

Yi-Kuan Chiang

ASSISTANT RESEARCH FELLOW

ACADEMIA SINICA INSTITUTE OF ASTRONOMY AND ASTROPHYSICS (ASIAA)

R1414, Astronomy-Mathematics Building, No.1, Sec. 4, Roosevelt Rd, Taipei 10617, Taiwan, R.O.C.

☎ +886 2-3365-2200 | ✉ ykchiang@asiaa.sinica.edu.tw | 🌐 yikuanchiang.github.io

Intensity Mapping, Large-Scale Structure, Galaxy Protoclusters, Galaxy Formation, Astroinformatics

Employment

2022–	Academia Sinica Institute of Astronomy and Astrophysics Assistant Research Fellow (Tenure Track)	TAIPEI, TAIWAN
2019–2021	The Ohio State University Center for Cosmology and AstroParticle Physics Fellow	COLUMBUS, OH, USA
2016–2019	Johns Hopkins University Postdoctoral Fellow	BALTIMORE, MD, USA
Jun–Sep 2016	University of Tokyo Japan Society for the Promotion of Science Postdoctoral Fellow	TOKYO, JAPAN

Education

2016	University of Texas at Austin Ph.D. in Astronomy	AUSTIN, TX, USA
2009	National Tsing Hua University M.S. in Astronomy	HSINCHU, TAIWAN
2007	B.S. in Computer Science with Physics Minor	

Collaborations

2020–	Co-Coordinator of Cosmology Working Group SPHEREx Mission
2022–	Member Subaru Telescope — Prime Focus Spectrograph (PFS) Project
2018–	Member Vera C. Rubin Observatory — Legacy Survey of Space and Time (LSST)
2020–2021	Member Euclid Consortium
2019–2021	Member Dark Energy Spectroscopic Instrument (DESI)
2017–2019	External Collaborator Subaru Telescope — Hyper Suprime-Cam (HSC) Project
2012–2016	Member Hobby-Eberly Telescope Dark Energy Experiment (HETDEX)

Awards

2017–2020	Google Cloud Platform Research Credits Awards (\$30K)
2016	Japan Society for the Promotion of Science (JSPS) Fellowship (¥2M)
2015	UT Austin Graduate School Continuing Fellowship (\$4K)
2014	UT Austin Homer Lindsey Bruce Graduate Fellowship (\$38K)
2014	Roland K. Blumberg Endowment in Astronomy Award
2014, 2016	UT Austin Graduate School Professional Development Awards
2014	UT Austin Astronomy Frank Edmonds Memorial Fellowship
2013	UT Austin Astronomy Board of Visitors Best 2nd Year Research Defense Award
2012	Chandra X-ray Observatory GO PI Grant (\$25K)
2011	Taiwan Ministry of Education Study Abroad Scholarship (\$32K)

Accepted Proposals

Large Programs:

2020 NOAO Survey Proposal (As Co-I | PI: K. Lee & E. Gawiser) 78 NIGHTS DECam TIME, 2021 – 2023
A 100 deg² DECam Narrow-Band Survey for the LSST Era: Tracing the Largest Cosmic Structures in the Distant Universe

PI Programs:

2017 Subaru-Gemini Time Exchange Proposal 9.5 Hrs GMOS-N
JWST High-z Pathfinder: 3D-HST Metal Poor Galaxies at $z = 0.8$

2015, 2016 Gemini Telescope Proposals (2 Accepted) 61 Hrs GMOS-N + GMOS-S
Mapping out the Densest Structures in the COSMOS Field at $z = 2-3$

2009, 2011 Chandra X-ray Observatory Proposals (2 Accepted) \$25K GRANT | 10+15 KS ACIS
The X-Ray Evolution of Supernova 2004am

Co-I Programs:

2019 NASA ADAP (As Collaborator | PI: K. Lee) \$472K GRANT
The Rise and Fall of Dusty Star Formation in Clusters and Protoclusters with Herschel and WISE

