Welcome to EURECA!

Early Universe/REionization Conversations at Arizona

Organizers: Jackie Champagne, Callum Donnan, and Maria Pudoka

Website: https://astro-eureca.github.io/

Slack TBD

Goals

1. Foster community among extragalactic researchers from Steward and NOIRLab.
2. Provide a venue to demonstrate and troubleshoot useful research tools (e.g. SED fitting codes, reduction pipelines) and proposal tools (e.g. HST and JWST exposure time calculators, ALMA observing tool).
3. Provide a venue to brainstorm ideas and build collaborations for future proposals (e.g. JWST, ALMA, NOIRLab/Arizona facilities) and projects.
4. Create an informal sharing space for brief research updates and crowdsourcing feedback for individual projects.

Code of Conduct

1. This is a space for everyone to learn.
2. Approach meeting discussions with a constructive and positive attitude. Be willing to hear out, give credit to, and amplify the ideas of others.
3. Be conscious of how much space you're taking up in a conversation, and be extra conscious if you hold a senior position.
4. People may be sharing unpublished results; research shared in meetings should not be recorded, shared, or discussed outside of the group without the presenter's permission.
    a. Virtual attendees, please refrain from taking screenshots or recording the meetings unless permitted otherwise.

One-slide research summaries

In addition to the individual presentations/demos, we would like for people to share 1-slide research updates if they would like to crowdsource feedback or have questions about technical things. You don't need to have one every week (or at all!) but we will set aside 20-30 mins each meeting for these updates.

Example research slide

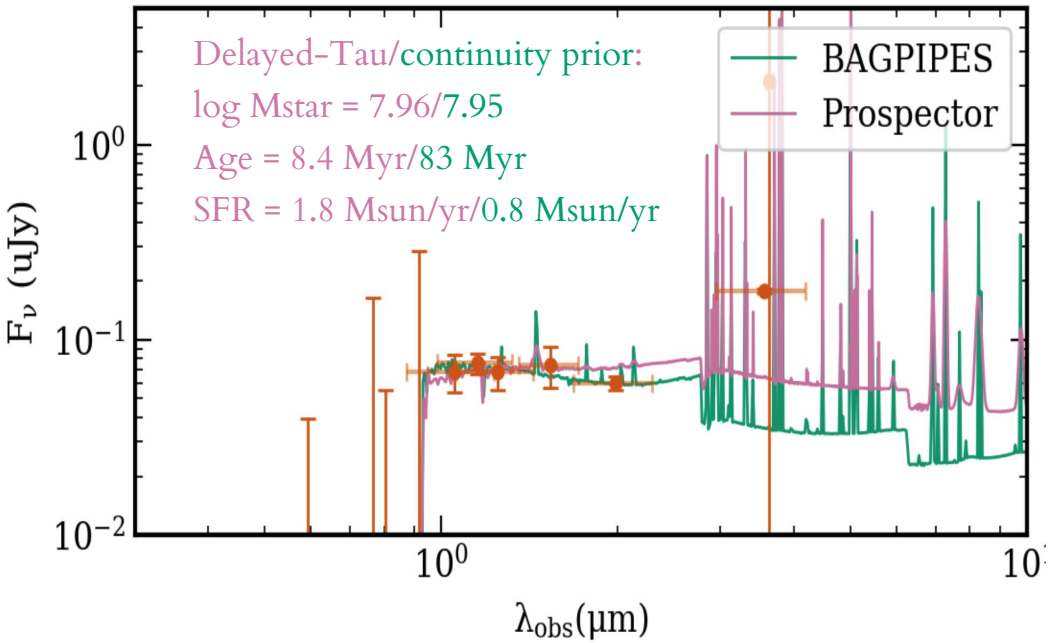
Jackie Champagne - SED Q's

-working on SED fitting for z>6 galaxies

-wondering how to report different results for different SFHs - averages between runs?

-what do people think are the most reasonable assumptions for a z~6-7 population?

- no Lya?
- bursty SFHs?
- attenuation curves?



Preliminary Schedule for Fall 2025

September 5 - Intro to EURECA
September 19 - JWST Cycle 5 APT and Proposal Prep (organizers)
October 3 - Overview of existing JWST LPs and/or Steward proposals?
October 17 - **Mathieu Renzo**
October 31 - **open**
November 14 - **open**
November 28 - Thanksgiving
December 5 - **open** (Euclid?)

Ideas:

- Emission line fitting/dealing with NIRSpec
- PSF fitting/galaxy morphology
- Pop III stars w/ JWST from Mathieu? Pick any date :)
- Euclid
- Contact organizers about department visitors.

YOUR NAME (COPY SLIDE 1)

About Me:

Ask Me About:

Title

Research Group:

Office #

Your email

Social media handle (optional)

Fun Fact:

YOUR NAME (COPY SLIDE 2)

Science Interests:
Your topics here

One-sentence summary here

Jackie Champagne

JASPER Postdoc

Research Group: Fan/COSMOS-3D

Steward Office 314

jbchampagne@arizona.edu

@WhataMergerJr

About Me:

PhD from UT Austin 2022

Grew up in dirty Jersey (R U rah rah!)

