

CURRICULUM VITÆ  
**GOURAV KHULLAR**

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CONTACT INFORMATION      Allen 302, Allen Hall  
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EMPLOYMENT      **Samuel P. Langley PITT PACC Astrophysics Postdoctoral Fellow**      2022-2024  
Pittsburgh Particle Physics, Astrophysics and Cosmology Center (PITT PACC), &  
Dept. of Physics and Astronomy,  
**University of Pittsburgh**, Pittsburgh, PA, USA  
  
**(Incoming) Baum Postdoctoral Fellow for Innovative Astronomy**      2024-  
Dept. of Astronomy, and the e-Science Institute,  
**University of Washington**, Seattle, WA, USA

EDUCATION & EXPERIENCE      Ph.D., Astronomy & Astrophysics      May 2022  
**University of Chicago**, Chicago, IL, USA  
*URA Scholar, Radix Fellow, Jerry Rao Fellow*

- Thesis: *Star Formation Histories in Galaxy Clusters and High-Redshift Lensed Galaxies*
- Advisor: Michael D. Gladders

Visiting Researcher, Kavli MIT      2021-22  
**Massachusetts Institute of Technology**, Cambridge, MA, USA  
(Mentor: Michael McDonald)

Masters of Advanced Study (MASt.) in Astrophysics      2014-15  
**University of Cambridge**, Institute of Astronomy, Cambridge, UK  
*INLAKS Fellow at Fitzwilliam College*

- Thesis: *Characterizing AGN and host galaxies in the Dark Energy Survey*
- Advisor: Richard McMahon

*Erasmus Mundus Fellow, Student Exchange Program*      2014  
**Aalto University** Helsinki, Finland  
Dept. of Physics and Metsahovi Radio Observatory

Bachelor of Technology (B.Tech.), Engineering Physics      2010-2014  
**Indian Institute of Technology Delhi (IITD)** New Delhi, India

- Thesis: *Stellar Speckle Interferometry and Adaptive Optics*
- Advisor: Kedar Khare

HONORS & AWARDS

- Samuel P. Langley PITT PACC Astrophysics Postdoctoral Fellowship, University of Pittsburgh      2022-2024
- University Research Association (URA) Visiting Scholars Program, Fermilab      2020, 2021-22
- Physical Sciences Teaching Prize, University of Chicago      2020-21
- Radix Fellow, Physical Sciences Division, University of Chicago      2020
- Graduate Student Leadership Award, University of Chicago      2018, 2021
- Jerry Rao Fellowship, University of Chicago      2015 - 2016
- Finalist, Graduate Teaching Assistant Award, University of Chicago      2016
- Brinson Fellowship, University of Chicago      2015

- INLAKS Foundation Scholarship, University of Cambridge, UK 2014-15
- Erasmus Mundus Scholarship, Aalto University, Finland 2014
- Outstanding Contribution Award, Co-Curricular and Academic Activities, IIT Delhi 2013
- Semester Excellence Awards, IIT Delhi 2011,2012,2013

GRANTS AND  
RESOURCES

- JWST - Cycle 2 GO 4125 - Co-PI: Khullar - Galaxies Under Construction: Resolved Scaling Relations and Stellar Mass Assembly as Revealed by Lensed Star-Forming Clumps at Cosmic Noon **\$791,000 (total)**
- JWST - Cycle 2 GO 3843 - Co-I: Khullar - Resolving Star Formation At the Star Cluster Scale Down to 30 pc at  $z=2.5$  **\$321,000 (total)**
- JWST - Cycle 1 GO 2566 - PI: Khullar - Characterizing Stellar Mass Assembly and Physical Properties in the Brightest Galaxy in the Redshift  $> 5$  Universe **\$290,000 (total)**
- Baum Postdoctoral Fellowship for Innovative Astronomy, University of Washington **\$402,016**
- Samuel P Langley PITT PACC Astrophysics Postdoctoral Fellowship (with research and DEI funding) **\$270,000**
- Computing Resources, Center for Research Computing (CRC), University of Pittsburgh **2.5 million CPU Hours, Oct 2023**
- Computing Resources, Center for Research Computing (CRC), University of Pittsburgh **1.7 million CPU Hours, Jan 2023**
- DEI and Community Funding for IDEA and UChicago Astro programs **\$50,000**
- University Research Association (URA) Visiting Scholars Program Funding, Fermilab **\$15,000**
- Astrobites/AAS Education Grants **\$7,000**

