

BCCP group introductions

Fall 2026

Gerrit Farren

Chamberlain Fellow @ LBL



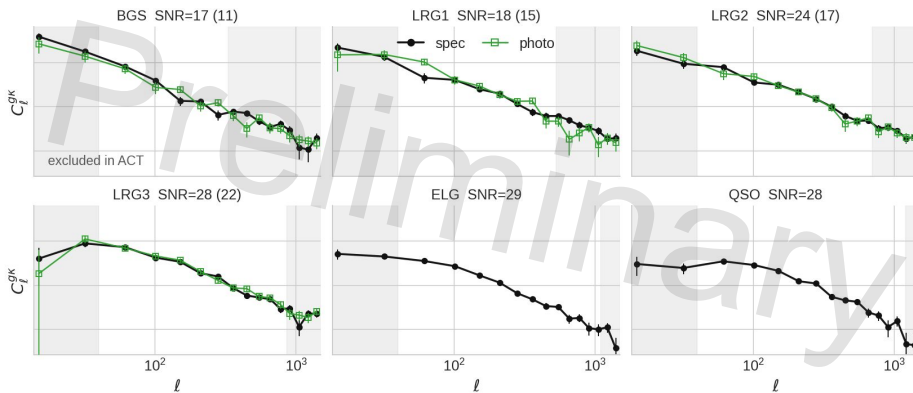
BERKELEY LAB

gfarren@lbl.gov

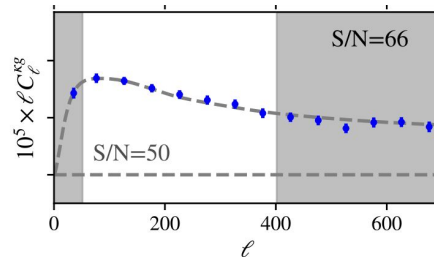


Scientific interests: CMB lensing x galaxies
(systematics/robustness, modelling, 3+pt functions),
multi-tracer baryons ($kSZ+tSZ+CMB$ lensing+x-ray)

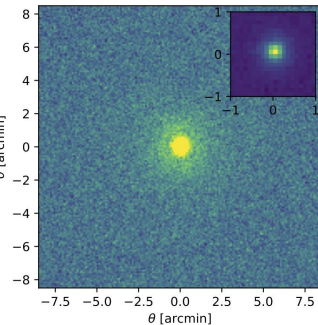
DESI DR2 x lensing



unWISE x lensing



eROSITA x
DESI LRGs



Science Adjacent:

I am developing an AI tool
to stay on top of the arXiv,
clarxivr.org



I'm in ...



DARK ENERGY
SPECTROSCOPIC
INSTRUMENT

U.S. Department of Energy Office of Science



ANSHUMAN ACHARYA

BCCP Postdoctoral Fellow

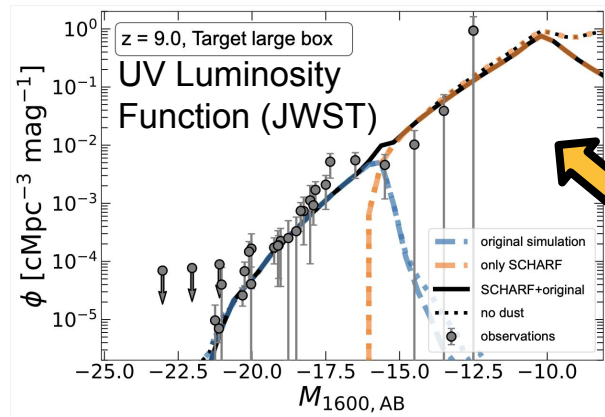
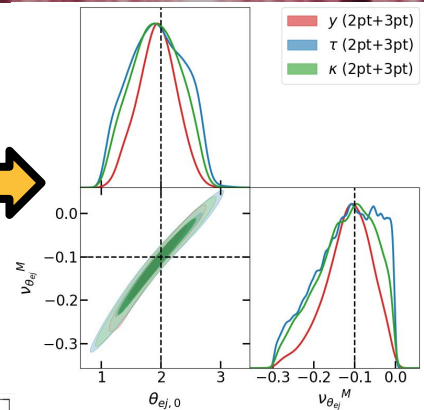


ML x Cosmological Simulations:

- **Simulation Based Inference for higher order statistics:** galaxy surveys x kSZ/tSZ maps.
- **Super-resolution of cosmological simulations:** specifically for Epoch of Reionization observables like 21-cm power spectrum/tomography, Line Intensity Mapping, galaxy surveys, and more!

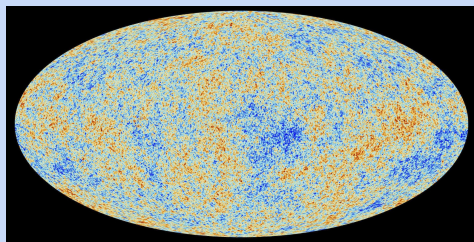


Baryon pasting code
GODMAX
+
LtU-ILI (Implicit Likelihood Inference)



SCHARF (Statistical Cosmic Halo Augmentation using Random Forests) + Polar

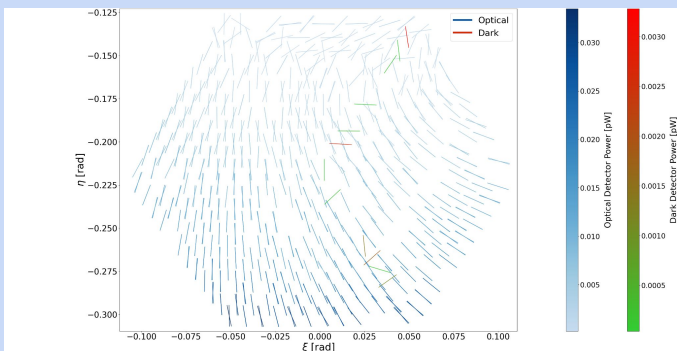
Elizabeth (Lela) Spira-Savett



What I'm working on now:

- **Detector properties**

Detector Pol Angle Map 90 GHz $\frac{1}{2} \arctan(\langle Q \rangle / \langle U \rangle)$, Optical Dets in Common Telescope Frame (Rotated by Gamma)

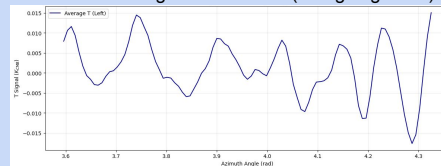


Dark detector polarization, including anomalous polarization efficiency of dark detectors in the SO SATs

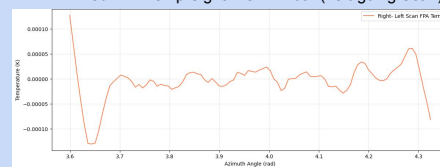
*all graphs preliminary

- **Azimuth Synchronous Signal (AzSS)**

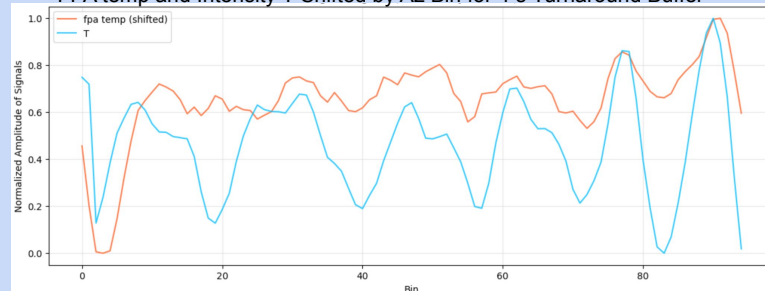
Binned T Signal vs Azimuth (Left-going Scan)



Binned FPA Temp Signal vs Azimuth (Left-going Scan)



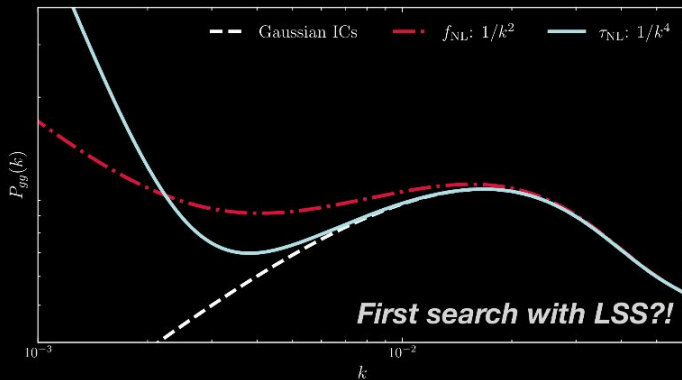
FPA temp and Intensity T Shifted by Az Bin for 4 s Turnaround Buffer



Identifying and modeling azimuth synchronous signal, as it relates to turnaround times, focal plane heating, etc.

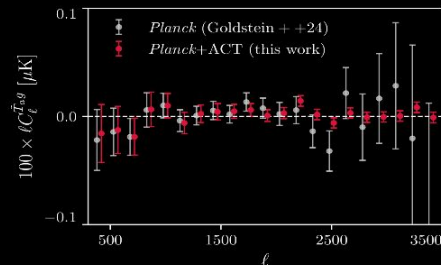


5th (& final) year PhD student
@ Columbia (w. Colin Hill)
Visiting LBL until mid-October

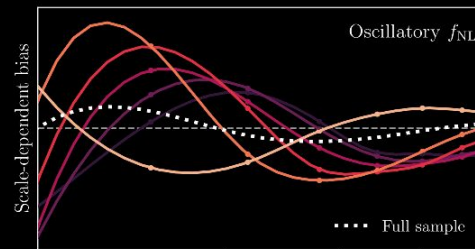


τ_{NL} with DESI (w. Simone + Edmond + Noah)

Component separation for SO



CMB secondaries with ACT



Non-standard PNG (probes+models)

...+job applications

Anthony Kremin

Project Scientist at LBNL

Always happy to chat: akremin@lbl.gov

Research Interests

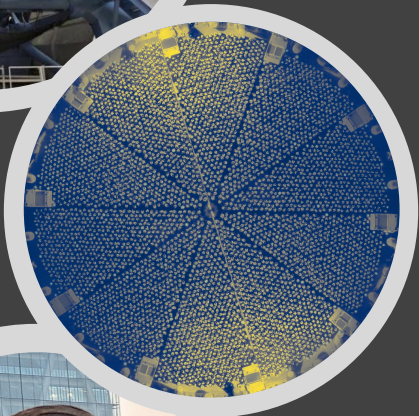
- LLMs for Science
- Software Development for Astronomy & Surveys
- Machine Learning

Key Roles

- DESI Spectroscopic Pipeline Operations Lead
- Developer of desi-skills, an LLM skills package for DESI analysis. Ask for beta access!
- LBL/UCB DESI Lunch Organizer

Other Interests

- Public Outreach
- Hiking, watching football, going to concerts



Cara Giovanetti

Reach me at
cgiovanetti@lbl.gov!