2018–2020 Subaru Telescope Proposals (3 Accepted | PI: S. Mukae) 3 NIGHTS MOIRCS
Uncovering the Physical Origin of a Giant Lyman-Alpha Nebula with MOIRCS

2018 NOAO Large Binocular Telescope Proposal (PI: S. Mukae) 5 Hrs LBC
Deep Imaging for IGM Tomography of Enormous Lyman-Alpha Nebulae

2017 Hubble Space Telescope Proposal (PI: C. Casey) 13 ORBITS ACS & WFC3
The Environments of $6 < z < 7$ Quasars: Rich with Starbursts?

2017 Gemini Telescope Proposal (PI: Y. Ono) 8 Hrs GMOS-N
Spectroscopic Confirmation of a Distant Galaxy Cluster at the Epoch of Reionization $z = 6.57$

2016 ALMA Observatory Proposal (PI: C. Casey) 11 Hrs BAND 6
Galaxies' Gas Supply in Two Massive, Starbursting Galaxy Cluster Progenitors at $z > 2$

2016 ESO Very Large Telescope Proposals (2 Accepted | PI: R. Overzier) 32 Hrs KMOS
Rise of the Clusters: Galaxy Formation in the Densest Regions at $z = 2.5$

2012 Gemini Telescope Proposal (PI: S. McGee) 10 Hrs GMOS-N
The High Redshift Progenitors of Massive Galaxy Clusters

2012 McDonald Observatory Proposal (PI: R. Overzier) 10 NIGHTS HJST VIRUS-P
The Environments of the Most Extreme Objects at $z = 2.5$

On-Site Observing Experience

2017 Apache Point Observatory | ARC 3.5m Telescope | DIS, SPIcam, & TSpec 3 NIGHTS

2014 European Southern Observatory | Very Large Telescope | KMOS 4 HALF-NIGHTS

2013 Kitt Peak National Observatory | Mayall Telescope | NEWFIRM 3 NIGHTS

2013–2014 McDonald Observatory | Harlan J. Smith Telescope | VIRUS-P IFU 11 NIGHTS

Tool Releases

2020 **The Tomographer** [HTTP://TOMOGRAPHER.ORG/](http://tomographer.org/)
A Web Tool for Estimating Redshift Distributions from Source Catalogs and Sky Maps Using Statistical Clustering [LINK TO ASTROBETTER POST](#)

Community Service

2014–	Paper Referee Nature, ApJ, ApJS, MNRAS, and A&A
2022	Reviewer James Clerk Maxwell Telescope (JCMT) Time Allocation
2021	Panel Member National Science Foundation (NSF) Grant Proposal Review
2020, 2021	Panel Member Hubble Space Telescope Time Allocation
2020	Referee Subaru Telescope Time Allocation

Student Advising

2020–	Sanskriti Das Ph.D. Student at The Ohio State University <i>Probing the Circumgalactic Medium with the Sunyaev–Zeldovich Effect</i>
2020–	Yiming Yan Ph.D. Student at Huazhong University of Science and Technology <i>Galaxy Protoclusters in Cosmological Simulations</i>
2020	Michael Winfield Undergraduate Student at Ohio State University <i>Clustering Redshift for WISE Sources with Self Organizing Map</i>
2018	Zhiyuan Song Undergraduate at USTC Now Graduate Student at UC Riverside <i>A Hybrid Galactic Dust Reddening Map Using HI and Distant Galaxy Standard Crayons</i>

Teaching

2011–2012	Teaching Assistant 4 Astronomy Courses University of Texas at Austin
2007–2008	Teaching Assistant 3 Astronomy Courses National Tsing Hua University