TELESCOPE  
PROPOSALS

- **JWST - Cycle 2 GO 4125 - Co-PIs: Khullar, Florian** - Galaxies Under Construction: Resolved Scaling Relations and Stellar Mass Assembly as Revealed by Lensed Star-Forming Clumps at Cosmic Noon *67.8 hours*
- **JWST - Cycle 1 GO 2566 - PI: Khullar** - Characterizing Stellar Mass Assembly and Physical Properties in the Brightest Galaxy in the Redshift  $> 5$  Universe *20.0 hours*
- **JWST - Cycle 2 GO 3843 - PI: Matthew Bayliss, Co-I: Khullar** - Resolving Star Formation At the Star Cluster Scale Down to 30 pc at  $z=2.5$  *14.9 hours*
- **JWST - Cycle 3 GO 5594 - PI: Guillaume Mahler, Co-I: Khullar** - Survey Program – SLICE - Strong Lensing and Cluster Evolution *289.4 hours*
- **JWST - Cycle 1 GO 2555 - PI: Rivera-Thorsen, Co-I: Khullar** - How Do Ionizing Photons Escape the Sunburst Arc? *24.2 hours*
- HST - Cycle 30, SNAP 17110 - PI: Setton, **Co-I: Khullar** - Post-starbursts from DESI: Timing quenching and morphological transformation at  $1 < z < 1.3$  *409 orbits*
- HST - Cycle 28 - PI: Dahle, **Co-I: Khullar** - A bright arc behind an extreme cluster lens at  $z = 1.5$  *3 orbits*
- HST - Cycle 25, SNAP 15307 - PI: Gladders, **Co-I: Khullar** - Building the SPT-HST Legacy: Imaging Massive Clusters to  $z = 1.5$  *115 orbits*
- ALMA - Cycle 10 – PI Whitaker, **Co-I: Khullar** - Detecting Dust in a Sample of Lensed Quiescent Galaxies at Cosmic Noon
- ALMA - Cycle 10 – PI Setton, **Co-I: Khullar** - Does Molecular Gas Survive Quenching Near Cosmic Noon?
- ALMA - Cycle 8 – PI Di Mascolo, **Co-I: Khullar** - Unveiling the thermodynamical properties of the most distant and massive ICM selected clusters
- Gemini-N and Gemini-S Fast Turnaround program **PI: Khullar** - GMOS Spectroscopic follow-up of COOL-LAMPS early type galaxies *2 nights, 2021*
- **Co-I: Khullar** - Magellan (LDSS3, IMACS, FOURSTAR and FIRE) observations of high-redshift gravitationally lensed galaxies *6 nights, 2020,2021*
- **PI: Khullar** - Magellan/PISCO *griz* observations of SPT galaxy clusters *2 nights*
- Co-I: Khullar - Magellan/LDSS3 spectra observations, high-redshift DES clusters *2 nights*

|                        |  |         |
|------------------------|--|---------|
| TELESCOPE<br>OBSERVING | 53 <i>nights of observing experience</i>                                 |         |
|                        | • Magellan Telescopes - LDSS3, IMACS, FIRE, FOURSTAR, MIKE (37 nights)   | 2016-24 |
|                        | • Nordic Optical Telescope - ALFOSC (5 nights)                           | 2019-21 |
|                        | • McDonald Observatory - VIRUS-P (3 nights)                              | 2021    |
|                        | • CTIO/Blanco Telescope - DECaM (7 nights, Dark Energy Survey)           | 2017    |
|                        | • Himalayan Chandra Telescope, Indian Insitute of Astrophysics (1 night) | 2012    |

PRESENTATIONS

*Invited Talks*

|   |            |
|---|------------|
| • University of Chicago Astronomy & Astrophysics Seminar              | Apr 2024   |
| • STScI Galaxies and AGN Journal Club                                 | Nov 2023   |
| • McGill Trottier Space Institute Astro Seminar                       | Nov 2023   |
| • UV Galaxies Conference, Iceland                                     | June 2023  |
| • University of Washington Astro Seminar                              | April 2023 |
| • Carnegie Mellon University (CMU): Impossible Problems Seminar       | April 2023 |
| • Tufts University Astro Seminar                                      | April 2023 |
| • STATistical Methods for the Physical Sciences (STAMPS, CMU) Seminar | Mar 2023   |
| • Survey Science Group Seminar, University of Pittsburgh              | Oct 2022   |
| • NOIRLab Scientific Lunch  | Nov 2021   |
| • Harvard Galaxy Clusters Meeting                                     | Nov 2021   |
| • UT Austin Extragalactic Astronomy/Cosmology Seminar Series          | Nov 2021   |
| • Yale Galaxy Lunch   | Nov 2021   |
| • MIT Kavli Brown Bag Lunch   | Oct 2021   |
| • High Redshift Galaxy Evolution Meeting, Harvard CfA                 | Oct 2021   |
| • Institute for Astronomy, UHawaii                                    | Sep 2021   |
| • University of Massachussets Amherst Galaxy Lunch                    | Apr 2021   |
| • University of Michigan Astronomy Galaxy Meeting                     | Oct 2020   |