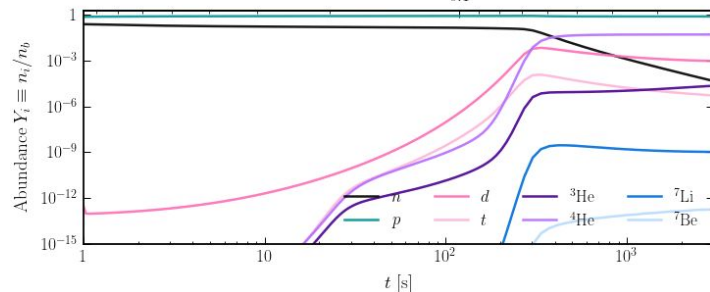


- I'm a BCTP post doc with research overlap with BCCP
- I'm interested in computational tools for cosmology. I wrote a fast and differentiable BBN code called LINX and a fast and differentiable CMB code called ABCMB, both with JAX
- Recent interest in nonparametric modeling for BBN

Ask me about writing code in 

Fast calculation of primordial element abundances with LINX:

Baryon-to-Photon Ratio $\eta = 6.14\text{E-}11$
Plasma Temperature T_γ [MeV]
0.1



<https://github.com/cgiovanetti>



Zarija Lukić, staff scientist & C3 lead

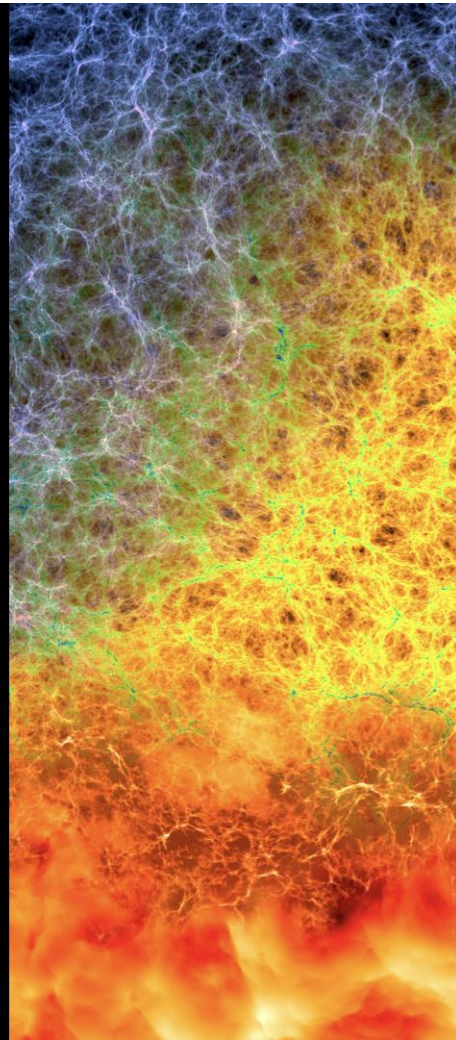
Computational Cosmology Center (C3)
Building 50B, 4th floor, office 4218B
zarija@lbl.gov

Research interests

- All aspects of **cosmological simulations**: physical models, applied math algorithms, deployment on HPC platforms (<https://amrex-astro.github.io/Nyx/>)
- **Parameter inference** from simulations and data: constraining parameters using minimal number of simulations, emulation, simulation-based inference
- **ML/AI for cosmology**: generative modeling augmenting and/or surrogating simulations, foundation models for simulations and data

Projects

- Genesis (Agentic orchestration, AI evaluation)
- SciDAC (Nyx code)
- LDRD (Foundation models)





Julien Guy
Staff scientist LBL
jguy@lbl.gov

DESI Spectroscopy:

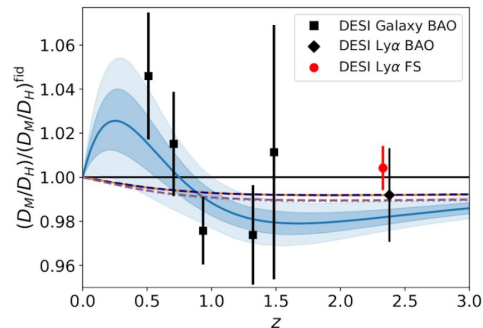
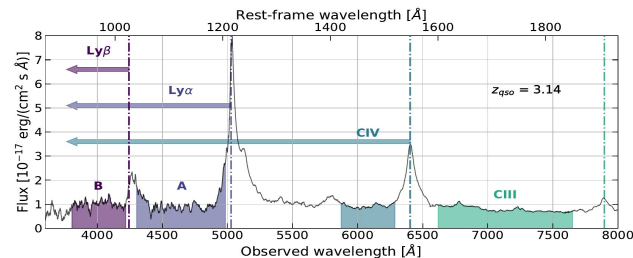
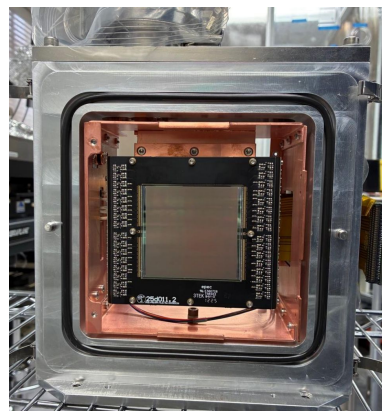
- CCD readout, calibration, validation
- Spectrograph focus, calibration
- (Pipeline algorithms)

DESI run 2

- Science : high-z survey
- Instrumentation : Low readnoise “MAS” CCDs

DESI Lyman-alpha analysis:

- Full-shape AP
- Multiple redshift bins
- EFT, P3D





Nicolò Raffuzzi

Postdoc at Berkeley Lab

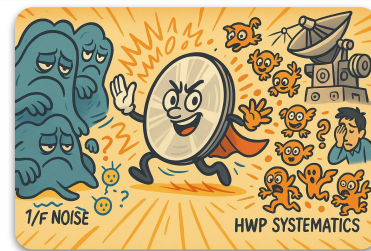
nraffuzzi@lbl.gov

Mitigation of systematics

Focus areas:

- (not only) **HWP systematics**
- (HWP harmonics) **Map-making & component separation**

Member of **SO collaboration** and **LiteBIRD**



Credits to OpenAI



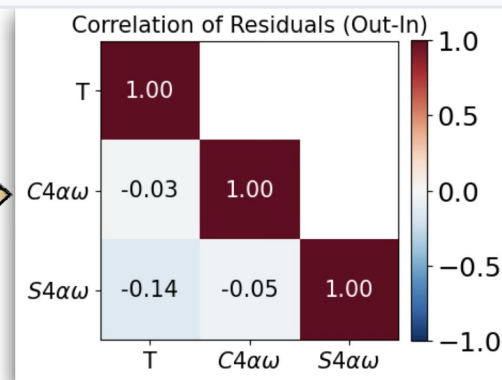
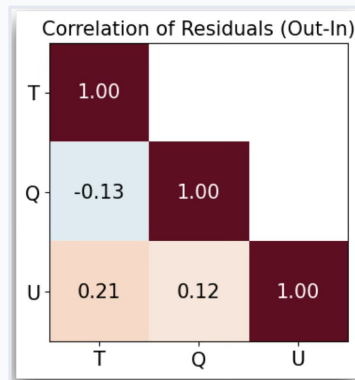
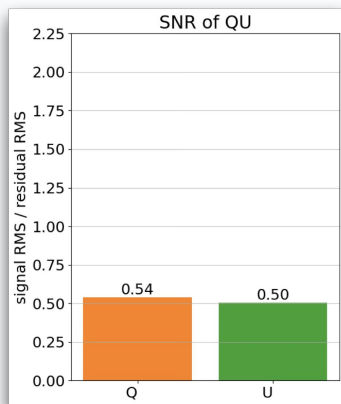
Standard map-making:

- Assume an instrument (ideal HWP)
- Output: 3 maps (TQU)



Harmonic map-making:

- No knowledge of the instrument
- Output: 9 maps (harmonic maps)





R. Henry Liu 刘瑞涵

Final- year PhD Candidate
working with Simone
Ferraro & Uros Seljak

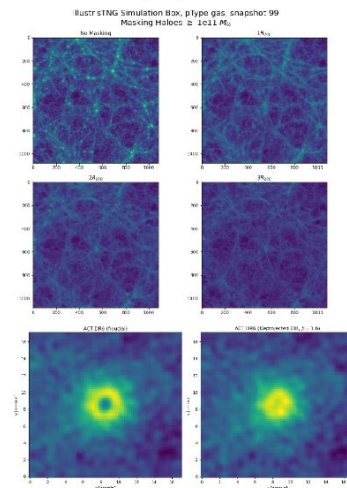
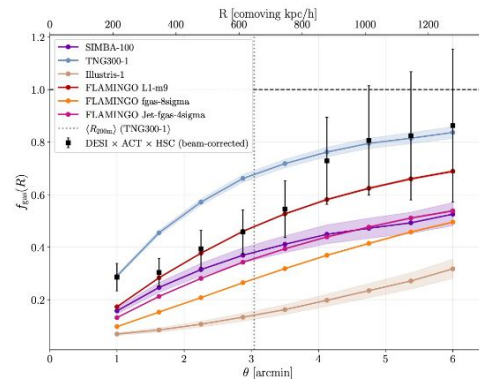
rh_liu@berkeley.edu

Current Work:

- Model-Independent measurements of baryon feedback with lensing and kinematic Sunyaev-Zel'dovich effects.
- Interpretation of Baryon Feedback in cosmological simulations
- Constraining cosmology from Baryon Feedback measurements

Interests and past work:

- Baryon Feedback
- Sunyaev-Zel'dovich Effects
- Weak Lensing
- tSZ effect measurements using ACTxDES
- Simulation Reconstructions in Cosmology
- ML applications in cosmology
- Emulators in cosmology
- Bayesian Statistics/Astro-statistics
- Teaching: Bayesian Statistics and ML in Physics



Other hobbies:

- Hiking/skiing
- Running
- Photography

Ethan Steelberg

esteeberg@berkeley.edu

1st Year PhD, Physics, Berkeley



Physics (Astrophysics) B.S. @ UC Santa Cruz

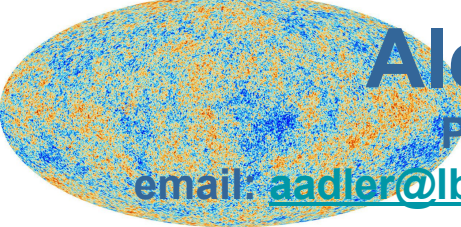
- Cluster Cosmology with Tesla Jeltema
 - Optical selection validation with X-Ray and tSZ (redMaPPer, WaZP)
 - AGN Feedback in cluster gas densities
 - LSST/DES/eROSITA

Research Interests:

- Cosmology Theory+Data
- Large Scale Structure
- Early Universe and Inflation
- Dark Energy/PNG with DESI

Non-Physics Interests:

- Scientific Outreach, Photography, Analog Music, Sci-fi



Alexandre Adler

Postdoc at UC Berkeley

email: aadler@lbl.gov office: 50B-4206 at Berkeley Lab

I work on simulations and data analysis for CMB experiments with Adrian Lee and Ted Kisner.

Most of my work revolves around the **Simons Observatory**: Simulating beam effects and the atmosphere for the Large Aperture Telescope (LAT) and exploring the data reduction for the Small Aperture Telescopes (SATs).