Ask Me About:

- NIRCam imaging/photometry & building catalogs
- NIRCam WFSS inspection
- SED fitting
- Analyzing ALMA/VLA data

Fun Fact:

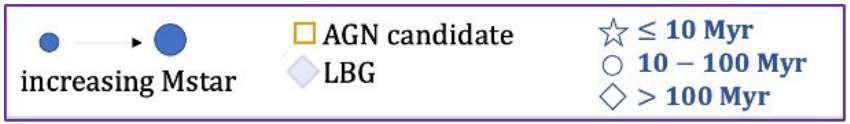
I have two telescope tattoos, which technically makes me an interferometer

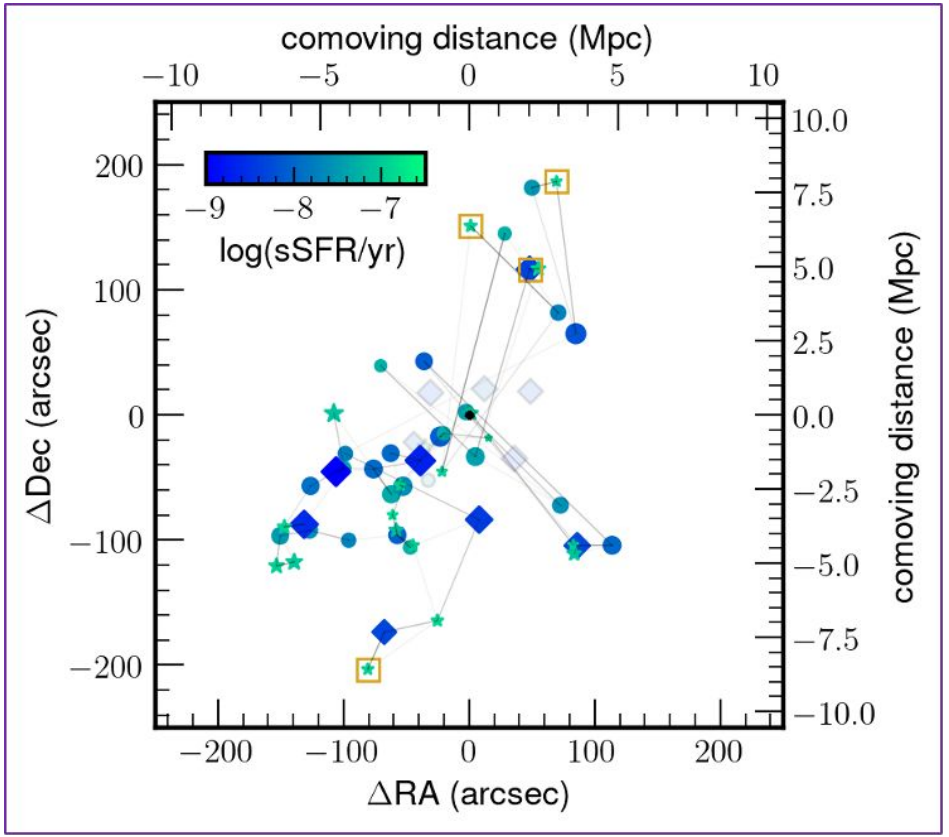
Jackie Champagne

Science Interests: Reionization-era quasars; high-z protoclusters; galaxy evolution

I study how galaxies evolve in the context of dense cosmic environments during the epoch of reionization, specifically by investigating star-formation and ISM properties of protocluster galaxies in the rest-optical and sub-mm.

Champagne+25b shows the rapid inside-out evolution of galaxies in a z=6.6 protocluster near a quasar.





Maria Pudoka

Graduate Student

Research Group: Fan/Cosmos-3D

Office 315

pudoka@arizona.edu

Deleted Twitter

About Me:

Grew up in Ohio and took the OSU -> Steward pipeline to grad school :)

Ask Me About:

- Selection of high-z galaxies
- GALFIT - though it's been a while
- Angular autocorrelation functions
- [OIII] emitter visual inspection and WFSS

(but also crafts/DIY, historical fashion, anime, etc…)

Fun Fact:

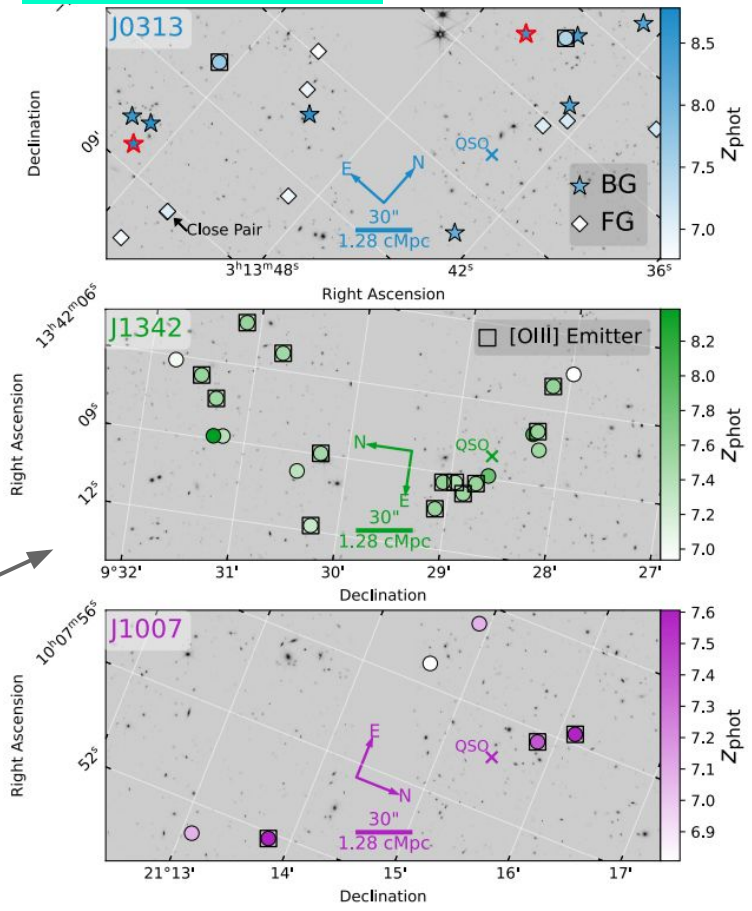
My taste in music might give you whiplash (from kpop to metalcore to pop punk sometimes in one sitting).

