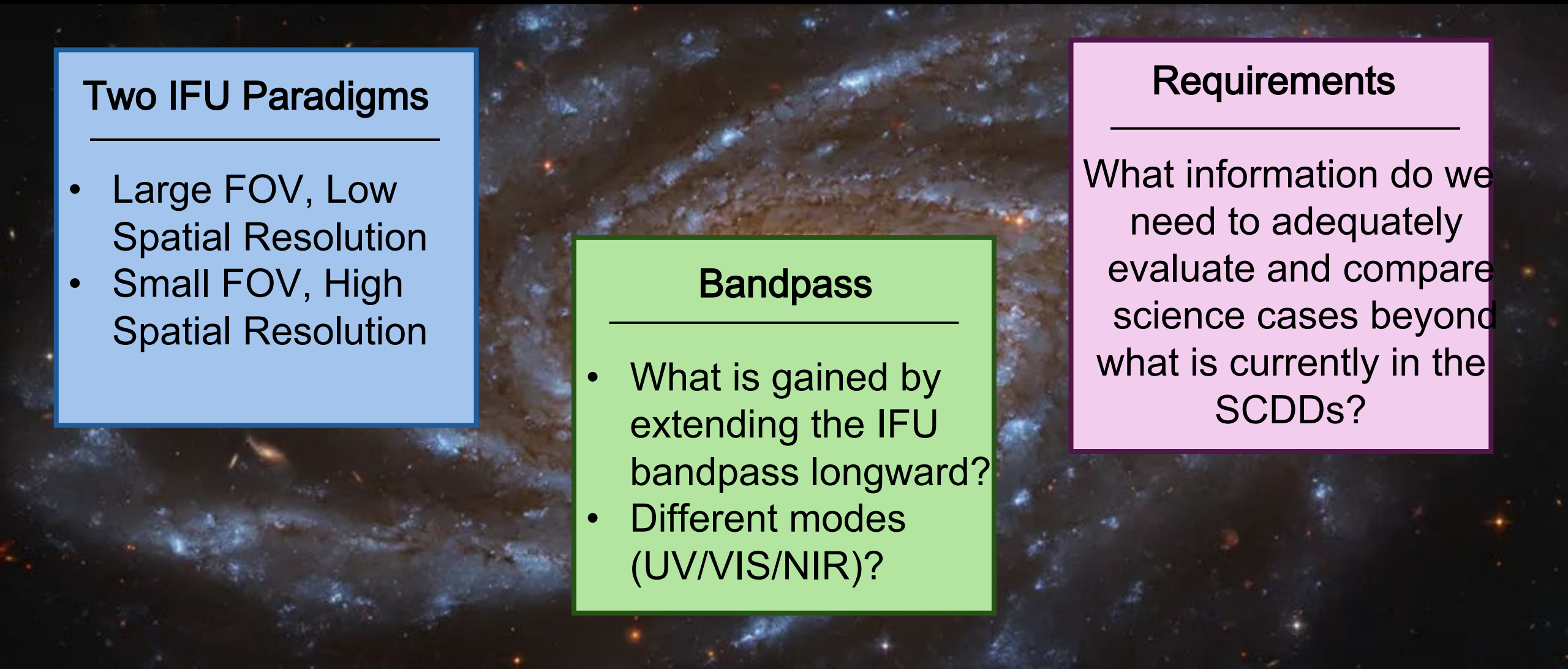
What science cases are enabled by a FUV MOS/IFU?

Are there requirements that would cover the majority of science cases?

What requirements for a MOS and IFU does the community require?

What science cases have requirements that may stretch capabilities?

Objective #1: Review UV spectroscopy requirements for astrophysics and planetary science.