I also work on a balloon experiment called **Taurus**, which should measure the optical depth to reionization from the CMB **E-modes** on the largest angular scales ($l \leq 10$).

Please come find me once I'm back (09/16) if you want/plan to work on similar topics!

The SO Site, Cerro Toco, Chile



Credit: Niklas Tampier



The
Taurus
Payload

Credit: Jared May (Princeton)



Simone Ferraro

Senior Scientist at LBNL

sferraro@lbl.gov

Research: cosmology (theory and analysis)

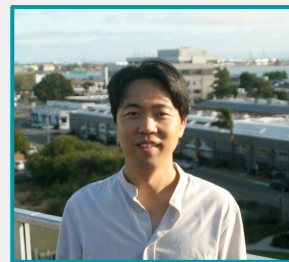
- CMB: secondary anisotropies (kSZ, tSZ, ...) and lensing
- Inflation: primordial gravitational waves, non-Gaussianity
- Reionization: imprint of the first stars and galaxies
- Galaxy formation and evolution
- Galaxy surveys: DESI, LSST
- Statistics and Machine Learning

Interested in a research project? Visit my webpage at sferraro.lbl.gov

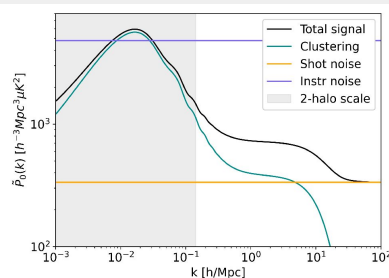
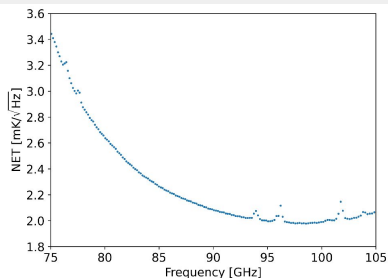
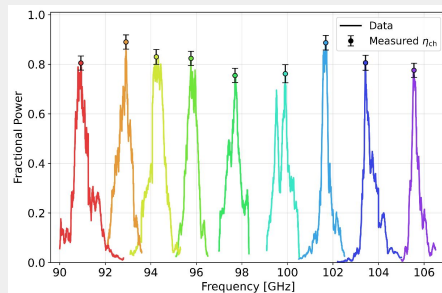
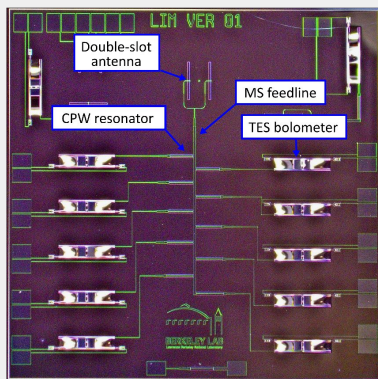
Research Assistant Professor, Senior Scientist @ LBNL

Oliver Jeong (objeong@lbl.gov)

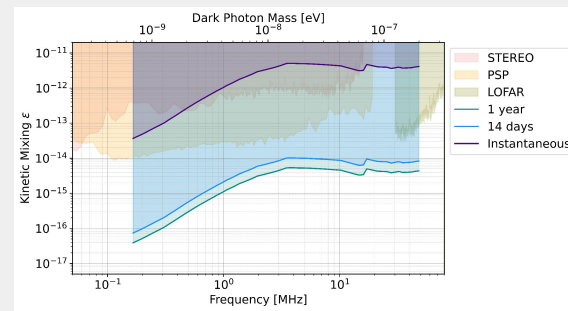
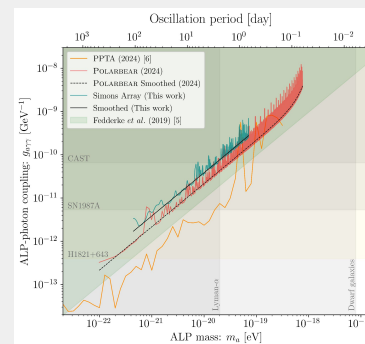
Postdoc @ CPB + LBNL



LIM Instrumentation + Modeling



Ultralight Dark Matter





Gabriel Lynch

PhD candidate @ Davis
working w/ Lloyd Knox

SPT-3G member

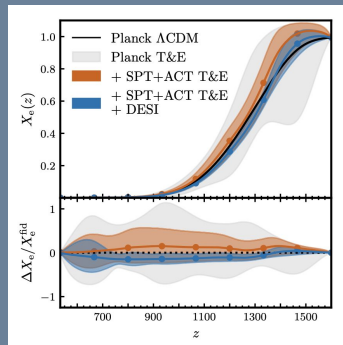
github.com/gplynch619

Get in touch!
gplynch@ucdavis.edu

UC DAVIS
UNIVERSITY OF CALIFORNIA

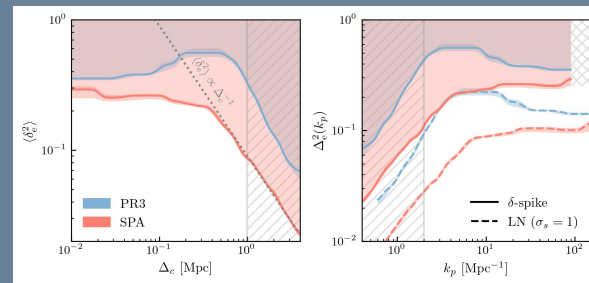
H_0 tension & modified recombination

- Freeform $X_e(z)$ reconstructions using emulators



Small-scale electron fluctuations in the early universe

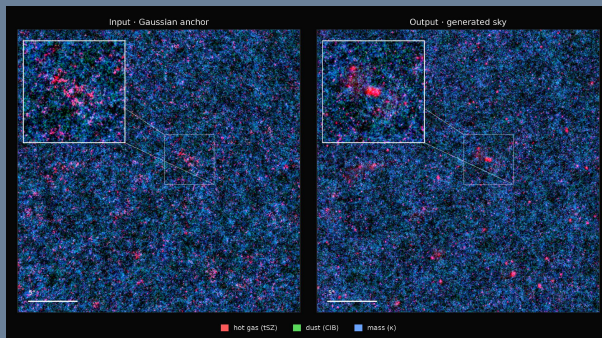
- Stochastic formalism to constrain $\Delta_e^2(k)$ at recombination



Generative modeling of extragalactic foregrounds

- Flow-based generation of multi-channel maps over large areas for CMB lensing and x-correlations

(work in progress!)



And more!

- Neutrino masses post-DESI
- CMB-BAO consistency
- Cycling the East Bay



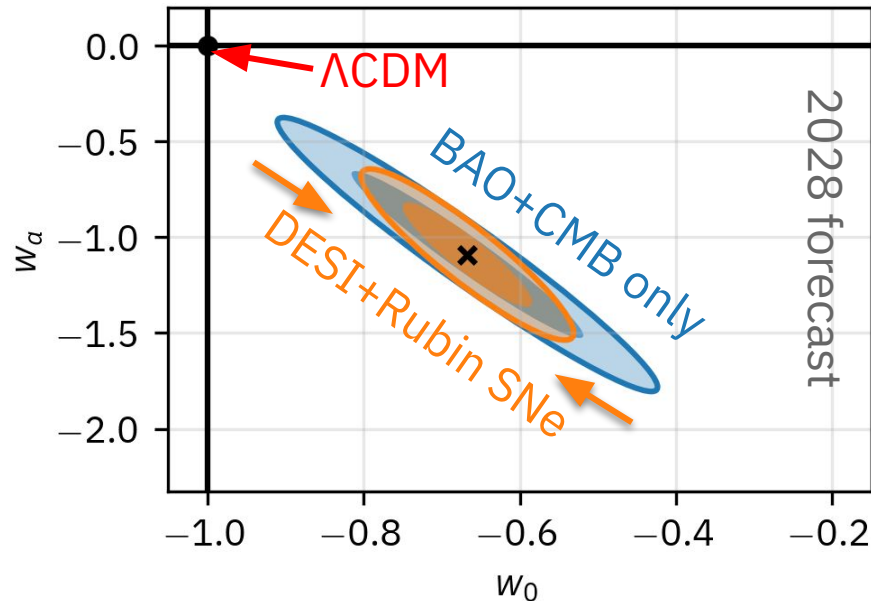
Jannik Truong | Dark Energy with Type Ia Supernovae

3rd year PhD candidate w/ Saul Perlmutter | jannik@berkeley.edu



Research interests:

- Get new SNe at $0.1 < z < 0.3$ critical for dynamical dark energy (+BAO+CMB)
- DESI-Rubin synergies/survey coord
- SN distances from DESI spectra with ML, further lowering systematics
- UNITY: Bayesian hierarchical model for SN Ia cosmology



SNe shorten BAO+CMB error ellipse

Fun fact: I'm also a classical pianist with 11 years of conservatory training!

Fast cosmological inference & dark energy

Tianzhuo Xiao (Tian) • Uroš Seljak group

Two complementary routes to faster inference

Emulator + LAPS

differentiable / gradient-based

CAMB + PocoMC

gradient-free / full Boltzmann

Fast — posterior
accuracy still being
validated!

Cosmological Inference

On the physics side

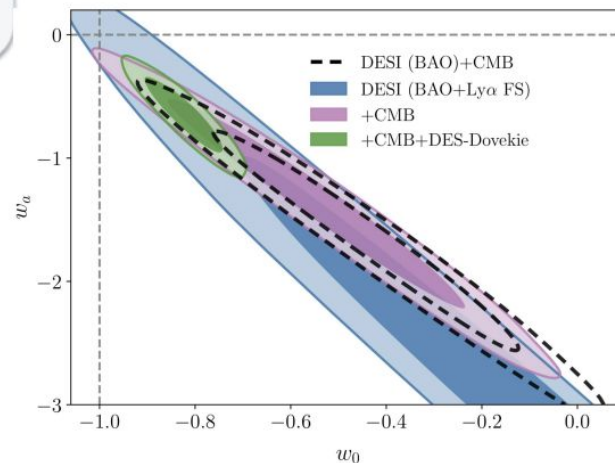
DESI DR2 + supernovae



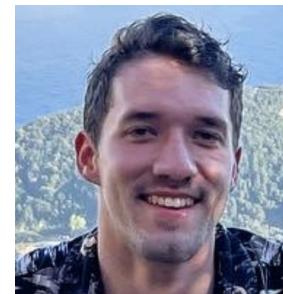
Physically motivated
models/EFTs



Axion, Interacting Dark
Energy...



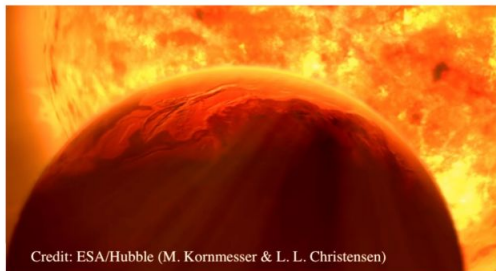
Taylor Hoyt



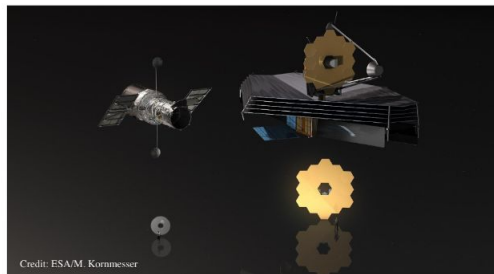
Started as an LBL postdoc, now at the university as an assistant researcher.