Recent Colloquia, Seminars, and Conferences

TALKS SINCE JULY 2019 ARE LISTED

May 2022	ASIAA Student Seminar	ASIAA, TAIWAN
Apr 2022	Colloquium	NATIONAL CHENG KUNG UNIVERSITY, TAIWAN
Mar 2020	Conference (Talk) — Cosmic Cartography 2020: Exploring the Cosmic Web and Large-Scale Structure	KAVLI IPMU, JAPAN
Feb 2022	Colloquium	NATIONAL CENTRAL UNIVERSITY, TAIWAN
Jan 2022	SECA Symposium	NATIONAL DONG HWA UNIVERSITY, TAIWAN
Oct 2021	CCAPP Fellows Symposium	OHIO STATE UNIVERSITY, USA
Sep 2021	Colloquium	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY, USA
May 2021	Astro Seminar Series	UNIVERSITY OF WATERLOO, CANADA
Apr 2021	High Energy Theory Seminar	COLUMBIA UNIVERSITY, USA
Mar 2021	Caltech Tea Talk Seminar	CALTECH, USA
Nov 2020	Cosmology Seminar	UNIVERSITY OF OXFORD, UK
Oct 2020	KICP Survey Science Seminar	UNIVERSITY OF CHICAGO, USA
Oct 2020	Coffee Talk	INSTITUTE FOR ADVANCED STUDY, USA
Sep 2020	Cosmology-Galaxy-IGM (CGI) Seminar	UC SANTA CRUZ, USA
Sep 2020	German Centre for Cosmological Lensing Seminar	GCCL, GERMANY
Aug 2020	Conference (Invited Opening Talk) — Protoclusters: Galaxies in Confinement	THE GLOBE
Aug 2020	Marc Kamionkowski Cosmology Group Meeting	JOHNS HOPKINS UNIVERSITY, USA

Aug 2020	Conference (Invited Talk) — 11th CMB-S4 Workshop: Cosmology and Astrophysics in the Next Decade	UNIVERSITY OF CHICAGO, USA
Jul 2020	Midwest Cosmology Network Seminar	MIDWEST, USA
Jul 2020	APEC Seminar	KAVLI IPMU, JAPAN
Mar 2020	Conference (Invited Talk; Postponed) — Caffè Lattes: Cosmological Analyses Featuring Galactic Foreground Emission	LATTES, FRANCE
Feb 2020	CCAPP Seminar	OHIO STATE UNIVERSITY, USA
Jan 2020	Nuclear Particle Astrophysics Seminar	YALE UNIVERSITY, USA
Nov 2019	Galaxies & Cosmology Seminar	HARVARD UNIVERSITY, USA
Nov 2019	Brown Bag Lunch Seminar	MIT, USA
Nov 2019	Lunch Talk	UMASS AMHERST, USA
Sep 2019	Star Formation / ISM Rendezvous	PRINCETON UNIVERSITY, USA
Sep 2019	Low-Density Universe Lunch Seminar	STScI, USA
Sep 2019	Conference (Talk) — KICC 10th Anniversary Symposium	UNIVERSITY OF CAMBRIDGE, UK
Aug 2019	Conference (Talk) — Great Lakes Cosmology	RIT, USA
Jul 2019	Conference (Talk) — L2S2: Lines in the Large Scale Structure	MARSEILLE, FRANCE