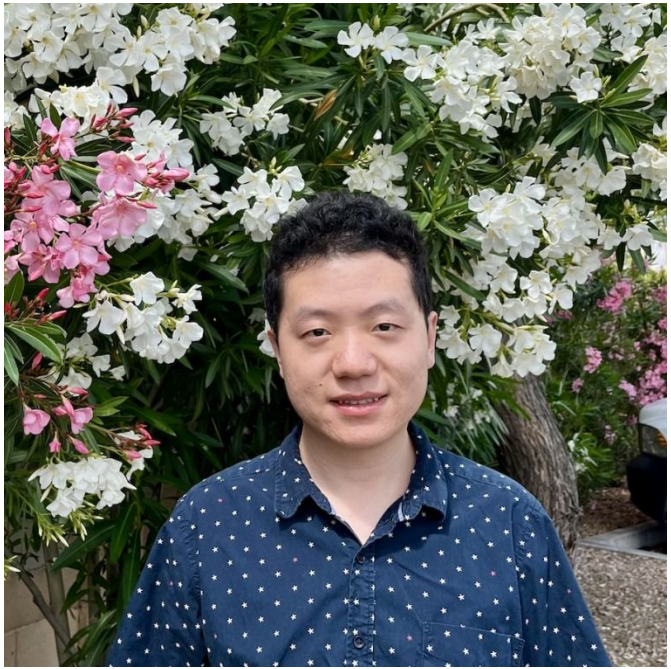
Maria Pudoka

Science Interests:
high-redshift protoclusters, large-scale structure, galaxy evolution

I study the environments around high redshift quasars in the EoR to search for protoclusters and learn more about galaxy formation/evolution in the early universe.

Wow! High-z quasars live in lots of different types of environments!





Yongda Zhu

About Me:

Grew up in Henan, China

2024 PhD in Physics; UC Riverside

Ask Me About:

- Data reduction (NIRSpec)
- Galaxy morphology / SED
- N-body/SPH/RT simulation

Postdoc

Research Group:

Egami/Fan/IR

Office 280

yongdaz@arizona.edu

Fun Fact:

I am the only person in my village who can drive both a tractor and the Keck telescope.

Yongda Zhu

Science Interests:

Reionization / IGM / Quasar / High-z galaxies / Dark matter

I study how gas and galaxies interact across sub-kpc to Mpc scales.

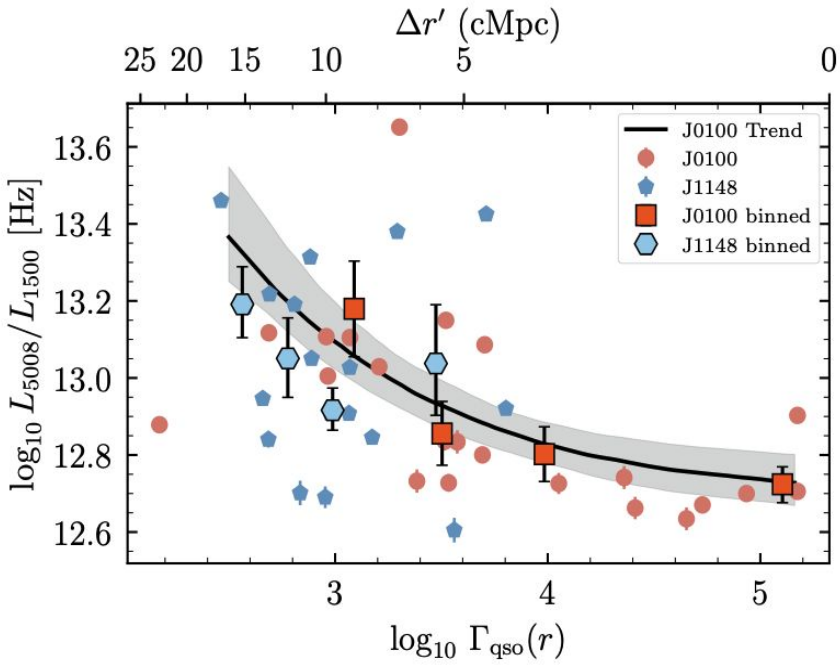


Figure: Strong radiative feedback (on Mpc scales!) from the quasar suppresses nebular emission in nearby galaxies.

arXiv: 2509.00153

Callum Donnan

About Me:

Grew up in Scotland

PhD from University of Edinburgh (2025)

Ask Me About:

- UV luminosity functions at high-z
- Selecting high-z galaxies
- Spectroscopy of high-z galaxies
- Galaxy SED fitting