My research focuses primarily on identifying and correcting unseen systematics in observational cosmology, in particular in the measurement of extragalactic distances used to estimate the universe's expansion rate today (the Hubble constant, H_0) and throughout cosmic history, $H(z)$.

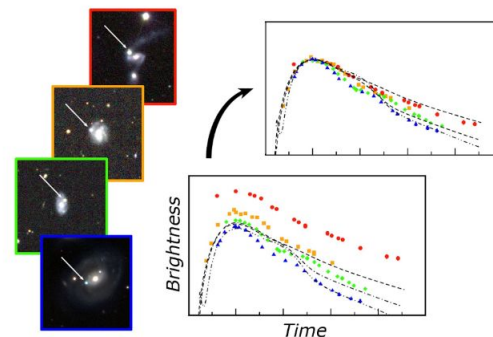
My primary research interests (visit my website thoyt.lbl.gov to see more):



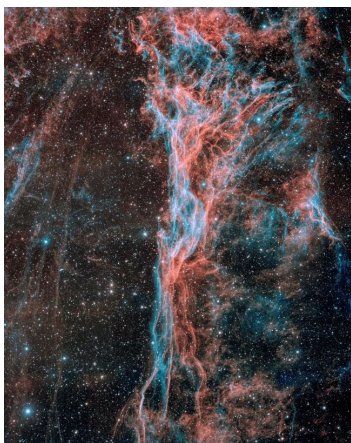
[The Tip of the Red Giant Branch](#)



Observations with Space Telescopes



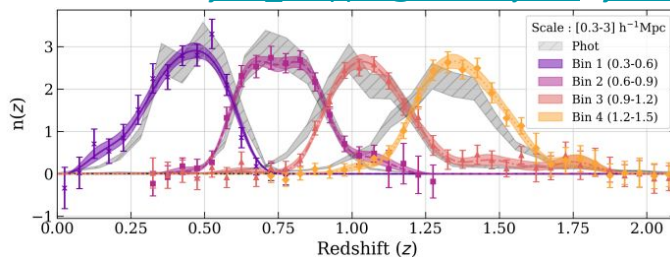
Type Ia Supernovae



Jean Choppin de Janvry

1st year Physics PhD w/ Pr. U. Seljak

jean_choppin@berkeley.edu / jeanchdidev.github.io



CMB Measurements

Planck × ACT × SPT (CMBL)

Planck × ACT × DESI DR2 (PS)

Weak Lensing Measurements

HSC-Y3 Cosmic Shear Real

HSC-Y3 Cosmic Shear PS

KIDS-Legacy Cosmic Shear

KIDS Legacy × DES Y3

DES-Y6 Cosmic Shear (NLA)*

DES-Y6 Cosmic Shear (TATT)*

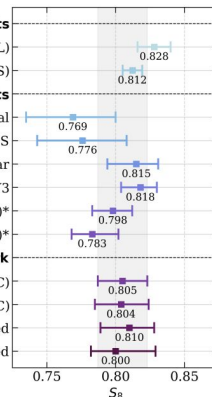
This Work

[0.3-3]h⁻¹Mpc (pocoMC)

[1-5]h⁻¹Mpc (pocoMC)

Real space, reweighted

Power Spectrum, reweighted

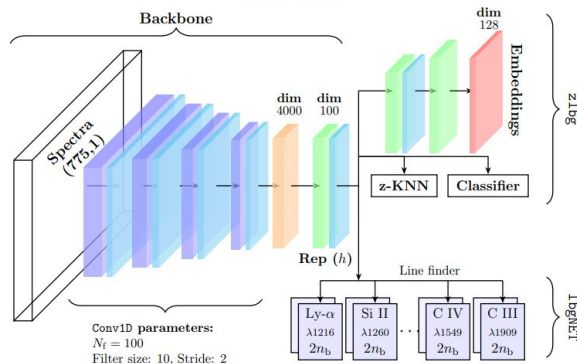
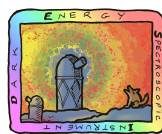


Engineer CentraleSupélec

Prev. exp: NASA JPL, LBNL, CEA Saclay



Collaborations: DESI, LSST, SPHEREx



Current and past research topics:

- weak lensing, SBI, clustering redshifts, sample selection and photo-z's, DESI Run 2 forecasts, dimension reduction, statistics & machine learning

Hobbies: developing games, building rockets and craftwork, photography, listening to music and cooking !

[Support our game studio @overthought-games!](https://overthought-games.com)

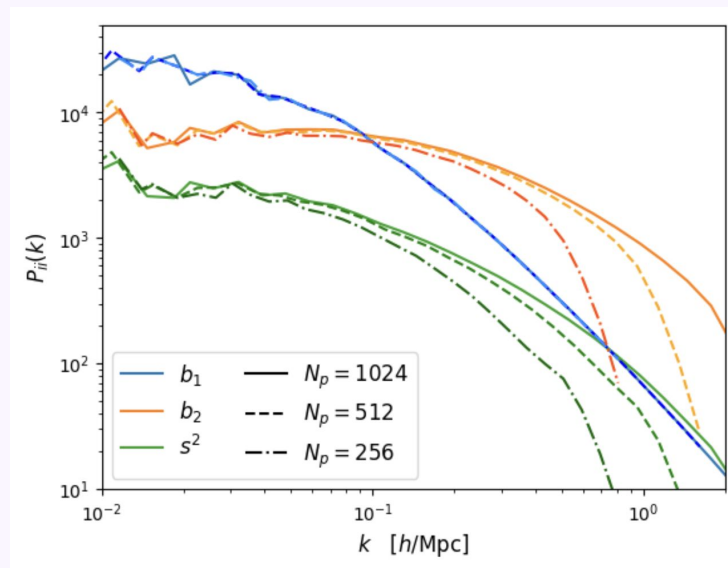
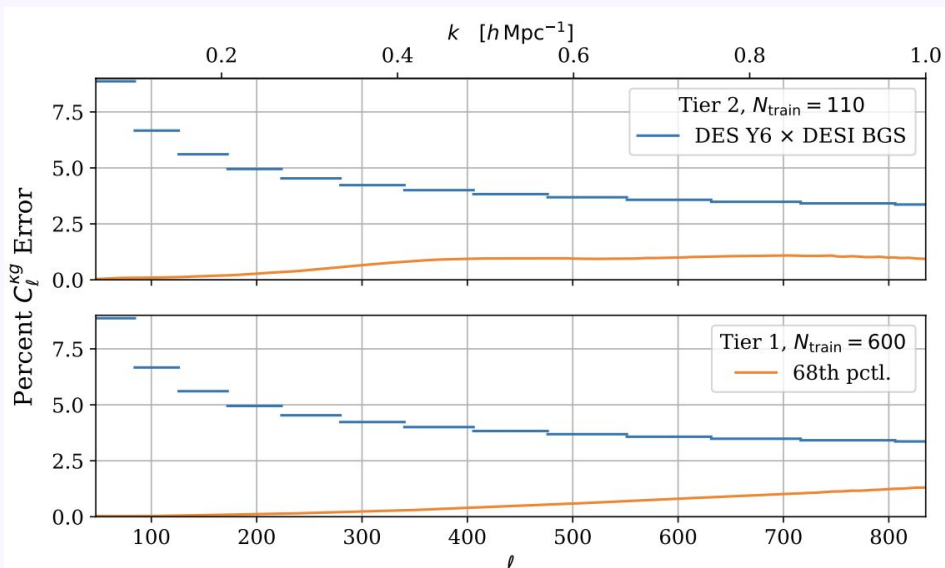
Alexa Bartlett

4th Year
PhD Student

alexa_bartlett@berkeley.edu



- ◆ **Advisor:** Martin White
- ◆ **Research Interests:** Large-scale structure, hybrid EFT, shear cross-correlations
- ◆ **Past:** HEFT emulator, simulation/error budgeting for w0wa
- ◆ **Currently:** Fast PM simulations for HEFT, DESI Shear x RSD





Erik Zaborowski

New BCCP fellow

ezaborowski@berkeley.edu

• Interests:

- Large-scale structure / DESI
- CMB (X galaxies)
- Hubble tension / sound horizon-independent H_0 measurements
- Starting to think about PNG!

- **Previously:** Data science → grad school @ Ohio State U (with Klaus Honscheid + Peter Taylor)

- Visited last fall @ LBL: DESI photometric ELGs X CMB lensing

Prev. work: DESI clustering (FS; r_d -free)+BBN + $\Omega_m^{Ly\alpha AP}$

This work: DESI clustering (FS+BAO; r_d -free)+ θ_s +BBN + $\Omega_m^{Ly\alpha AP}$ ("base")

base + ACTPlanck Lensing + $\Omega_m^{DES Y5 SN}$

base + ACTPlanck Lensing × unWISE 2D clustering

base + DES 6×2pt

DESI 2024 VII: FM + BBN

DESI 2024 VII: FM + BBN + BAO

DESI 2024 VI: BAO + BBN

(DESI 2024 + SDSS): BAO + BBN

SDSS: BAO + BBN

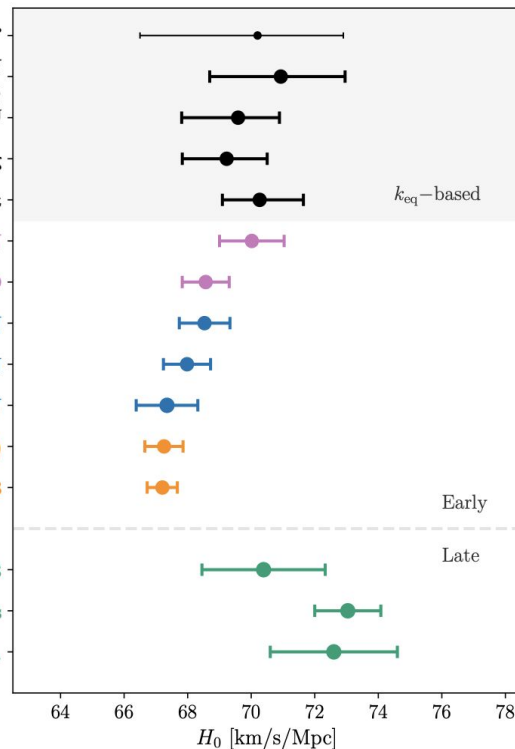
CMB (no CMB lensing)

CMB

CCHP (HST+JWST): SNIa + TRGB

SH0ES (HST): SNIa + Cepheids

SH0ES+CCHP (JWST): SNIa + TRGB + JAGB + Ceph.