Two IFU Paradigms

- Large FOV, Low Spatial Resolution
- Small FOV, High Spatial Resolution

Bandpass

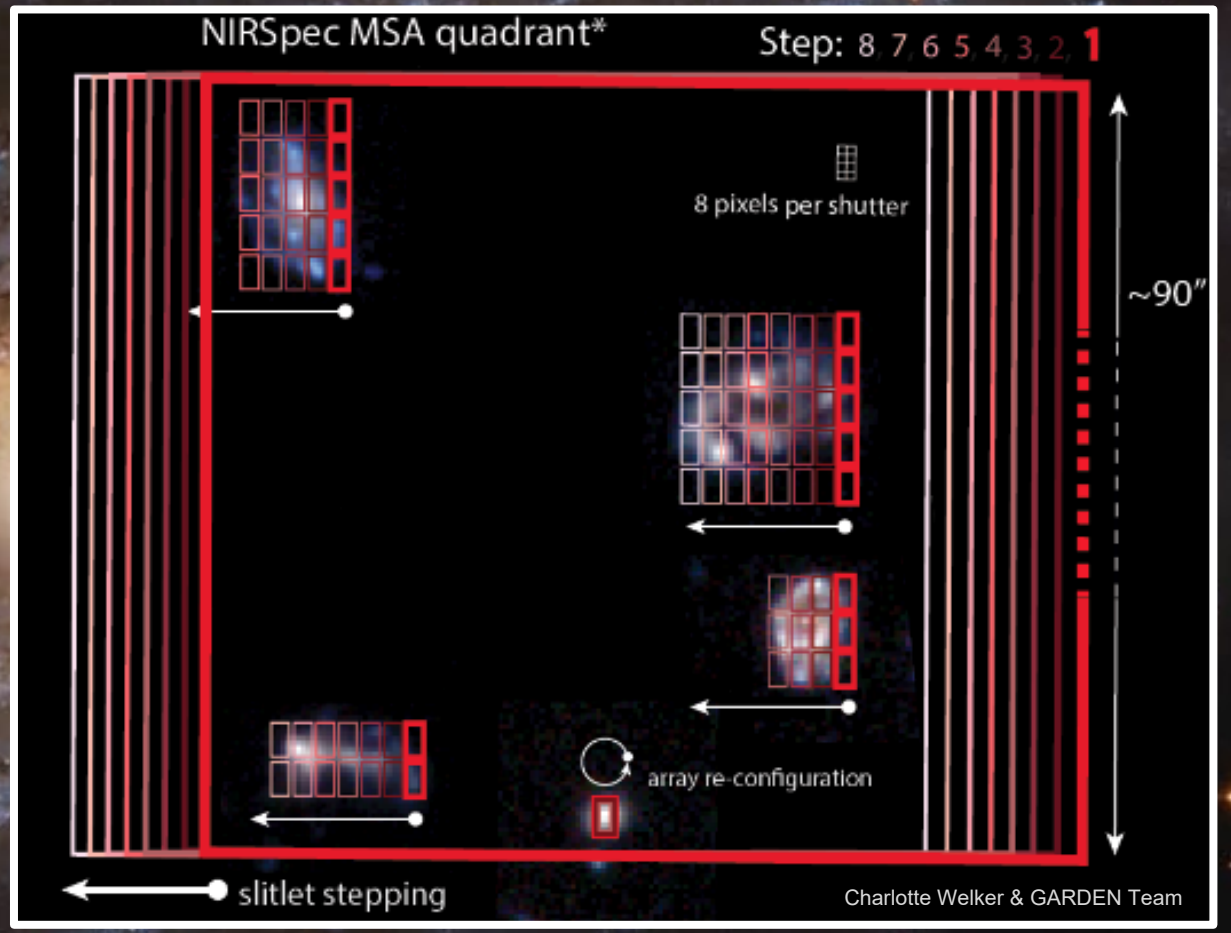
- What is gained by extending the IFU bandpass longward?
- Different modes (UV/VIS/NIR)?

Requirements

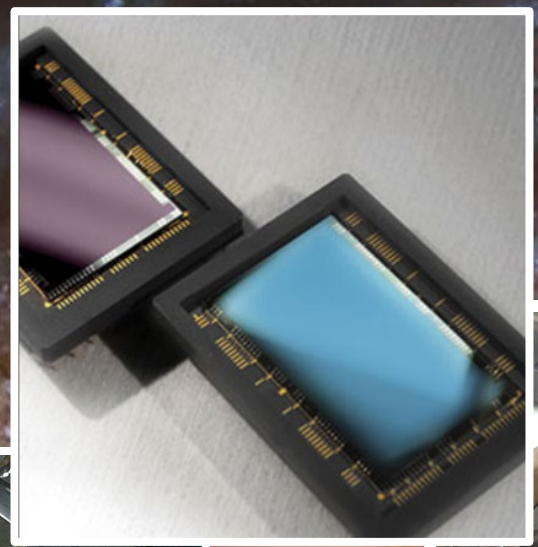
What information do we need to adequately evaluate and compare science cases beyond what is currently in the SCDDs?