*Conference Talks*

|  |           |
|--|-----------|
| • The James Webb Space Telescope turns one: the birth and growth of galaxies   | July 2023 |
| • European Astronomical Society Meeting - Gravitationally Lensed Galaxies  | July 2022 |
| • Bayesian Deep Learning for Cosmology and Time Domain Astrophysics  | June 2022 |
| • KIAA Forum on Gas in Galaxies for Early Career Scientists  | Nov 2021  |
| • Spatially Resolved Spectroscopy with Extremely Large Telescopes (recorded)   | Sep 2021  |
| • Multi-Object Spectroscopy for Statistical Measures of Galaxy Evolution (lightning)   | May 2021  |
| • COOL-LAMPS Collaboration Meeting   | June 2021 |
| • 237th American Astronomical Society Meeting : Characterizing the brightest known galaxy in the redshift > 5 Universe                       | Jan 2021  |
| • 237th American Astronomical Society Meeting : COOL-LAMPS Collaboration, A proposed model for inclusive undergraduate teaching and research | Jan 2021  |
| • Galaxy Formation and Evolution in the Era of Roman Space Telescope (Talk)  | Oct 2020  |
| • South Pole Telescope Clusters Collaboration Meeting  | 2017-21   |
| • Sloan Giant Arcs Survey Collaboration Meetings   | 2018,2019 |
| • University of Chicago Astronomy Chalk Talk   | Mar 2019  |
| • 232nd American Astronomical Society Meeting  | June 2018 |
| • Dark Energy Survey Collaboration Meeting   | June 2017 |

*Poster Presentations*

|  |           |
|--|-----------|
| • MIT First Light JWST Conference  | June 2023 |
| • Multi-Object Spectroscopy for Statistical Measures of Galaxy Evolution | May 2021  |
| • 232nd American Astronomical Society Meeting                            | June 2018 |
| • 228th American Astronomical Society Meeting                            | June 2016 |

TEACHING AND  
MENTORING

*PhD Advisor*

Julissa Sarmiento, *University of Pittsburgh*

2023-

*Lead Instructor*

*University of Chicago*

- ASTR 11901 94: Physics of Stars, UChicago Immersion Program *Summer 2018*

*Teaching Assistant, Graduate Mentor, and Co-Instructor*

*2020-*

- ASTR 29001 & 29002 Field Course in Astronomy and Astrophysics, University of Chicago
- ChicagO Optically-selected strong Lenses – Located At the Margins of Public Surveys (COOL-LAMPS) Collaboration (PI: Michael D Gladders)
- Mentored 19 undergraduate students, including (most recent known affiliation)
  - Viraj Manwadekar (Graduate Student, Stanford University)
  - Katya Gozman (Graduate student, University of Michigan)
  - Ezra Sukay (Graduate Student, Johns Hopkins University)
  - William Cerny (Graduate Student, Yale University)
  - Yunchong Zhang (Graduate Student, University of Pittsburgh)
  - Finian Ashmead (Graduate Student, University of Pittsburgh)
  - Jorge Sanchez (Graduate student, New Mexico State University)
  - Michael Martinez (Graduate student, University of Wisconsin Madison)
  - Erik Zaborowski (Graduate student, Ohio State University)

*Postdoc Mentor*

*2022-*

- Isaac Sierra (Graduate student, University of California Davis)
- Arsh Kumaran (Undergraduate student, University of Pittsburgh)
- Simon Mork (Graduate student, Arizona State University)
- David Setton (Graduate student, University of Pittsburgh, *now Brinson Fellow at Princeton University*)
- Aidan Cloonan (Graduate student, University of Massachusetts, Amherst)
- Yasha Kaushal (PhD, University of Pittsburgh)
- Alex Navarre (PhD, University of Cincinnati)
- Natalie Malagon (Undergraduate student, University of Chicago)