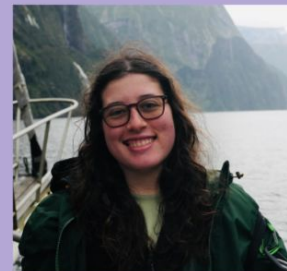


Black: 2% r_s -free H_0 constraint in DESI DR1
(Most precise to date) [[2510.19149](#)]

Lia Lubit

lia.lubit@berkeley.edu, github.com/lia-lubit/DESIxSO

2nd year PhD student

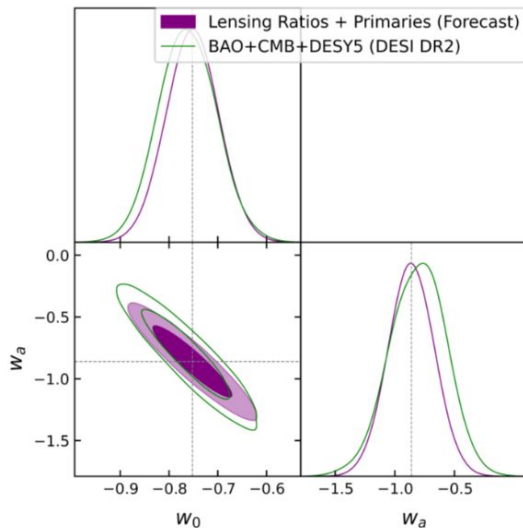


Past Research

- dark matter pheno
- accretion disk astrophysics
- satellite thermodynamics

Current Research

- (w/Anton, Simone, and Adrian)
- DESIxSO forecasts
 - constraining time-varying dark energy using lensing ratios

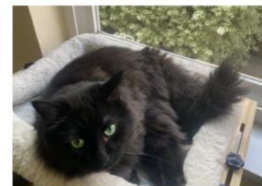


General Scientific Interests

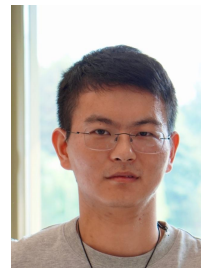
- inflation, dark energy
- instrumentation, analysis, simulations
- outreach

Non-Scientific Interests

- camping + backpacking
- finding ways to justify the cost of skydiving
- my roommate's cat

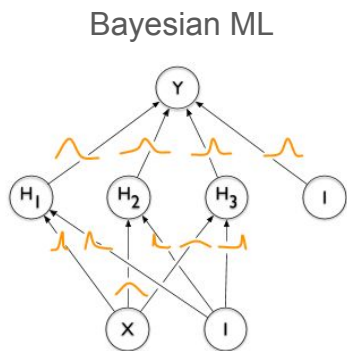


Kangning Diao Postdoc w/ Uroš

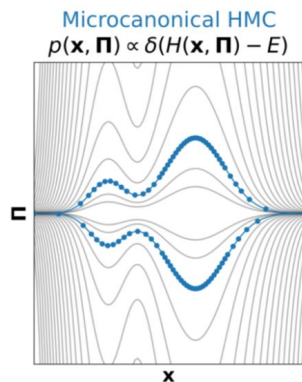


Have a background of Machine learning / Epoch of Reionization

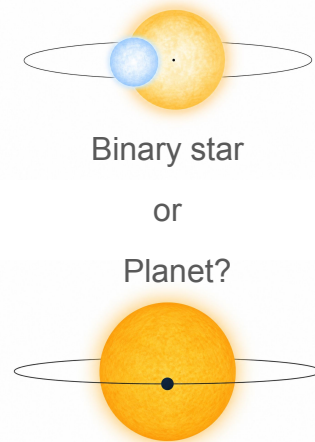
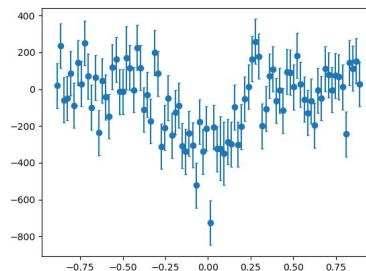
Currently focus on uncertainty quantification with ML and exoplanet identification



+



Transit signal

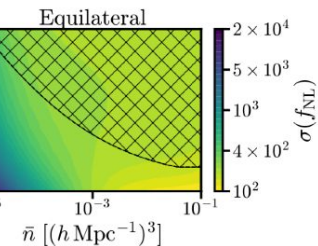
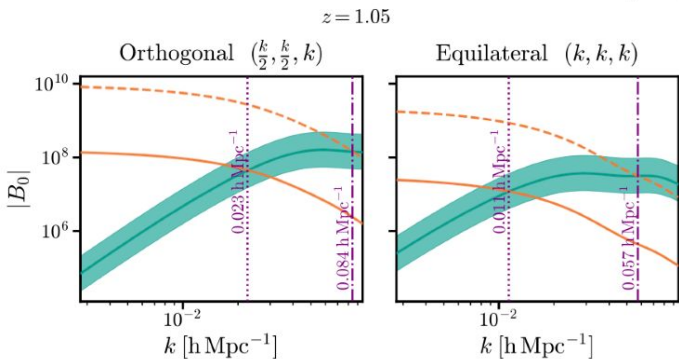
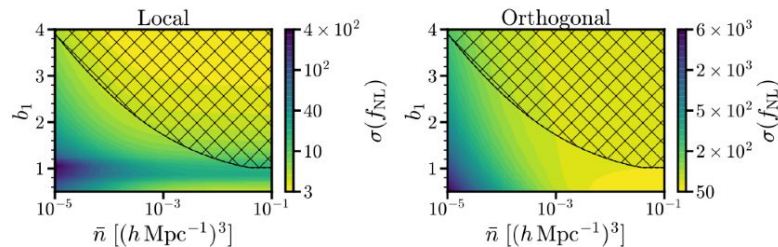


But with a heart of cosmology!



Makai Baker

2nd year PhD student working w/
Simone Ferraro & Martin White



Disallowed (halo bias)

— Signal $\Delta B_{f_{NL}=1}$ — Theory Error $\mathcal{AE}$ $\mathcal{E} > \Delta B_{f_{NL}=1}$
 - - - Signal $\Delta B_{f_{NL}=Planck}$ ■ $1/3 < \mathcal{A} < 3$ - - - $\mathcal{E} > \Delta B_{f_{NL}=Planck}$

Current Work

- Information content of the tree-level redshift-space galaxy bispectrum,
- Constraining (non-)local f_{NL} with the bispectrum and marked power spectrum,
- Did I mention the bispectrum?

Interests

- PNG
- Higher order statistics
- CMB $\times$ LSS
- ... more!

Past Work

- Accelerated inference
- Reduced order modelling

Clara Vergès

Staff scientist @ LBL

cverges@lbl.gov <https://claraverges.github.io>



Research interests: CMB polarisation measurements to probe...

- Inflation
- Cosmic birefringence

What I work on

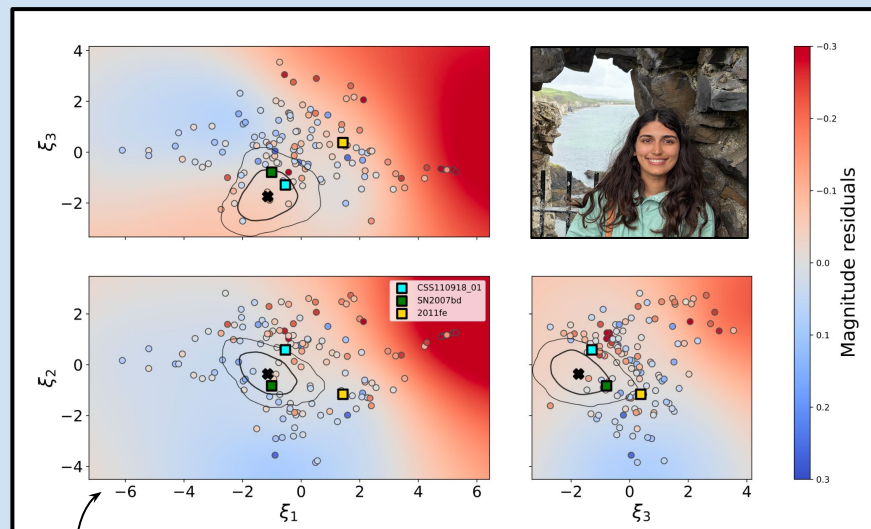
- Calibration & instrumental systematics
- Foreground modeling
- High-level data analysis (likelihood, component separation, etc.)

CMB collaborations

- BICEP
- Simons Observatory

Anousha Greiveldinger (she/her) | 3rd year PhD student anousha@berkeley.edu

- **Advisor:** Saul Perlmutter
- **Research Interests:** SNe Ia standardization, spectroscopy pipelines
- **Working on:**
 - SNIFS – data cube construction
 - Roman – SN standardization
 - JWST SN analysis
 - Not spectroscopy but LS4



Finding magnitude correction by
location in 3D space

Andrei Cuceu

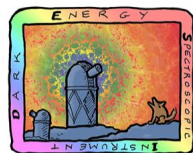
Research Fellow @ LBNL

DESI Lyman-alpha forest:

- Co-led DR2 BAO and full-shape
- Full-shape results out in July
- Working on EFT of LSS for Ly α
- UV background fluctuations
- Many other projects

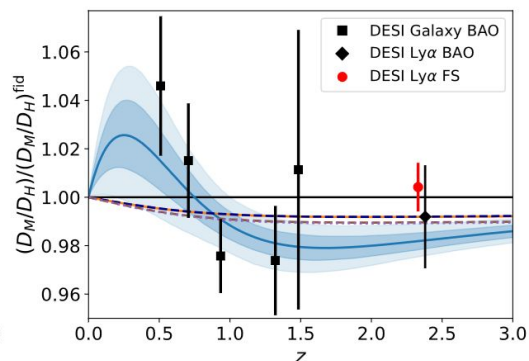
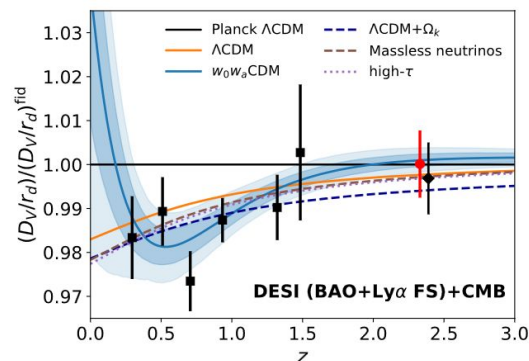
Building towards DESI Run-2 15x2pt:

- 5 tracers in the same volume: LBGs, LAEs, QSOs, Ly α (QSO), Ly α (LBG)
- Working on forecasts
- Developing analysis framework