NOIRLab Postdoc

Research Group: Dickinson/ CAPERS

NOIRLab Office 191

callum.donnan@noirlab.edu

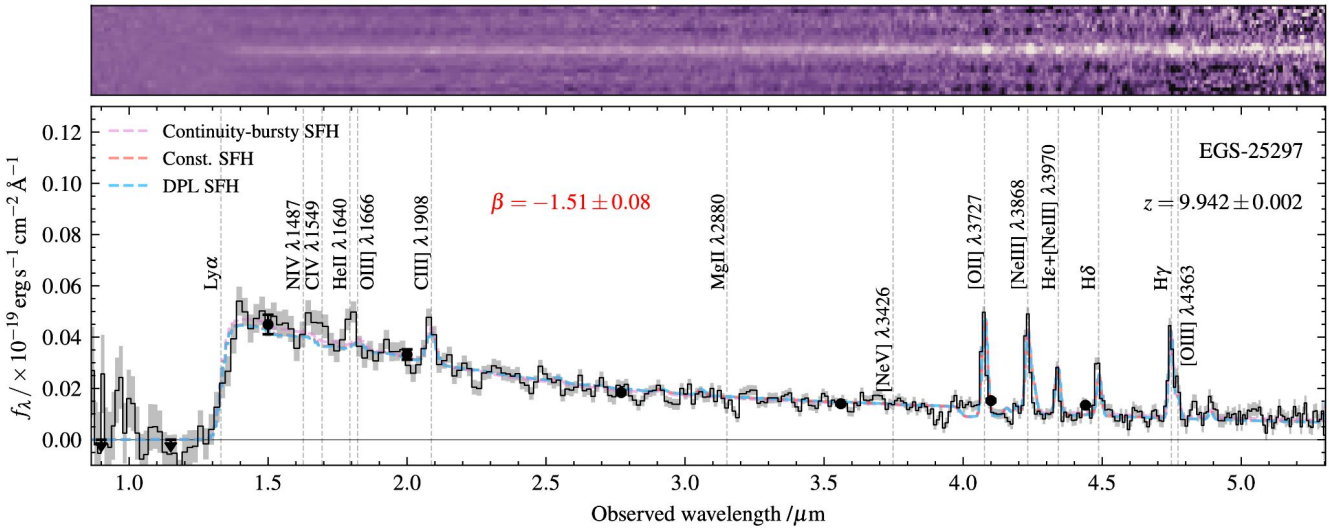
Fun Fact:

I have a twin brother who is also an astronomer (and also studies galaxies).

Callum Donnan

Science Interests:
High-z galaxies, UV luminosity functions, Reionization

I have used JWST NIRCam surveys (PRIMER, CEERS, JADES, NGDEEP) to measure the UV LF at z=8-15 and more recently I'm using NIRSpec to understand the properties of galaxies at z>9 in detail.



Xiaohui Fan

About Me: @Steward since 2002

Ask Me About:

- **Telescopes**
- **Proposals (write and review)**
- **Quasars**
- **Things you want to improve at Steward**

Faculty

Not sure

340

xfan@arizona.edu

Quit social media few years old - but still on Strava

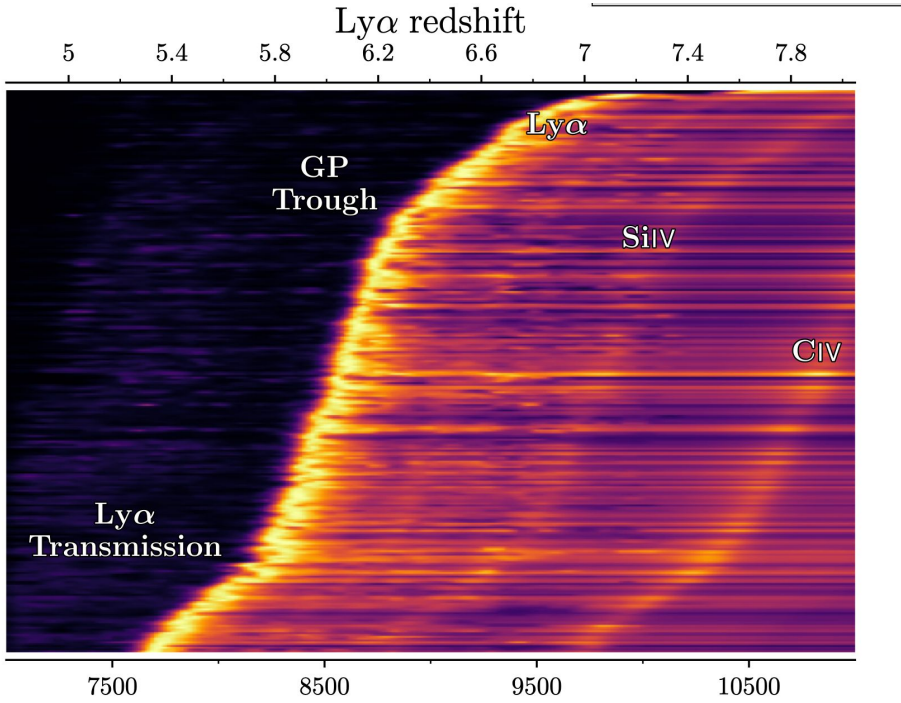
Fun Fact:

Recently, one of my earlier papers was referred to as written “at the turn of the Millennium”.

Xiaohui Fan

Science Interests:
Maybe just the high-z universe in general these days

But I am still looking for that unicorn z=11 one billion solar mass quasar.



Weizhe Liu

About me: Grew up in Sichuan, China
(Hometown for Pandas, too!)
2022 PhD from University of Maryland

Ask Me About:

- Integral field spectroscopy
- Other spectroscopy
- AGN/SF Feedback

Fun Fact:
I planned to be a real doctor but gave up. So I watched lots of TV series on doctors instead.