*Mentor, Central American-Caribbean bridge program in astrophysics (CENCA)*

*2022*

- Kaylan-Marie Achong (Undergraduate student, University of the West Indies, St. Augustine Campus)

*Guest Lecturer*

*University of Chicago*

- ASTR 11901 94: Physics of Stars *2017-2021*
- Yerkes Summer Institute, Space Explorers Program *2016-2019*

*Indian Institute of Technology Delhi*

- Astronomy Club *2014-2015*

*Teaching Assistant*

*University of Chicago*

- ASTR018200: The Origin and Evolution of the Universe *Winter 2018*
- PHSC12700: Stars *Fall 2015*
- PHSC12710: Galaxies *Winter 2016*
- PHSC12720: Exoplanets *Spring 2016*
- ASTR 18800: Philosophical Problems in Cosmology *Spring 2018*

*Teaching Consultant*

*University of Chicago*

- ASTR 11901 94: Physics of Stars *2019-2021*

DIVERSITY,  
EQUITY &  
INCLUSION,  
AND OUTREACH

- **Co-founder, DAC (Direct Action Coalition), University of Pittsburgh 2023 - 2024**
  - Grassroots organization for early-career astronomers and physicists at The Dept of Physics and Astronomy. Successful in conducting peer-education on equity, inclusion and justice issues.
  - Organized EDI conferences - Physics and Astronomy Equity Week (PEW), with talks by experts on organizational health, horizontalized decision making, the interplay of carceral tech and physics research, and the implementation of Astro decadal survey policy recommendations.
- **Co-founder, IDEA (Inclusion, Diversity, and Equity in Astronomy), University of Chicago 2017 - 2022**
  - Grassroots collective for early-career astronomers at The University of Chicago. Successful in building community in ECRs, and peer-education on equity, inclusion and justice issues.
  - Organized EDI conferences - IDEA Week and IDEA Day, with talks by experts on mental health, increasing visibility of Black astrophysicists, supporting first-generation low-income astrophysicists, workshops on inclusive pedagogy. 2019, 2020
  - Established a mentoring program and guaranteed relocation support for incoming students.
  - Galvanized community effort via an ensemble of working groups towards anti-racist policy-making at UChicago Astronomy and Astrophysics. 2020-present
  - Advocated for > \$30000 in funding for Dept. Climate Survey
  - Received > \$12000 in grant funding, via:
    - UChicago Inclusive Pedagogy Grants
    - UChicago Physical Sciences Division Climate Grant
    - National Science Policy Network DICE Grant
    - UChicago Grad Council Community Wellness Fund
- **Astrobites, the astro-ph reader's digest**
  - Ombudsperson 2021-22
  - Chair, AAS matters 2020-21
  - Co-chair of Administration Committee 2019-20
  - Media Intern, 232nd AAS Meeting, American Astronomical Society 2018
  - Co-chair of Diversity Committee 2017-18
  - Workshop Coordinator for Astrobites in the Classroom Study 2018-19
  - Writer for Astrobites 2016-21
- Astronomy Conversations Presenter at Adler Planetarium 2015 - 2020
- Teaching Race in the Core - Race and Pedagogy Working Group Workshop, UChicago 2018
- Founding Member of Astronomy on Tap Chicago 2015 - 2017
- Speaker, Undergraduate Journal Club, Institute of Astronomy, Cambridge 2015
- Cubs, Brownies and Scouts Outreach, Institute of Astronomy, Cambridge 2015
- Outreach Speaker, Galaxy formation simulations, Radio astronomy, IIT Delhi 2012, 2013
- Organizer and Co-founder, AstroWeek, IIT Delhi's astronomy outreach festival 2012, 2013

PROFESSIONAL  
SERVICE &  
LEADERSHIP

- Founding Member, the COOL-LAMPS collaboration — ChicagO
- Optically-selected strong Lenses – Located At the Margins of Public Surveys 2019-present

*Department and University Committees*

- Equity and Inclusion Council, A&A, UChicago 2016-2019
- Dean's Student Advisory Committee, UChicago 2015-2017
- Teaching Committee and Student Representative, IoA, University of Cambridge 2014-2015
- Academic Affairs Officer, Fitzwilliam College, University of Cambridge 2014-2015
- President, Astronomy Club, Indian Institute of Technology Delhi 2012-2013
- Physics Representative, Academic Committee, IIT Delhi 2012-2013