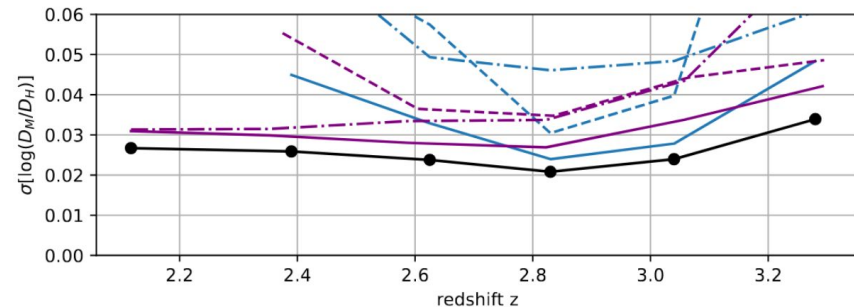
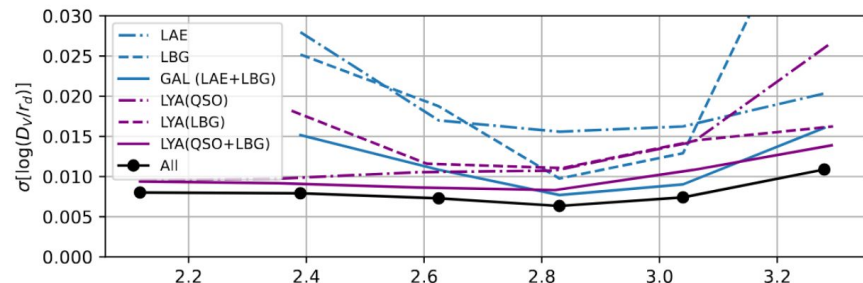


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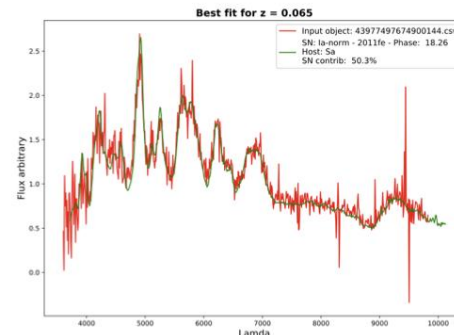
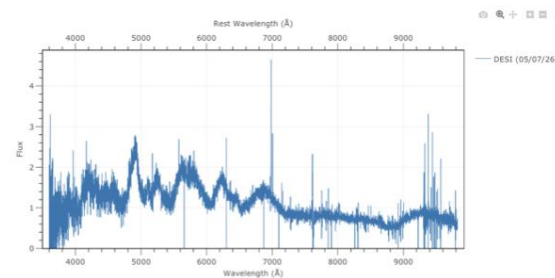


DESI DR2 Results IV: Alcock–Paczyński Measurements from the Lyman Alpha Forest and Cosmological Constraints



John Banovetz - LBL Postdoc

- Working on the DESI spectropipeline and survey ops with an emphasis on calibration products
- Interested in supernovae and work on the DESI-Rubin Supernova Program and the DESI Transient Survey
- Previous work in Multimessenger Astronomy





Alina Sabyr
BCCP fellow



BERKELEY CENTER for
COSMOLOGICAL PHYSICS



BERKELEY LAB

research interests –

developing **new ideas/methods/models** in application to **CMB/galaxies/FRBs**

SZ effects

- extracting non-gaussian information from tSZ
- improving constraining power of kSZ measurements

CMB spectral distortions

- new experiment ideas (*SPECTER*)
- preparing for future measurements

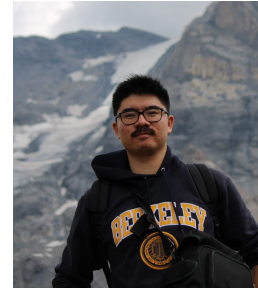
Fast Radio Bursts

- One point PDF
- Cross-correlations with galaxies

contact: asabyr@berkeley.edu + Slack

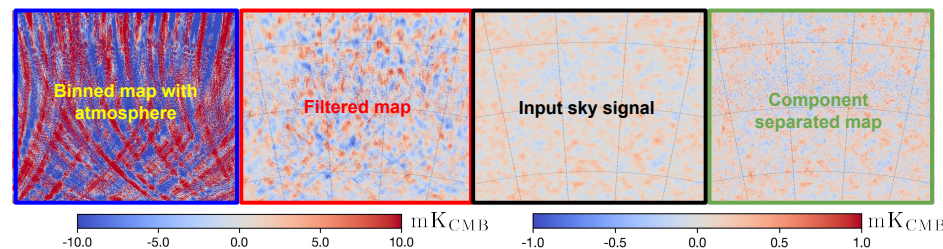
Julien TANG

3rd year PhD student at CPB and C3-LBNL
with Jacques Delabrouille and Michel Piat.
email : JulienTang@lbl.gov office: 50B-4206



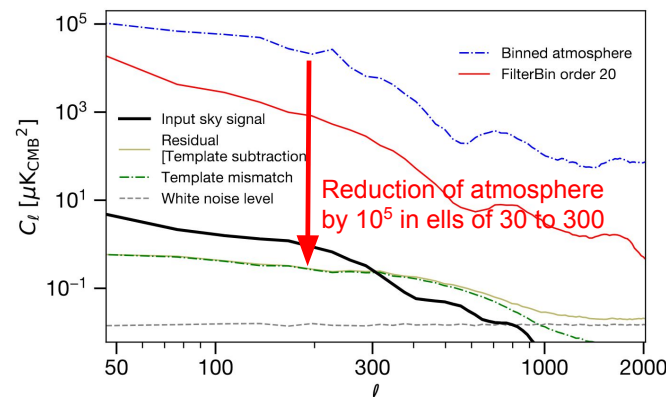
I work on simulations and data analysis for CMB experiments:

- Building atmosphere simulations
- [Mitigation of atmosphere emission using multi-frequency time-domain component separation](#)
- Mapmaking with minimal filtering
- Lensing reconstruction with CMB data and delensing of CMB B-modes



I am active in :

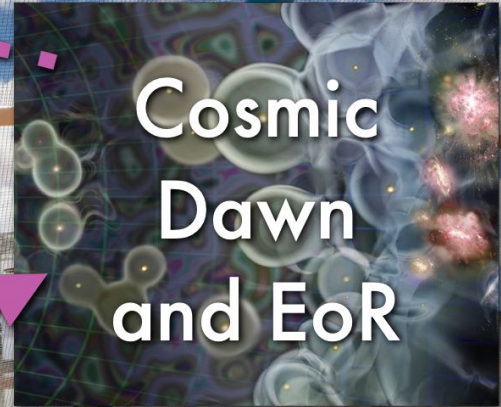
- **SO** : in the Data synthesis working group and Lensing analysis working group.
- **PICO** : [a CMB probe class mission concept study](#), I work on internal delensing.
- **Berkeley LIM Project** : I work on data simulations and data reduction pipelines.



How do we measure the 21 cm signal from the Cosmic Dawn?



And what does it tell us?



Josh Dillon

Asst. Research Scientist, RAL

Rongpu Zhou

rongpu.zhou@gmail.com

Project Scientist at LBL



U.S. Department of Energy Office of Science

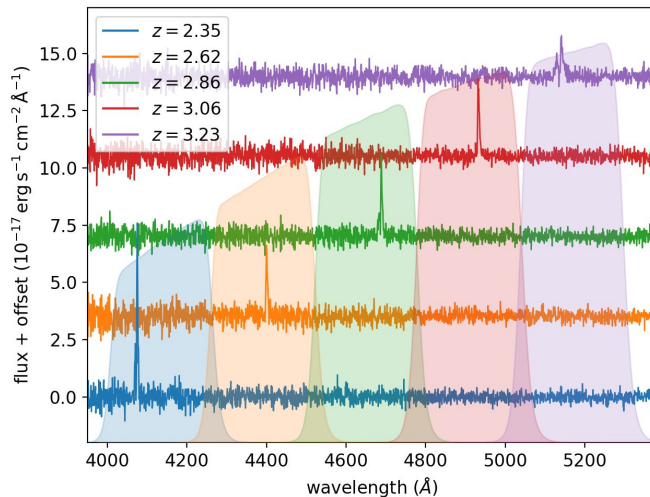
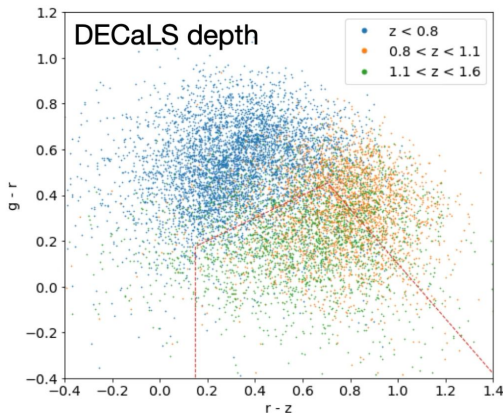
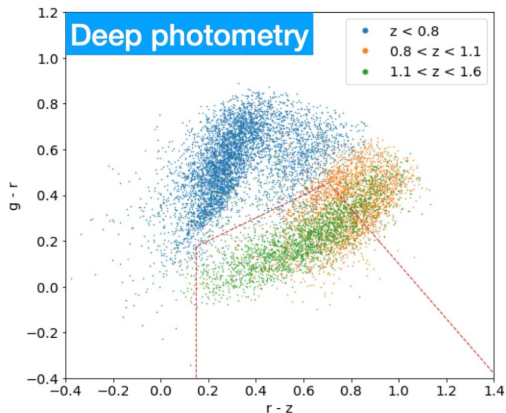
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BERKELEY LAB



- DESI-2: high- z LAE & LBG imaging and spectroscopic surveys
- DESI data pipeline: make DESI redshifts more useful and accessible for the community
- Understanding and forward modeling the selection function of DESI+
 - New galactic dust map from DESI stellar spectra
- Cross-correlations between galaxies and CMB

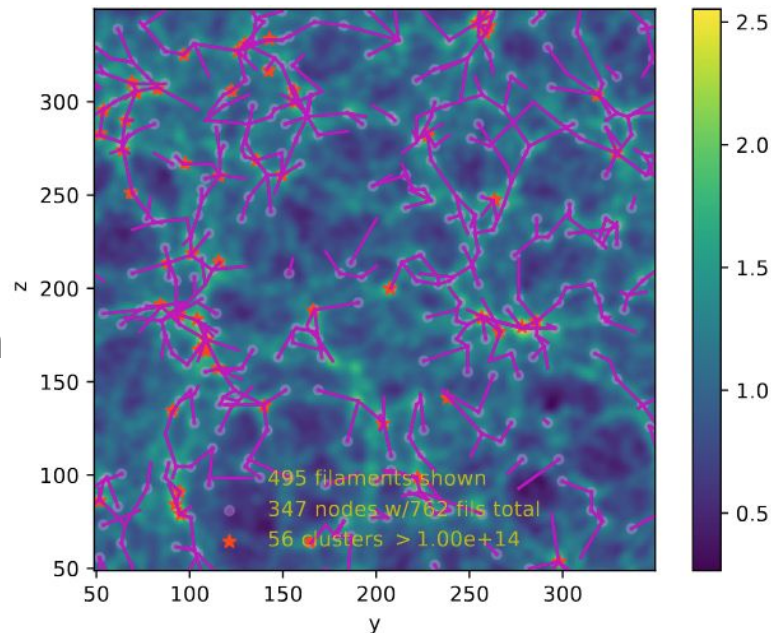


Joanne Cohn (LBL 50-5015 and Campbell 305)

jcohn@berkeley.edu

Thinking about/happy to talk about:

- characterizing the cosmic web and its evolution
- cluster and galaxy formation in relation to structure formation
- (also interested in applications of perturbation theory)
- systematics...
 - due to baryons/small scales, like everyone else
 - making cluster masses too hard to measure
 - not working on cluster masses to probe cosmological parameters
 - wherever I find them!