JASPER Postdoc

Research Group:
Fan/COSMOS-3D

Steward 314
wzliu@arizona.edu

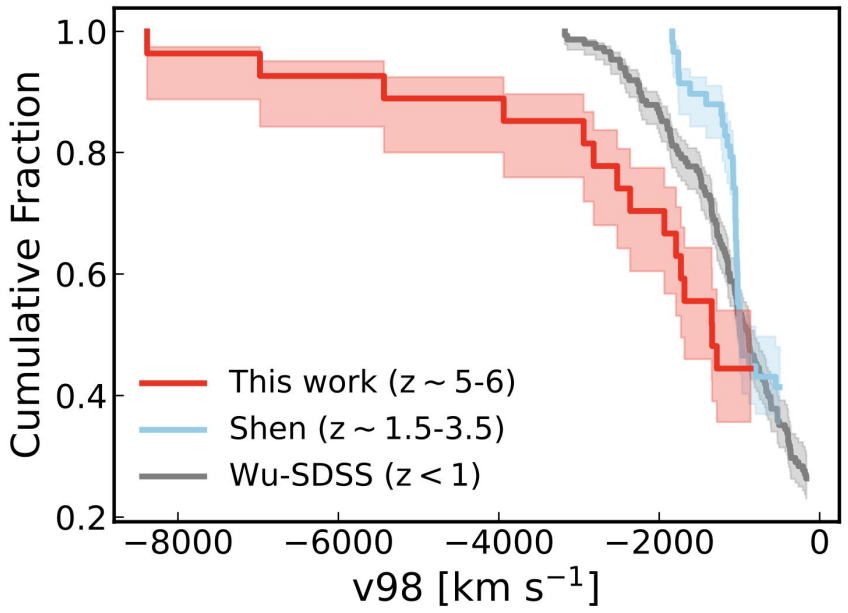
Weizhe Liu

Science Interests:
Quasar/AGN host galaxies and feedback, galaxy evolution, cosmic baryon cycle

I study how supermassive black holes and galaxies interact with each other across cosmic time.

Figure: More frequent extreme galaxy-scale outflows and thus stronger feedback in the first billion year than at later time.

in review, to be on arxiv next week.



Eiichi Egami

About Me:

Originally from Japan, drifted through Hawaii, Munich, Pasadena to Tucson.

Ask Me About:

- **JWST, LBT**
- **NIRCam/Grism WFSS**
- **ISO, Spitzer, Herschel, ALMA**

Faculty

Research Group: EGAMI

Office #274

egami@arizona.edu

Fun Fact:

I shook hands with two Popes (John Paul II and Leo XIV) although I’m not a Christian…

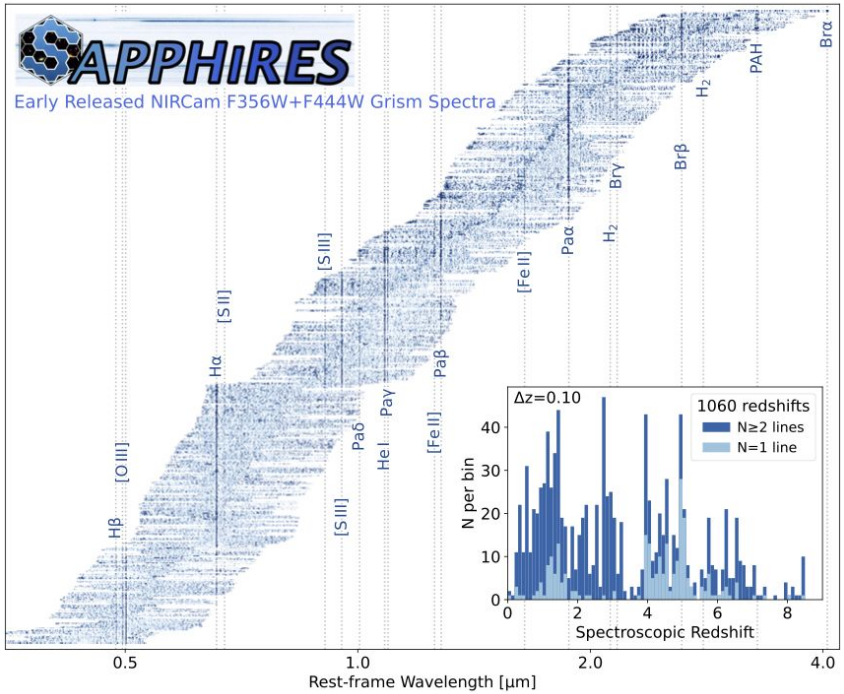
Eiichi Egami

Science Interests:

Study galaxies near and far via multi-wavelength observations with strong emphasis on IR.