*Conferences, Collaboration Meetings, Workshops and Seminars Organized*

- Pitt JWST Workshop Part II 2024
- UNCOVER JWST Collaboration Meeting 2023
- Pittsburgh Astro Seminar Co-organizer 2023
- COOL-LAMPS Collaboration Meeting 2021

- UChicago Strong Gravitational Lensing Discussion Group 2018-19
- Shared Leadership and Consensus Building towards Equity and Inclusion 2021
- IDEA (Inclusion, Diversity, and Equity in Astronomy) Week 2020
- Starting Equity and Social Justice Conversations in your STEM Community, National Science Policy Network 2019
- IDEA (Inclusion, Diversity, and Equity in Astronomy) Day 2019
- Reviewer, JWST Time Allocation* 2024
- Reviewer, ALMA DAPR* 2024
- Panel Reviewer, NASA Astrophysics* 2023, 2024
- Paper Reviewer, The Astrophysical Journal* 2023
- Panel Reviewer, National Science Foundation* 2023
- Reviewer, Machine Learning and the Physical Sciences, NeurIPS* 2022

- PUBLIC PRESS
- UChicago undergrads discover bright lensed galaxy in the early universe, UChicago News
  - James Webb Space Telescope to offer humanity an unprecedented look at the Universe, UChicago News
  - University Of Chicago Astrophysics Students Discover Galaxy Dating Back To Early Universe, CBS Chicago
  - Graduate students recognized for exceptional teaching of undergraduates, UChicago
  - PSD climate grants foster belonging while socially distanced, Physical Sciences Division, UChicago
  - Starts With a Bang Podcast with Ethan Siegel
  - Expand Your Perspective Podcast, Ep 1: The Universe: Black Holes, Exoplanets, and the Evolution of Stars, UChicago
  - Astronomers use giant galaxy cluster as X-ray magnifying lens, UChicago News
  - Astrobites White Paper, Women in Astronomy Blog
  - U-M researchers confirm massive hyper-runaway star ejected from the Milky Way Disk, Michigan News
  - The Physics of Toys, Yerkes Summer Institute, KICP, University of Chicago
  - Spy vs. Spy, Yerkes Summer Institute, KICP, University of Chicago

- WORKSHOPS
- Bayesian Deep Learning for Cosmology and Time Domain Astrophysics 2022
  - JWST Webinar, NIRSpec IFU Data Analysis 2021
  - .AstroX Conference, STScI, Baltimore 2018
  - Data Visualization and Exploration in the LSST Era Workshop, NCSA, Urbana-Champaign 2018
  - SACNAS Midwest Meeting, University of Chicago 2018
  - Using Python to Search NASA's Astrophysics Archives (Remote), IPAC 2018
  - ALMA Proposal Workshop, Northwestern University and NRAO 2018
  - ComSciCon Chicago Science Outreach Workshop, 2017
  - Future Cosmic Surveys Workshop, University of Chicago 2016
  - CMB-S4 Meeting, University of Chicago 2016
  - Cosmology Using Low Resolution Spectroscopy in 2020s, University of Chicago 2016
  - World Wide Telescope Developer Workshop 2015
  - AstroStatistics Workshop, Royal Statistical Society, London 2014
  - Radio Astronomy Winter School, NCRA and Inter-University Centre for Astronomy and Astrophysics (IUCAA), India 2012
  - Workshop on Cosmology, Inter-University Centre for Astronomy and Astrophysics (IUCAA), India 2012