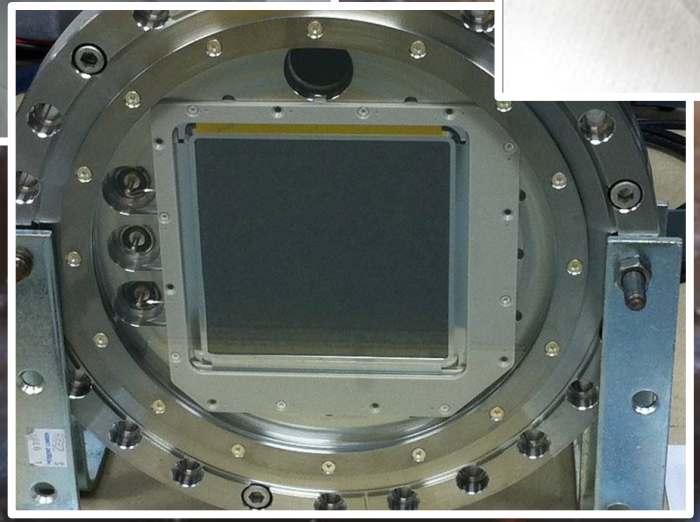
Objective #2: Identify new science capabilities enabled by an IFS.

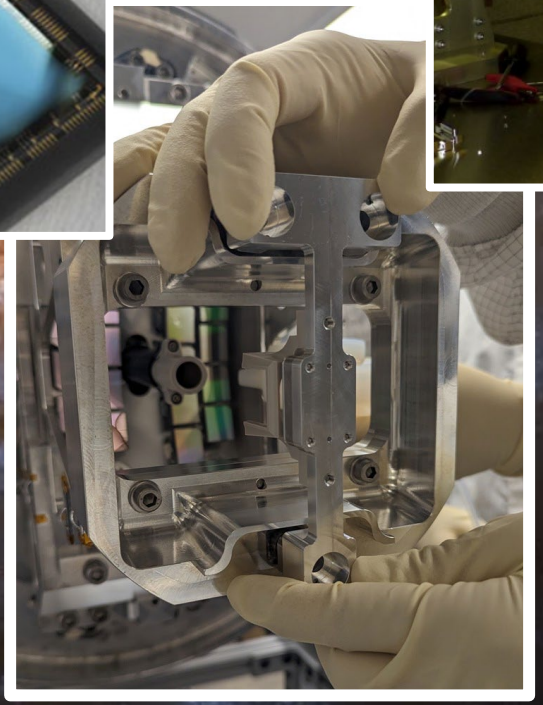
What science cases require an IFU? What sciences cases can be done by either an IFU or a MOS?



Objective #3: Analyze the current status of UV technology development.

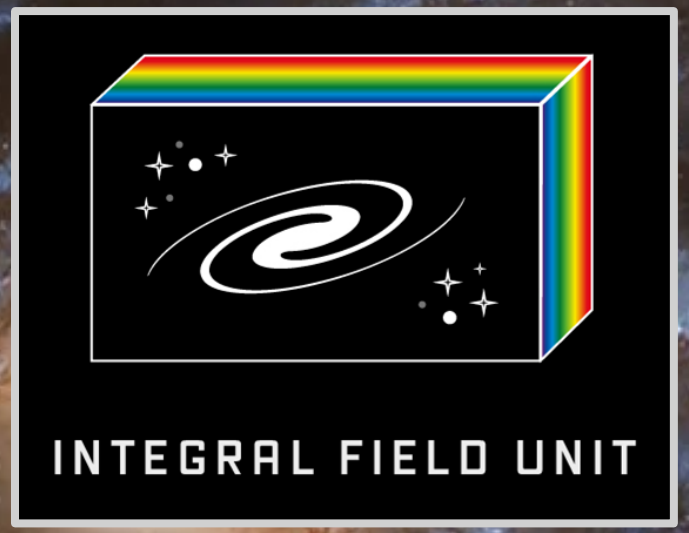


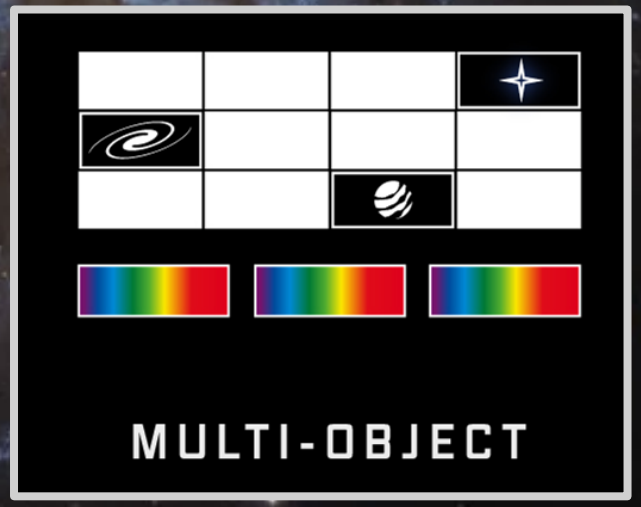




Activities

- Meeting every other week
- Workshop
- White paper, presented at a AAS splinter session





Thank you!

If you want to join, please contact me:
ewitt3@jh.edu