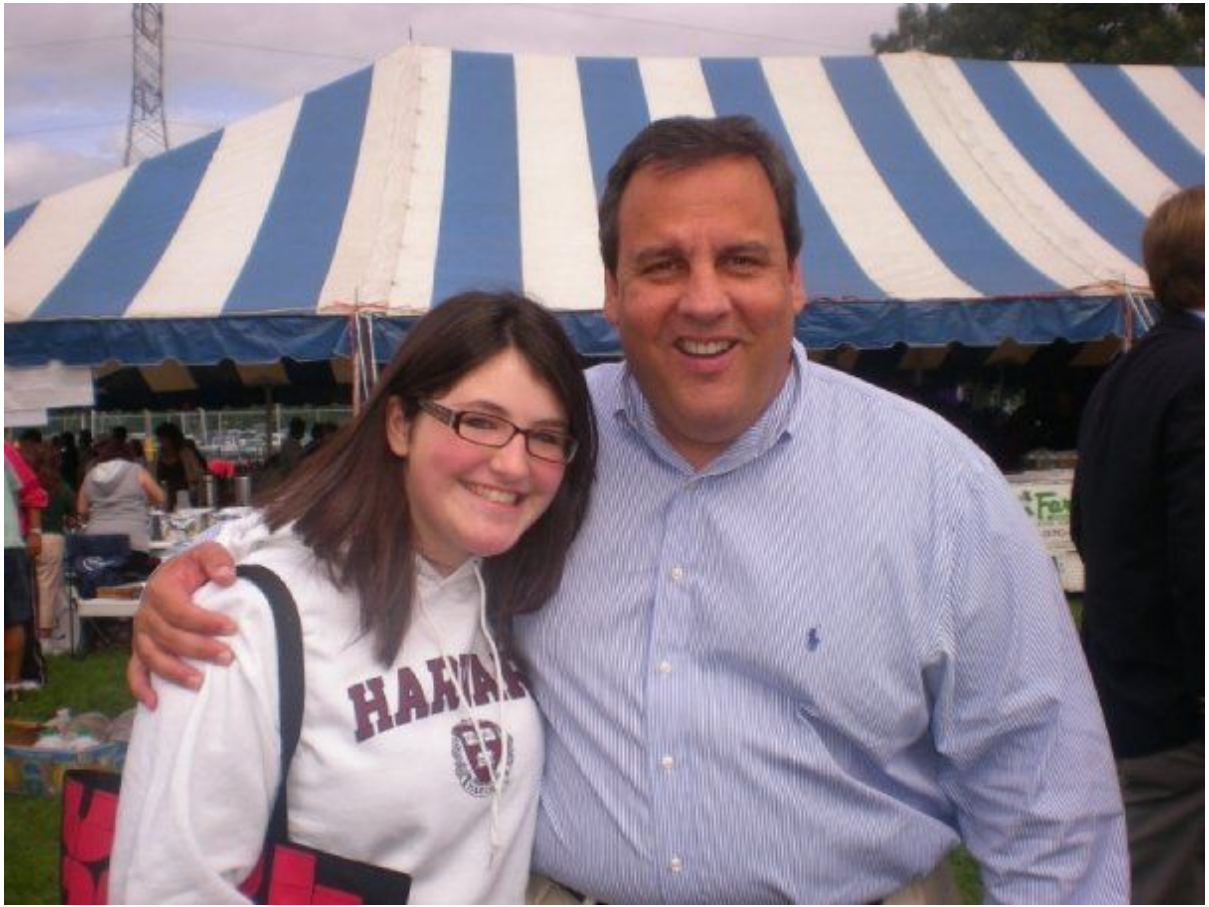
Currently focusing on JWST NIRCam/Grism WFSS programs (CONGRESS, MAGNIF, SAPPHIRES, COSMOS-3D).

Recently started a side business in high-z transients/SNe (JADES Transient Survey).



INTERMISSION

I shook hands with New Jersey governor Chris Christie in 2009, although I’m not a Republican. . .



Shruti Karandikar

Freshman

Research Group: Egami

Office #None

shrutikarandikar@arizona.edu

shruti.karandikar.org

About Me:

Grew up in Bangalore and Pune(home of IUCAA and GMRTS), India.

Freshman lmao

Ask Me About:

Learning how to program

Learning Astronomy

Learning Math

(ask me about how to get started in anything :))

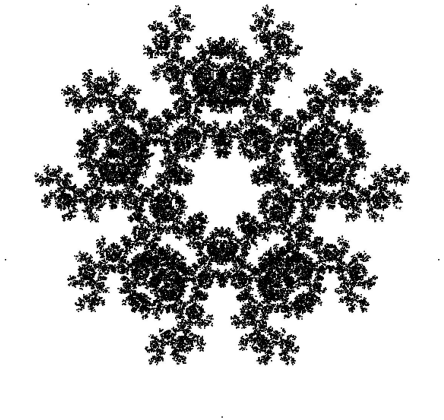
Fun Fact:

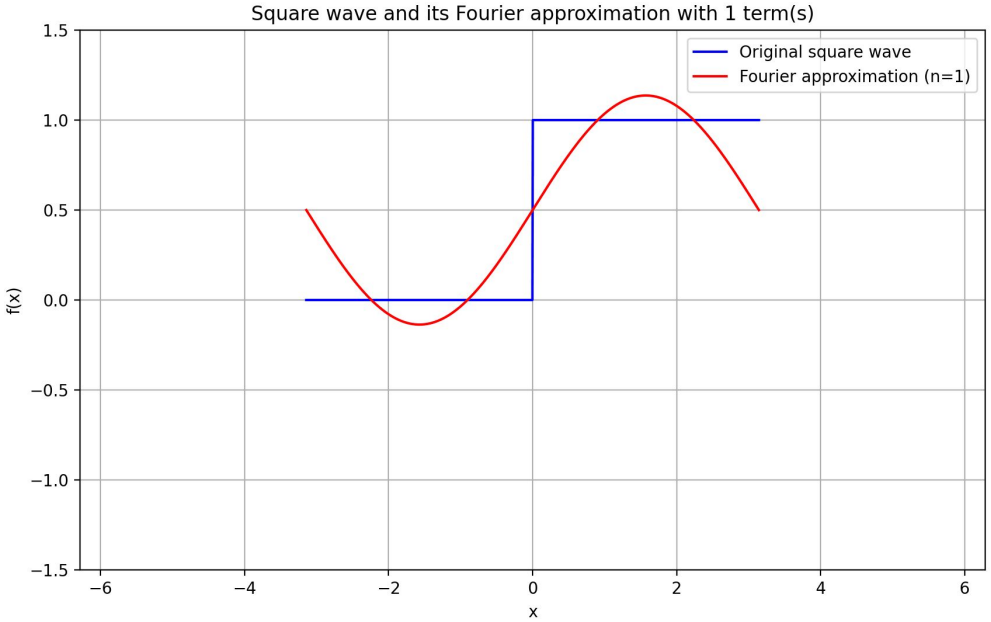
I started an NGO to help underprivileged students get access to technology.

Shruti Karandikar

Science Interests:

TBD





Madi VanWyngarden

Graduate Student

Research Group: Egami Group!