Publications

FIRST-AUTHOR PAPERS ARE LISTED FIRST

- 26 **Chiang, Y.-K.**, Makiya, R., Komatsu, E., & Ménard, B., 2021, ApJ, 910, 32
The Thermal and Gravitational Energy Densities in the Large-Scale Structure of the Universe
 - 25 **Chiang, Y.-K.**, Makiya, R., Ménard, B., & Komatsu, E., 2020, ApJ, 902, 56
The Cosmic Thermal History Probed by Sunyaev-Zeldovich Effect Tomography
 - 24 **Chiang, Y.-K.**, Ménard, B., & Schiminovich, D., 2019, ApJ, 877, 150
Broadband Intensity Tomography: Spectral Tagging of the Cosmic UV Background
 - 23 **Chiang, Y.-K.** & Ménard, B., 2019, ApJ, 870, 120
Extragalactic Imprints in Galactic Dust Maps
 - 22 **Chiang, Y.-K.**, Overzier, R. A., Gebhardt, K., & Henriques, B., 2017, ApJ, 844, L23
Galaxy Protoclusters as Drivers of Cosmic Star Formation History in the First 2 Gyr
 - 21 **Chiang, Y.-K.**, Overzier, R., Gebhardt, K., Finkelstein, S., Chiang, C.-T., & 10 coauthors, 2015, ApJ, 808, 37
Surveying Galaxy Proto-Clusters in Emission: A Large-Scale Structure at $z=2.44$ and the Outlook for HETDEX
 - 20 **Chiang, Y.-K.**, Overzier, R., & Gebhardt, K., 2014, ApJ, 782, L3
Discovery of a Large Number of Candidate Protoclusters by ~ 15 Mpc-Scale Galaxy Overdensities in COSMOS
 - 19 **Chiang, Y.-K.**, Overzier, R., & Gebhardt, K., 2013, ApJ, 779, 127
Ancient Light from Young Cosmic Cities: Physical and Observational Signatures of Galaxy Proto-Clusters
 - 18 **Chiang, Y.-K.** & Kong, A. K. H., 2011, MNRAS, 414, 1329
The Long-Term Variability of the X-ray Sources in M82
-
- 17 Lin, Y.-T., Miyatake, H., Guo, H., **Chiang, Y.-K.**, Chen, K.-F., Lan, T.-W., & Chang, Y.-Y., arXiv:2202.01795
A Pair of Early- and Late-Forming Galaxy Cluster Samples: a Novel Way of Studying Halo Assembly Bias Assisted by a Constrained Simulation
 - 16 Lin, H.-H., Lin, K.-Y., Li, C.-T. & 43 Coauthors including **Chiang, Y.-K.**, arXiv:2206.08983
BURSTT: Bustling Universe Radio Survey Telescope for Taiwan