*Publications with significant contribution (\* indicates student supervision)*

- [1] **Khullar, G.**, Setton, D., Bezanson, R., et al. "*UNCOVER: JWST/NIRCam observations of Abell 2744 reveal a diverse population of Quiescent Galaxies at Redshift 2 – 7 across three orders of magnitude in Stellar Mass*", (2023, in preparation)
- [2] Setton, David J. ; **Khullar, Gourav** ; Miller, Tim B. ; Bezanson, Rachel ; Greene, Jenny E., et al., "*UNCOVER NIRSpec/PRISM Spectroscopy Unveils Evidence of Early Core Formation in a Massive, Centrally Dusty Quiescent Galaxy at  $z=3.97$* ", 2024, ADS
- [3] \*Navarre, Alexander; **Khullar, Gourav**; Bayliss, Matthew B.; Dahle, Håkon; Florian, Michael; Gladders, Michael; et al., "*Resolving Clumpy versus Extended LyA in Strongly Lensed, High-redshift LyA Emitters*", 2024, ADS
- [4] \*Mork, Simon D.; Gladders, Michael D.; **Khullar, Gourav**; Sharon, Keren et al.; "*COOL-LAMPS. VII. Quantifying Strong-lens Scaling Relations with 177 Cluster-scale Gravitational Lenses in DECaLS*", 2024, ADS
- [5] \*Klein, Maxwell; Sharon, Keren; Napier, Kate; Gladders, Michael D.; **Khullar, Gourav**; Bayliss, Matthew,; et al., "*COOL-LAMPS VI: Lens model and New Constraints on the Properties of COOL J1241+2219, a Bright  $z = 5$  Lyman Break Galaxy and its  $z = 1$  Cluster Lens* ", 2024, ADS
- [6] **Khullar, G.**, Nord, B., Ciprianovic, A, et al. "*DIGS: Deep Inference of Galaxy Spectra with Neural Posterior Estimation*", 2022, Mach. Learn.: Sci. Technology, 3, 04LT04, ADS
- [7] Vanzella E., Claeysens A., Welch B., Adamo A., Coe D., Diego J. M., Mahler G., **Khullar, G.**, et al., "*JWST/NIRCam Probes Young Star Clusters in the Reionization Era Sunrise Arc*", 2023, ApJ, 945, 53, ADS
- [8] \*Martinez M. N., Napier K. A., Cloonan A. P., Sukay E., Gozman K., Merz K., **Khullar, G.**, et al., "*COOL-LAMPS. III. Discovery of a Wide Separation Quasar Lensed by a Merging Galaxy Cluster*", 2023, ApJ, 946, 2, ADS
- [9] **Khullar, G.**, Bayliss, M.B., Gladders, M.D., et al. "*Synthesizing Stellar Populations in South Pole Telescope Galaxy Clusters: I. Measuring the Ages of Quiescent Members in the SPT-GMOS and SPT Hi-z Clusters*" 2022, ApJ, 934, 177, ADS
- [10] Kim, K.J., Bayliss, M.B., Noble, A.G., **Khullar, G.** et al., "*A Gradual Decline of Star Formation since Cluster Infall: New Kinematic Insights into Environmental Quenching at  $0.3 < z < 1.1$*  ", 2022, arXiv:2207.12491
- [11] Setton, D.J., Dey, B., **Khullar, G.**, Bezanson, R., Newman, J.A., et al., "*DESI Survey Validation Spectra Reveal an Increasing Fraction of Recently Quenched Galaxies at  $z \sim 1$*  ", 2022, arXiv:2212.05070
- [12] \*Zhang, Y., Manwadkar, V., Gladders, M.D., **Khullar, G.** et al., "*COOL-LAMPS IV: A Sample of Bright Strongly-Lensed Galaxies at  $3 < z < 4$* ", 2022, arXiv:2212.06902
- [13] \*Sukay, E., **Khullar, G.**, [...], Gladders, M.D., Rigby, J.R., Sharon, K., et al. 2022, "*COOL-LAMPS. II. Characterizing the Size and Star Formation History of a Bright Strongly Lensed Early-Type Galaxy at Redshift 1*" 2022, ApJ, 940, 42, ADS
- [14] Poh, J., Samudre, A., Čiprijanović, A., Nord, B., **Khullar, G.** et al., "*Strong Lensing Parameter Estimation on Ground-Based Imaging Data Using Simulation-Based Inference*", 2022, arXiv:2211.05836
- [15] **Khullar, G.**, Gozman, K., [...], Gladders, M.D., Rigby, J.R., Sharon, K., et al., "*COOL-LAMPS. I. An Extraordinarily Bright Lensed Galaxy at Redshift 5.04*" 2021, ApJ, 906, 107, ADS

- [16] **Khullar, G.**, Bleem, L.E., Bayliss, M.B., Gladders, M.D., et al. "Spectroscopic Confirmation of Five Galaxy Clusters at  $z > 1.25$  in the 2500 sq. deg. SPT-SZ Survey" 2019, ApJ, 870, 7, ADS
- [17] Yu-Yang Hsiao, T., Coe, D., Abdurrouf,[...] **Khullar, G.** et al. 2022, "JWST reveals a possible redshift 11 galaxy merger in triply-lensed MACS0647 JD": arXiv:2210.14123
- [18] Florian, M.K., Rigby, J.R.,[...] **Khullar, G.** et al., "Spatial Variation in Strong Line Ratios and Physical Conditions in Two Strongly Lensed Galaxies at  $z \sim 1.4$ ", 2021, ApJ, 916,50, ADS
- [19] Strazzullo, V., Pannella, M., Mohr, J.J., [...], **Khullar, G.** et al., "Galaxy populations in the most distant SPT-SZ clusters - I. Environmental quenching in massive clusters at  $1.4 < z < 1.7$ ", 2019, AA, 622, A117, ADS
- [20] Hattori, K., Valluri, Monica,[...] and **Khullar, G.**, "Origin of a Massive Hyper-runaway Subgiant Star LAMOST-HVS1: Implication from Gaia and Follow-up Spectroscopy" 2019, ApJ, 873, 116, ADS
- [21] **Khullar G.**, Kohler, S., Konchady, T., et al. 2019, "Astrobites as a Community-led Model for Education, Science Communication, and Accessibility in Astrophysics", 2020 Decadal Survey on Astronomy and Astrophysics, arXiv:1907.09496