Office 352

madiv@arizona.edu

About Me:

Grew up in Nebraska -> Boston University -> Fulbright at CITA

Ask Me About:

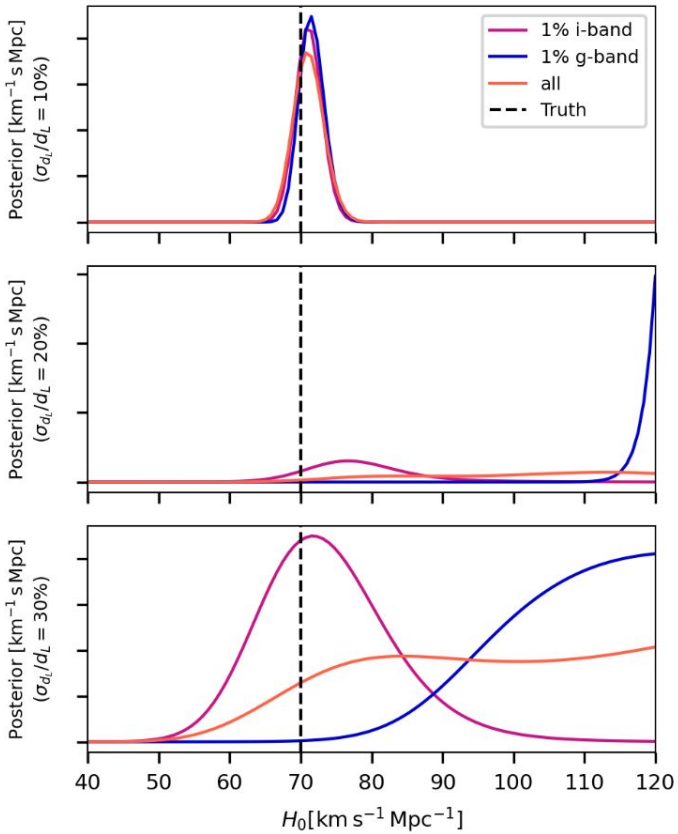
- GW cosmology (my last research project)
- Switching research fields (excited to become an exgal person!)

Fun Fact: During a study abroad program, I took quantum mechanics in French (I don't speak French)

Madi VanWyngarden

Science Interests:

- Over the past few years, I've worked on everything from exoplanet atmospheres to GWs
- I'm broadly interested in using JWST to study high-z galaxies, protoclusters, and the EOR



Not very EURECA sorry! But a figure from my work at CITA testing if we can infer H0 using GW detections and incomplete galaxy catalogs (hopefully on arxiv soon)

Mathieu Renzo

Assistant prof.

Research Group:

BIN
B M

Office #N506

mrenzo@arizona.edu

Not on social media

About Me:

Pisa -> Amsterdam -> NY -> Tucson

I like explosions that are big and far away and understanding how they work

Ask Me About:

Stars, binaries, supernovae, nucleosynthesis, gravitational waves, any other transient

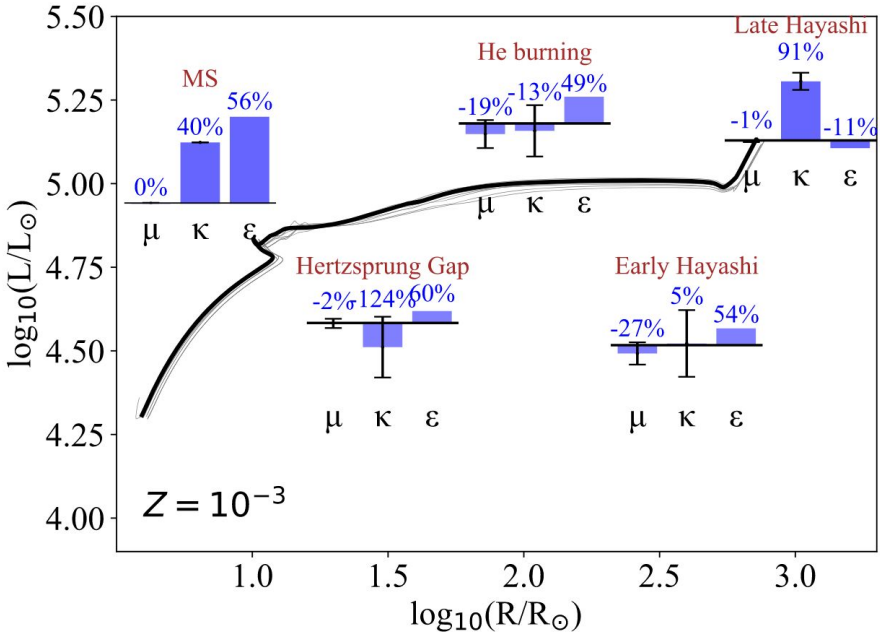
Fun Fact:

Last week I adopted a desert tortoise

High z/low Z

Interested in **Pop III stars in interacting binaries**
Here for science motivations!