Probing Hubble Tension Systematics w/ JAGB & TRGB

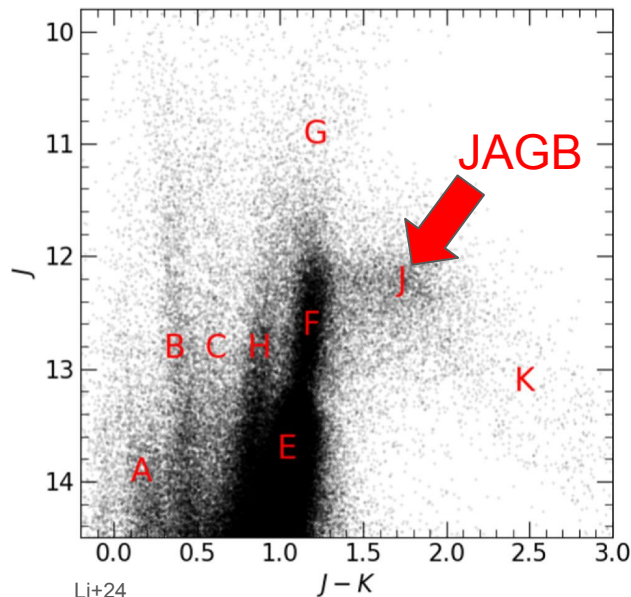
Siyang (Sean) Li

Brinson Prize Fellow

Hosted by Alex Filippenko



Shane Telescope at Lick Observatory



Hubble Space
Telescope;
NASA

- 2nd year as postdoc @ Cal; Observational Cosmology
- Ground-based spectroscopy & space-based photometry → characterize distance indicators & H_0 systematics
 - Tip of the Red Giant Branch (TRGB)
 - J-region Asymptotic Giant Branch (JAGB)
- Co-lead for CosmoVerse Data Challenge: public data & algorithms for community to measure H_0

Dylan Green

Postdoc at LBL (Office: 50-5045) | dylangreen@lbl.gov

Operations Work:

fiberassign

- Current maintainer of DESI's fiber assignment software.
- Including simulations of fiber assignment efficiency for DESI Run 2

Data operations

- Various contributions but mostly interested in better algorithms for redshift estimation + coaddition etc



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Science Work:

- AI Universe contributions including adaptic <https://github.com/CosmoFoundry/adaptic>
- Adapts DESI data for AI usage “on-the-fly”
- Currently working on implementing Metcalf et. al. 2020 estimator for $z < 2$ lensing potential from LyA forest for use on DESI DR3 (<https://ui.adsabs.harvard.edu/abs/2020A%26A...642A.122M/abstract>)

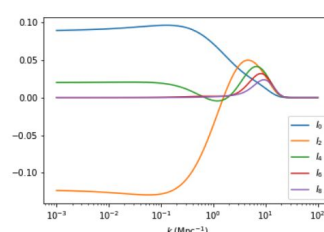
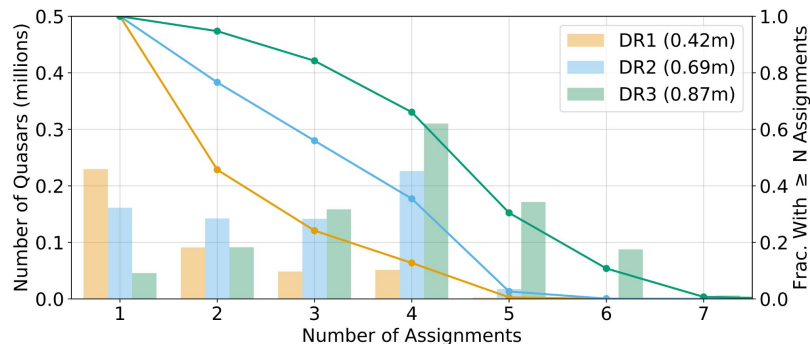
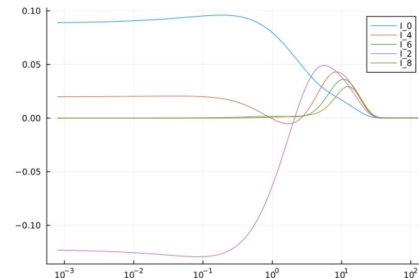


Fig. C.1. Factor $I_l(k)$ given in (C.11) for the power spectrum discussed in Appendix B with $L_{\text{box}} = 1 \text{ Mpc}$.



Hobbies:

Watching movies, running, golf, fountain pens, creative writing, recreational programming, stamp collecting...

Haruki Ebina, fifth/final-year PhD student

Advisor: Martin White



Marked power-spectrum

- An analytical, controlled way to probe the bispectrum through weighted power spectra [2409.17133](#)
- Survey geometry can be incorporated easily, as the mark is smooth and local [2603.03581](#)

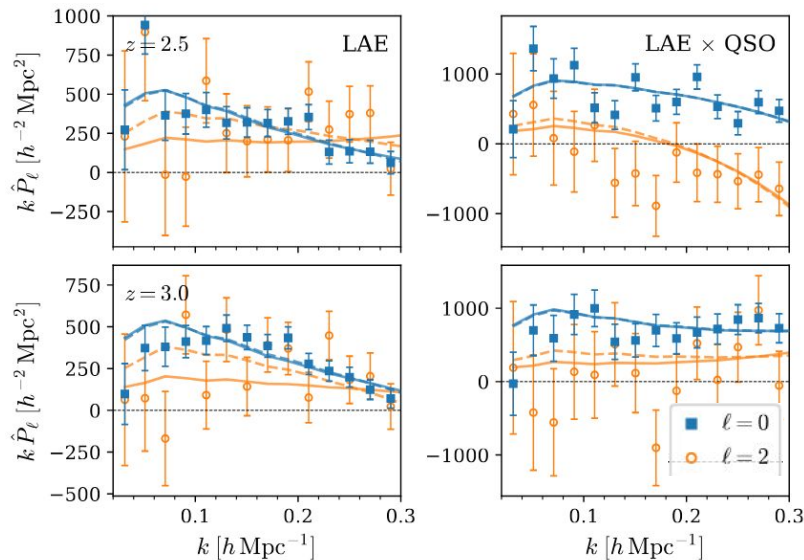
High-z cosmology

- Target selection and clustering of Lyman alpha emitters [2509.26467](#) [2606.24852](#)
- Forecasts for DESI Run 2 (2029~)
- Multi-tracer forecasting [2401.13166](#)

Fast Radio Burst Dispersion Measures

- FRB dispersion measures probe integrated electron densities
- One-loop modeling of DM power spectra, on same footing as LSS cosmology [2608.03235](#)

3D cross-corr. of
LAEs and DESI
QSOs



Eric Chen - Junior Transfer from UCSD | Astrophysics

Past Research

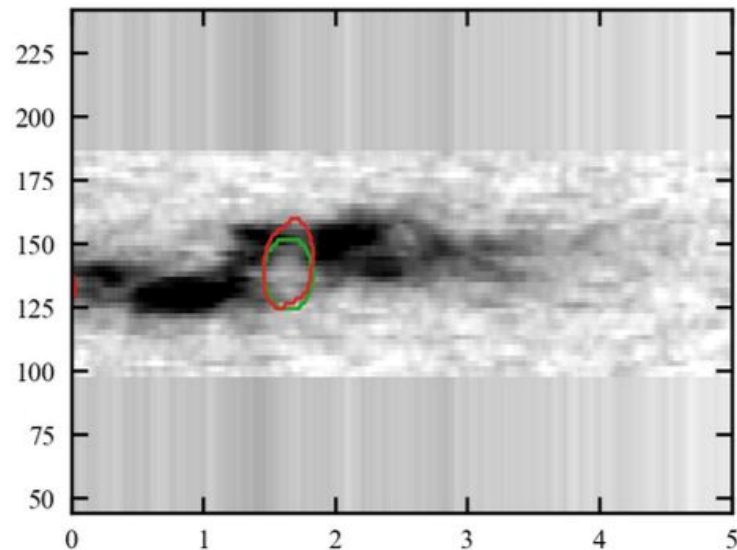
- Roman Space Telescope Integrated Modeling
 - Reaction-wheel jitter & STOP pipeline
- HI shell detection with ML
- Heliophysics - PUNCH + Kp forecasting

Research Interest

- Cosmology with large surveys such as Roman
- Instrumentation/Detectors
- ML and scientific computing
- Time-domain / high-energy astrophysics



Dice 0.82, recall 0.92



HI shell segmentation in a PV slice

David Schlegel, Berkeley Lab

Stage-5 Spectroscopic Instrument (Spec-S5) as the next-generation z survey

Science projections, R&D on fiber robots, segmented mirrors, CCDs, imaging



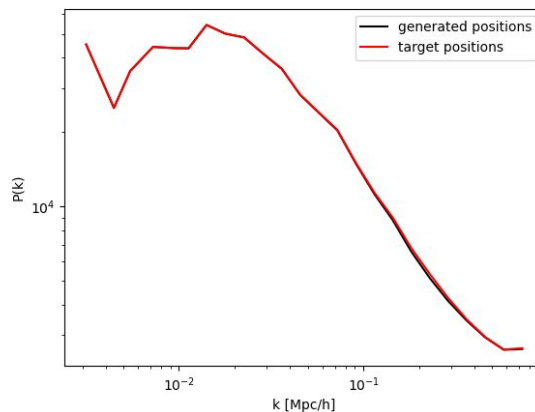
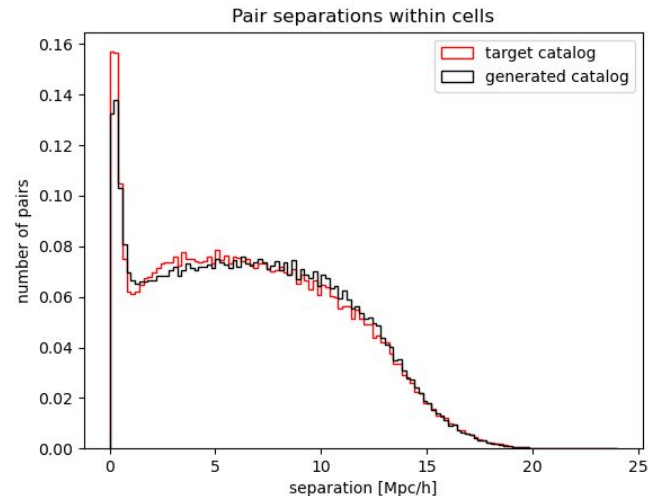
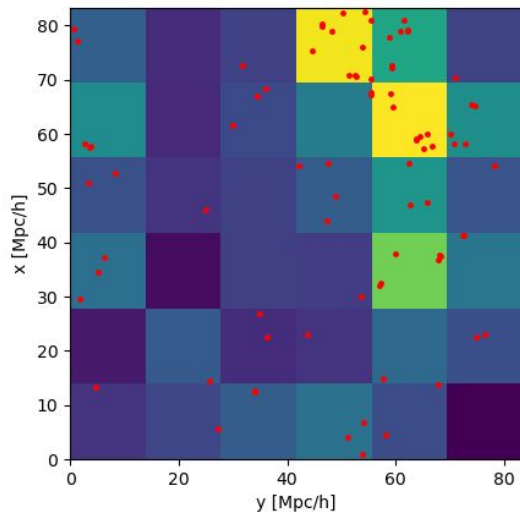
Mayall Telescope
Arizona - north
(DESI platform)

Blanco Telescope
Chile - south
(Dark Energy Camera
platform)



Patrick McDonald (LBL)

- Generating large numbers of mock galaxy datasets has been a critical bottleneck for DESI.
- I'm working on fast generation of galaxy catalogs by conditioning a small-scale machine learning generator of galaxy positions and velocities on large-scale EFT-type fields.
- (in the past I have worked on Lyman-alpha forest, LSS perturbation theory, DESI clustering analysis, etc)



Match power spectrum precisely while training with a local loss function

Match clustering in detail on scales much smaller than the large-scale field resolution

Anna Coerver

acoerver@berkeley.edu

Grad student (Holzapfel lab) working on CMB analysis and instrumentation.