*Co-Authored Publications*

- [22] Kaushal, Yasha; Nersesian, Angelos; Bezanson, Rachel; van der Wel, Arjen; Leja, Joel; Carnall, Adam; .... **Khullar, Gourav**, et al., "A Census of Star Formation Histories of Massive Galaxies at  $0.6 < z < 1$  from Spectrophotometric Modeling Using Bagpipes and Prospector", 2024, ADS
- [23] Hutchison, Taylor A., Welch, Brian D., Rigby, Jane R., Olivier, Grace M.; Birkin, Jack E., Phadke, Kedar A., **Khullar, Gourav** et al., "TEMPLATES: A Robust Outlier Rejection Method for JWST NIRSpec Integral Field Spectroscopy", 2024, ADS
- [24] Price, Sedona H.; Suess, Katherine A.; Williams, Christina C.; Bezanson, Rachel; **Khullar, Gourav**; Nelson, Erica J, et al., "UNCOVER: The rest ultraviolet to near infrared multiwavelength structures and dust distributions of sub-millimeter-detected galaxies in Abell 2744", 2023, ADS
- [25] Fujimoto, Seiji; Bezanson, Rachel; Labbe, Ivo; Brammer, Gabriel; Price, Sedona H.; Wang, Bingjie; Weaver, John R., ... **Khullar, Gourav**, et al. "DUALZ: Deep UNCOVER-ALMA Legacy High-Z Survey", 2023, ADS
- [26] Weaver, J.R., Cutler, S.E., Pan, R., Whitaker, K.E., Labbe, I., Price, S.H., [...], **Khullar G.** et al., "The UNCOVER Survey: A first-look HST+JWST catalog of 50,000 galaxies near Abell 2744 and beyond", 2023, arXiv:2301.02671
- [27] Wang, B., Leja, J., Bezanson, R., Johnson, B.D., **Khullar G.**, Labbé, I., et al., "Inferring More from Less: Prospector as a Photometric Redshift Engine in the Era of JWST", 2023, ApJ, 944, L58, ADS
- [28] Masterson, M., McDonald, M., Ansarinejad, B., Bayliss, M., Benson, B.A., Bleem, L.E., [...], **Khullar G.** et al., "Evidence for AGN-regulated Cooling in Clusters at  $z 1.4$ : A Multiwavelength View of SPT-CL J0607-4448", 2023, ApJ, 944, 164, ADS
- [29] Strazzullo, V., Pannella, M., Mohr, J.J., Saro, A., Ashby, M.L.N., [...], **Khullar G.** et al., "Galaxy populations in the most distant SPT-SZ clusters. II. Galaxy structural properties in massive clusters at  $z \sim 1.4 - 1.7$ ", 2023, Astronomy and Astrophysics, 669, A131, ADS
- [30] Calzadilla, M.S., Bleem, L.E., McDonald, M., Gladders, M.D., [...], **Khullar G.** et al., "SPT-CL J2215-3537: A Massive Starburst at the Center of the Most Distant Relaxed Galaxy Cluster", 2023, arXiv:2303.10185