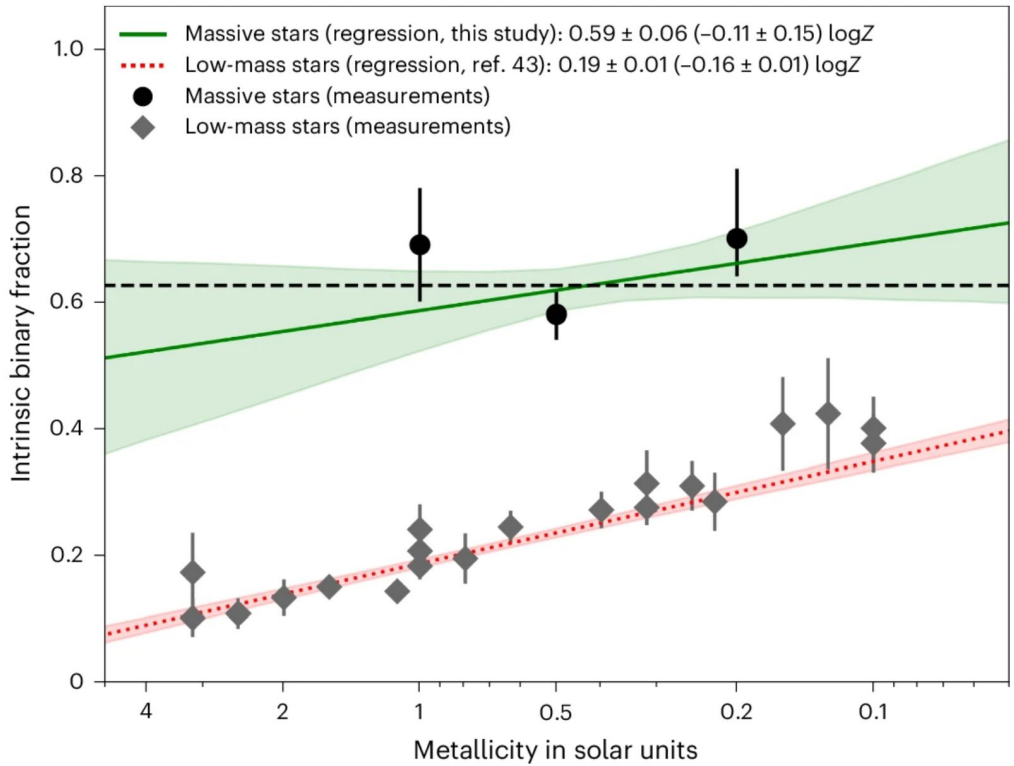
Stellar R depend on Z



Xin, Renzo, Metzger 2022

Binary fraction ~flat with Z

(as far as we can test it, SMC…)



(BLOeM collaboration) Sana et al. 2025

Minghao Yue

About Me:

Got my PhD here then moved to MIT.
I am so excited to be back!

Ask Me About:

Supermassive black holes
Strong gravitational lensing
Galaxy evolution
Multi-wavelength observations

Fun Fact:

During one observing run at Mauna Kea I saw the volcano erupted at Big Island

Bok Fellow

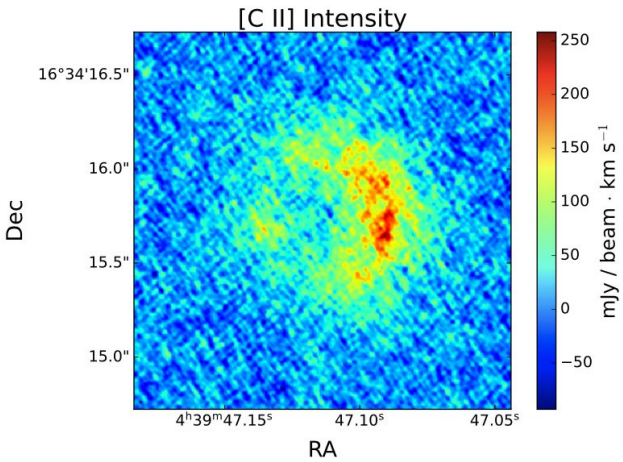
Research Group: Fan/others

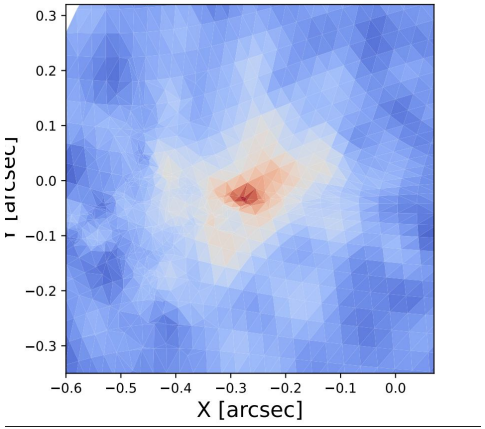
Office #330
yuemh@arizona.edu

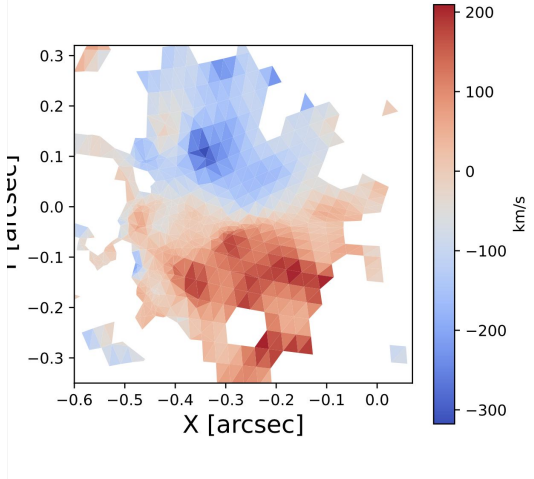
Minghao Yue

Science Interests:
SMBHs & Strong lensing (plus IGM, reionization, cosmology, galaxy evolution, etc.)

Try to find distant, lensing-magnified SMBHs and learn their origins and properties.







Kevin Hainline

About Me: Spent most of my life in states with good tacos, had a postdoc in a state with bad tacos

Ask Me About:

- Photometric redshifts/high-z galaxy selection/EAZY
- AGN infrared selection and ionization properties
- Sifting through your large dataset and differentiating galaxies and brown dwarfs

Fun Fact:

Associate Research Professor

NIRCam Science Team? JADES?

Office #256

kevinhainline@arizona.edu

Kevin Hainline

Science Interests:

I study the selection and properties of galaxies at z > 10 with JADES. I also am interested in AGN selection and their ability to ionize kpc-scale regions across out outside of their host galaxies. Finally, in the last few years I've become obsessed with ultra-cool brown dwarfs at the edge of the Milky Way but I'm being told this "isn't appropriate for an extragalactic research discussion" so ask me about this later.