- 15 Huang, Y., Lee, K.-S., Cucciati, O. & 13 Coauthors including **Chiang, Y.-K.**, arXiv:2206.07101
Evaluating Ly α Emission as a Tracer of the Largest Cosmic Structure at $z \sim 2.47$
- 14 McKinney, J., Ramakrishnan, V., Lee, K.-S., Pope, A., Alberts, A., **Chiang, Y.-K.**, & Popescu, R., 2022, ApJ, 928, 88
Measuring the Total Ultraviolet Light from Galaxy Clusters at $z = 0.5-1.6$: The Balance of Obscured and Unobscured Star Formation
- 13 Alberts, S., Lee, K.-S., Pope, A., Brodwin, M., **Chiang, Y.-K.**, & 11 Coauthors, MNRAS, 501, 1970
Measuring the Total Infrared Light from Galaxy Clusters at $z=0.5-1.6$: Connecting Stellar Populations to Dusty Star Formation
- 12 Mukae, S., Ouchi, M., Cai, Z., & 21 Coauthors including **Chiang, Y.-K.**, 2020, ApJ, 896, 45
Three-Dimensional Distribution Map of H I Gas and Galaxies Around an Enormous Ly α Nebula and Three QSOs at $z = 2.3$ Revealed by the HI Tomographic Mapping Technique
- 11 Kubo, M., Toshikawa, J., Kashikawa, N., **Chiang, Y.-K.**, & 10 Coauthors, 2019, ApJ, 887, 214
Planck Far-Infrared Detection of Hyper Suprime-Cam Protoclusters at $z \sim 4$
- 10 Zavala, J., Casey, C., Scoville, N., Champagne, J., **Chiang, Y.-K.**, & 8 Coauthors, 2019, ApJ, 887, 183
On the Gas Content, Star Formation Efficiency, and Environmental Quenching of Massive Galaxies in Proto-Clusters at $z \sim 2.0-2.5$
- 9 Heap, S., Hull, T., Kendrick, S., Woodruff, B., Arenberg, J., Baes, M., Bezanson, R., Bianchi, L., Bowen, D., Cenko, B., **Chiang, Y.-K.**, & 49 Coauthors, 2019, BAAS, 51, 159
The Probe-Class Mission Concept, Cosmic Evolution Through UV Surveys (CETUS)
- 8 Higuchi, R., Ouchi, M., Ono, Y., Shibuya, T., Toshikawa, J., Harikane, Y., Kojima, T., **Chiang, Y.-K.**, & 12 Coauthors, 2019, ApJ, 879, 28
SILVERRUSH. VII. Subaru/HSC Identifications of Protocluster Candidates at $z \sim 6-7$: Implications for Cosmic Reionization
- 7 Jiang, L., Wu, J., Bian, F., **Chiang, Y.-K.**, & 12 Coauthors, 2018, **Nature Astronomy**, 2, 962
A Giant Protocluster of Galaxies at Redshift 5.7
- 6 Uchiyama, H., Toshikawa, J., Kashikawa, N., Overzier, R., **Chiang, Y.-K.**, & 20 Coauthors, 2018, PASJ, 70, S32
Luminous Quasars do not Live in the Most Overdense Regions of Galaxies at $z \sim 4$
- 5 Mukae, S., Ouchi, M., Kakiichi, K., Suzuki, N., Ono, Y., Cai, Z., Inoue, A., **Chiang, Y.-K.**, & 2 Coauthors, 2017, ApJ, 835, 281
Cosmic Galaxy-IGM HI Relation at $z \sim 2-3$ Probed in the COSMOS/UltraVISTA 1.6 Deg² Field
- 4 Smolcic, V., Miettinen, O., Tomicic, N., Zamorani, G., Finoguenov, A., Lemaux, B. C., Aravena, M., Capak, P., **Chiang, Y.-K.**, & 14 Coauthors, 2017, A&A, 597, A4
(Sub)millimetre Interferometric Imaging of a Sample of COSMOS/AzTEC Submillimetre Galaxies III. Environments
- 3 Hung, C.-L., Casey, C., **Chiang, Y.-K.**, & 10 Coauthors, 2016, ApJ, 826, 130
Large Scale Structure Around a $z=2.1$ Cluster
- 2 Hagen, A., Zeimann, G., Behrens, C., Ciardullo, R., Gebhardt, H., Gronwall, C., Bridge, J., Fox, D., Schneider, D., Trump, J., Blanc, G., **Chiang, Y.-K.**, & 5 Coauthors, 2016, ApJ, 817, 79
HST ELGs at $z \sim 2$: Comparing Physical Properties of Ly α and Optical Emission Line Selected Galaxies
- 1 Rigby, E., Hatch, N., Röttgering, H., Sibthorpe, B., **Chiang, Y.-K.**, & 13 Coauthors, 2014, MNRAS, 437, 1882
Searching for Large-Scale Structures Around High-Redshift Radio Galaxies with Herschel

References

Prof. Brice Ménard	Associate Professor Johns Hopkins University	Phone: +1 410-516-5743 Email: menard@jhu.edu
Prof. Eiichiro Komatsu	Director Max-Planck-Institut für Astrophysik	Phone: +49 89 30000-2208 Email: komatsu@mpa-garching.mpg.de
Prof. Roderik Overzier	Professor / Researcher Observatório Nacional	Phone: +55 (21) 3504-9208 Email: overzier@on.br
Prof. Chris Hirata	Professor The Ohio State University	Phone: +1 614-292-8016 Email: hirata.10@osu.edu
Prof. Karl Gebhardt	Professor University of Texas at Austin	Phone: +1 512-471-1473 Email: gebhardt@astro.as.utexas.edu