- [31] Furtak, L.J., Zitrin, A., Weaver, J.R., Atek, H., Bezanson, R., Labbe, I., [...], **Khullar G.** et al., "*UNCOVERing the extended strong lensing structures of Abell 2744 with the deepest JWST imaging*", 2022, arXiv:2212.04381
- [32] Bezanson, R., Labbe, I., Whitaker, K.E., Leja, J., Price, S.H., Franx, M., [...] : **Khullar G.** et al., "*The JWST UNCOVER Treasury survey: Ultradeep NIRSPEC and NIRCAM Observations before the Epoch of Reionization*", 2022, arXiv:2212.04026
- [33] Sharon, K., Mahler, G., Rivera-Thorsen, T.E., Dahle, H., Gladders, M.D., Bayliss, M.B., [...], **Khullar G.** et al., "*The Cosmic Telescope That Lenses the Sunburst Arc, PSZ1 G311.65-18.48: Strong Gravitational Lensing Model and Source Plane Analysis*", 2022, ApJ, 941, 203, ADS
- [34] Verrico, M., Setton, D.J., Bezanson, R., Greene, J.E., Suess, K.A., Goulding, A.D., [...], and **Khullar G.**, "*Merger Signatures are Common, but not Universal, In Massive, Recently-Quenched Galaxies at  $z \sim 0.7$* ", 2022, arXiv:2211.16532
- [35] Welch, B., Coe, D., Zackrisson, E., de Mink, S.E., Ravindranath, S., Anderson, J., [...], **Khullar G.**, et al., "*JWST Imaging of Earendel, the Extremely Magnified Star at Redshift  $z = 6.2$* ", 2022, ApJ, 940, L1, ADS
- [36] Ruppin, F., McDonald, M., Hlavacek-Larrondo, J., Bayliss, M., Bleem, L.E., Calzadilla, M., [...], **Khullar G.**, et al., "*Redshift Evolution of the Feedback / Cooling Equilibrium in the Core of 48 SPT Galaxy Clusters: A Joint Chandra-SPT-ATCA analysis*", 2022, arXiv:2207.13351
- [37] Ghirardini, V., Bulbul, E., [...], **Khullar, G.**, "*Evolution of the Thermodynamic Properties of Clusters of Galaxies out to Redshift of 1.8*", 2021, ApJ, 910, 1, ADS
- [38] Armus, L., Megeath, S.T., [...], **Khullar, G.** et al., "*Great Observatories: The Past and Future of Panchromatic Astrophysics*", 2021, 2020 Decadal Survey on Astronomy and Astrophysics, arXiv:2104.00023
- [39] Ruppin, F., McDonald, M., [...], **Khullar, G.**, et al. 2020, "*Stability of Cool Cores During Galaxy Cluster Growth: A Joint Chandra/SPT Analysis of 67 Galaxy Clusters Along a Common Evolutionary Track Spanning 9 Gyr*", ADS
- [40] Bayliss, M.B., McDonald, M., Sharon, K., Gladders, M.D., [...], **Khullar, G.**, "*An X-ray Detection of Star Formation In a Highly Magnified Giant Arc*", 2020, Nature Astronomy, Volume 4, 159, ADS
- [41] Bleem, L.E., Bocquet, S., Stalder, B., Gladders, M.D., [...] **Khullar, G.** et al., "*The SPTpol Extended Cluster Survey*" 2020, ApJS, 247, 25, ADS
- [42] Huang, N., Bleem, L.E., Stalder, B., [...] **Khullar, G.** et al., "*Galaxy Clusters Selected via the Sunyaev-Zel'dovich Effect in the SPTpol 100-Square-Degree Survey*" 2020, AJ, 159, 110, ADS
- [43] Mahler, G., Sharon, K., Gladders, M.D., [...], **Khullar, G.**, "*Strong Lensing Model of SPT-CLJ0356-5337, a Major Merger Candidate at Redshift 1.0359*", 2019, ApJ, 894, 150, ADS
- [44] Bocquet, S., Dietrich, J.P., Schrabback, T., Bleem, L.E., [...] **Khullar, G.** et al., "*Cluster Cosmology Constraints from the 2500 deg<sup>2</sup> SPT-SZ Survey: Inclusion of Weak Gravitational Lensing Data from Magellan and the Hubble Space Telescope*" 2019, ApJ, 878, 55, ADS
- [45] McDonald, M., Allen, S.W., [...] **Khullar, G.** et al., "*A Detailed Study of the Most Relaxed SPT-Selected Galaxy Clusters: Cool Core and Central Galaxy Properties*" 2019, ApJ, 870, 85, ADS

- [46] Bulbul, E., Chiu, I., Mohr, J.J., [...] **Khullar, G.** et al., "*X-ray Properties of SPT Selected Galaxy Clusters at  $0.2 < z < 1.5$  Observed with XMM-Newton*" 2019, ApJ, 871, 50, ADS
- [47] Abbott, T. M. C., Allam, S., [...], **Khullar, G.**, et al. "*The Dark Energy Survey Data Release 1*" 2018, ApJS, 239, 18, ADS

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