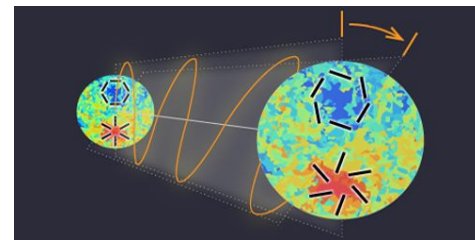
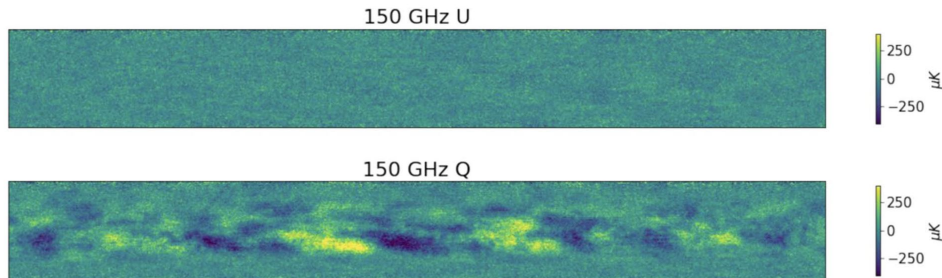
I'm interested in making & using sensitive CMB polarization measurements.

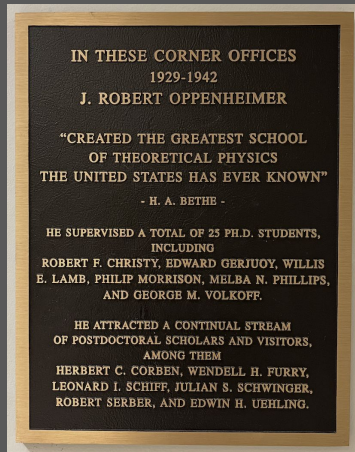
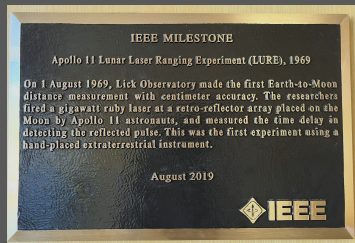
Currently working on

- Cosmic birefringence with SPT
- Cryogenic instrumentation for SPT-3G+

In the past

- Characterizing polarized atmosphere to improve low-ell B-mode measurements





- **Simulation-based inference**
 - Galaxies & Initial Conditions
 - Summary statistics, fields & graphs
- **Halo-galaxy connection**
 - Modelling & inference
- **Data**
 - Tokenized & embedded real data
 - DM, HODs, SAMs & hydrodynamics
- **Foundation Models**
 - Redshift estimation
 - Fine-tuning & adaptation
- **Computational physics**
 - Machine learning & numerical methods



Natalí S. M. de Santi

PosDoc @BCCP

natalidesanti@berkeley.edu



Shashank Dholakia

(he/him)

Background:

B.A Berkeley

PhD University of
Queensland:

“Mapping the
structure and
surfaces of stars
and exoplanets”



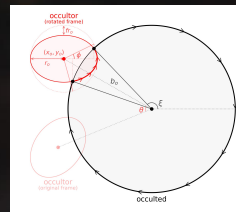
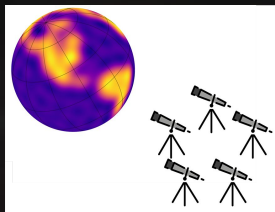
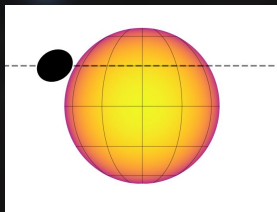
Current research interests

Exoplanets/stars

Interferometry, optics,
instrumentation

Differentiable forwards models

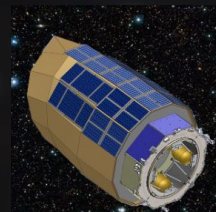
And now cosmology!



What I'll be working on:

Optical forwards models
of the Lazuli Space
Observatory integral field
spectrograph

Excited to learn more
about IFSs & supernova
cosmology!



Edmond Chaussidon (Postdoc at LBNL)

Contact: echaussidon@lbl.gov

Research:

- Active member of the DESI Collaboration:
 - Currently co-leading the PNG Topical Group!
 - Key paper should be in CWR very soon!
- Interest:
 - Spectroscopic Survey (Design and Exploitation)
 - Galaxy Clustering
 - Velocity reconstruction with CMB x-correlation
 - Any science that can be done with our wonderful DESI experiment !

Activity: I'm biking (a lot) in the fantastic Berkeley Hills! 🚴

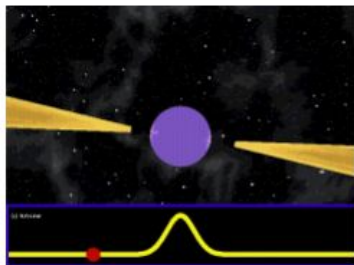


Experiencing the real American lifestyle:
drive-thru ATMs, exactly what I need!

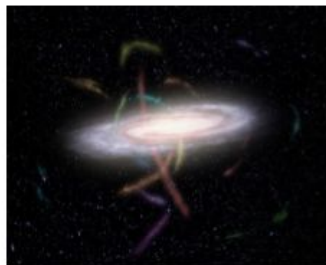


Probing particle nature of **dark matter** with astro / cosmology observations

1. Detecting **DM substructure** in the galaxy with **pulsar timing arrays** and **stellar stream** (work with Kathryn Zurek, Steve Taylor, Tongyan Lin, Tanner Trickle, Kim Berghaus, and more) [2012.09857, 2104.05717, 2306.16219, 2505.23892, 2607.03533, 2608.19321, ...]



[Image: Michael Kramer]



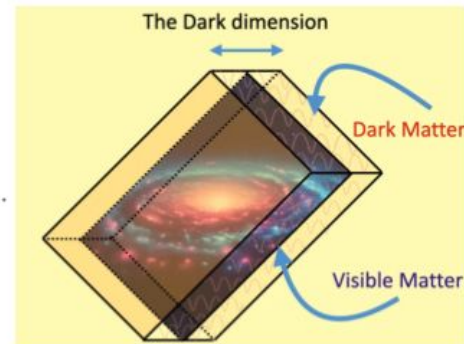
[Image: James Josephides and S5 Collaboration]

Warped Dark Dimension

2. Understanding bounds on **primordial non-Gaussianity** from galaxy surveys with **dark matter halo formation models** (work with Eugene Chen and Dan Green) [2603.22415]

$$\delta_g(x) = b_1 \delta_x(x) + f_{\text{NL}} \frac{b_\Phi}{T(k)} (kR_*)^\Delta \delta(x) + \epsilon(x) + \dots$$

3. Dark matter from **extra dimensions** and cosmological consequences (work with Lisa Randall and Marcos Riojas) [2609.XXXX]



[Vafa (2025) UCLA Bhaumik Lecture]

come chat with me!

Mon-Tue, Fri: campus N3AS office / Wed-Thurs: LBNL 50A

Richard Feder (UCB postdoc)

- Member of *SPHEREx*, *DESI*, *CIBER* collaborations

General science interests:

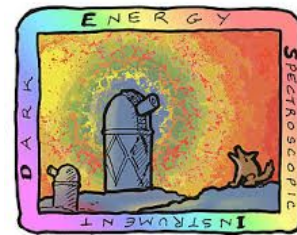
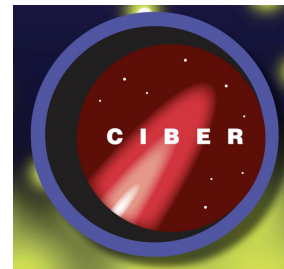
- LSS as a probe of early Universe physics
- Near-IR intensity mapping and cross-correlation science
- Astrostatistics / ML / data-driven modeling

At Berkeley:

- SPHEREx redshift estimation, star-galaxy separation, quasar sample definition
- Systematics mitigation for galaxy clustering measurements
- BAO measurement and reconstruction

Outside of work..

- I'm a musician! (saxophone, clarinet, flute)
- I love to hike and I love to bike!



rmfeder@berkeley.edu

Abby Bault (she/her)

Postdoc at LBL | abault@lbl.gov

Office: 50-6062

Interests and Projects at LBL

Instrumentation (~80% time)

DESI cryostats, DESI focal plane,

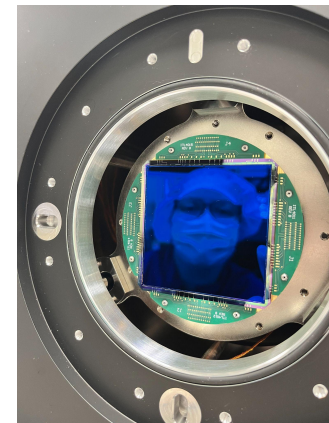
CCD R&D [[2503.07930](#)],

Positioner R&D [[2508.19711](#)]

Science (~20% time)

Cross-correlating the Ly α forest with
other tracers [[2601.08103](#)]

Currently at Kitt Peak
reducing the noise in 4
spectrographs
(only in the blue arm)



For fun

Watching hockey and other various sports,
skiing, crocheting, puzzles, hiking, running,
cat snuggles, LBL softball

Martin White (faculty; theory+data)

[Theory. Exploiting DESI data. CMB + LSS x-correlation. Preparing for nextGen surveys (what should we have done last time with 20/20 hindsight?). Blue-sky ideas for future surveys.]

Too many individual projects to try to list, so ...

Short term: Science with DESI ... constraining inflation, GR and DE with galaxy surveys, x-correlation with CMB lensing and cosmic shear. Combining simulations and theory, combining data across surveys.

Medium term: More DESI, prep for DESI run 2. What can be learned by combining DESI+Euclid+SPHEREx+PFS+LSST+SO+...? What framework should we use to model and interpret these data?

Long term: Cosmology “before noon”, i.e. large-scale structure above $z \sim 2$ ish. What can we learn from it, how do we map it and how do we analyze it. [StageV]

