Yi-Kuan Chiang

Assistant Research Fellow — 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

Research

Data-Intensive Astronomy Focusing on Cosmological Galaxy Formation, Cosmic Structures and Inventory

Academic History

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

Positions Held

2022–	**Academia Sinica Institute of Astronomy & Astrophysics (ASIAA)** 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

Honors and Awards

2019	Center for Cosmology and AstroParticle Physics (CCAPP) Fellowship
2016	Japan Society for the Promotion of Science (JSPS) Fellowship
2015	UT Austin Graduate School Continuing Fellowship
2014	UT Austin Homer Lindsey Bruce Graduate Fellowship
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 Second Year Research Award

Sky Surveys and Roles

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

Professional Services

2023–	Taiwan TAC Chair | Canada France Hawaii Telescope (CFHT) Time Allocation
2014–	Paper Referee | Nature, ApJ, ApJS, MNRAS, and A&A
2022	Taiwan TAC Member | Canada France Hawaii Telescope (CFHT) Time Allocation
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

Awarded Telescope Time

PI Programs:

2017	Subaru-Gemini Time Exchange *JWST High-z Pathfinder: 3D-HST Metal Poor Galaxies at z = 0.8*	9.5 Hrs GMOS-N
2015, 2016	Gemini Telescope (2 Proposals Accepted) *Mapping out the Densest Structures in the COSMOS Field at z = 2–3*	61 Hrs GMOS-N + GMOS-S
2009, 2011	Chandra X-ray Observatory (2 Proposals Accepted) *The X-Ray Evolution of Supernova 2004am*	$25K Grant | 10+15 ks ACIS

Selected Co-I Programs:

2020	NOAO Large Survey (As Co-I | PI: K. Lee & E. Gawiser) *A 100 deg^2 DECam Narrow-Band Survey for the LSST Era: Tracing the Largest Cosmic Structures in the Distant Universe*	78 Nights DECam Time, 2021 – 2023
2018–2020	Subaru Telescope (3 Proposals Accepted | PI: S. Mukae) *Uncovering the Physical Origin of a Giant Lyman-Alpha Nebula with MOIRCS*	3 Nights MOIRCS
2017	Hubble Space Telescope (PI: C. Casey) *The Environments of 6 < z < 7 Quasars: Rich with Starbursts?*	13 Orbits ACS & WFC3
2017	Gemini Telescope (PI: Y. Ono) *Spectroscopic Confirmation of a Distant Galaxy Cluster at the Epoch of Reionization z = 6.57*	8 Hrs GMOS-N
2016	ALMA Observatory (PI: C. Casey) *Galaxies' Gas Supply in Two Massive, Starbursting Galaxy Cluster Progenitors at z > 2*	11 Hrs Band 6
2016	ESO Very Large Telescope (2 Proposals Accepted | PI: R. Overzier) *Rise of the Clusters: Galaxy Formation in the Densest Regions at z = 2.5*	32 Hrs KMOS
2012	McDonald Observatory (PI: R. Overzier) *The Environments of the Most Extreme Objects at z = 2.5*	10 Nights HJST VIRUS-P

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** A Web Tool for Estimating Redshift Distributions from Source Catalogs and Sky Maps Using Statistical Clustering	http://tomographer.org/ Link to AstroBetter Post

Publications

First-author papers are listed first

32 **Chiang, Y.-K.**, 2023, ApJ, in press, arXiv:2306.03926
Corrected SFD: A More Accurate Galactic Dust Map with Minimal Extragalactic Contamination

31 **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

30 **Chiang, Y.-K.**, Makiya, R., Ménard, B., & Komatsu, E., 2020, ApJ, 902, 56
The Cosmic Thermal History Probed by Sunyaev-Zeldovich Effect Tomography

29 **Chiang, Y.-K.**, Ménard, B., & Schiminovich, D., 2019, ApJ, 877, 150
Broadband Intensity Tomography: Spectral Tagging of the Cosmic UV Background

28 **Chiang, Y.-K.** & Ménard, B., 2019, ApJ, 870, 120
Extragalactic Imprints in Galactic Dust Maps

27 **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

26 **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

25 **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

24 **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

23 **Chiang, Y.-K.** & Kong, A. K. H., 2011, MNRAS, 414, 1329
The Long-Term Variability of the X-ray Sources in M82

---

22 Lee, K.-S., Gawiser, E., Park, C., & 39 Coauthors including **Chiang, Y.-K.**, 2023, arXiv:2309.10191
The One-hundred-deg^2 DECam Imaging in Narrowbands (ODIN): Survey Design and Science Goals

21 Popescu, R., Pope, A., Lee, K.-S., & 6 Coauthors including **Chiang, Y.-K.**, 2023, arXiv:2308.00745
Tracing the Total Stellar Mass and Star Formation of High-Redshift Protoclusters

20 Das, S., **Chiang, Y.-K.**, & Mathur, S. 2023, ApJ, 951, 125
Detection of Thermal Sunyaev-Zel'dovich Effect in the Circumgalactic Medium of Low-mass Galaxies-A Surprising Pattern in Self-similarity and Baryon Sufficiency

19 Han, J. J., Dey, A., Price-Whelan, A. M. & 206 Coauthors including **Chiang, Y.-K.**, 2023, arXiv:2306.11784
NANCY: Next-generation All-sky Near-infrared Community surveY

18 Lin, Y.-T., Miyatake, H., Guo, H., **Chiang, Y.-K.**, Chen, K.-F., Lan, T.-W., & Chang, Y.-Y., 2022, A&A, 666, A97
A Pair of Early- and Late-Forming Galaxy Cluster Samples: a Novel Way of Studying Halo Assembly Bias Assisted by a Constrained Simulation

17 Lin, H.-H., Lin, K.-Y, Li, C.-T. & 43 Coauthors including **Chiang, Y.-K.**, 2022, PASP, 134, 094106
BURSTT: Bustling Universe Radio Survey Telescope for Taiwan

16 Huang, Y., Lee, K.-S., Cucciati, O. & 13 Coauthors including **Chiang, Y.-K.**, 2022, ApJ, 941, 134
Evaluating Lya Emission as a Tracer of the Largest Cosmic Structure at z 2.47

15 McKinney, J., Ramakrishnan, V., Lee, K.-S., & 4 Coauthors including **Chiang, Y.-K.**, 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

14 Alberts, S., Lee, K.-S., Pope, A., Brodwin, M., **Chiang, Y.-K.**, & 11 Coauthors, 2021, MNRAS, 501, 1970
Measuring the Total Infrared Light from Galaxy Clusters at z=0.5–1.6: Connecting Stellar Populations to Dusty Star Formation

13 Crill, B. P., Werner, M., Akeson, R., & 51 Coauthors including **Chiang, Y.-K.**, 2020, SPIE, 11443, 114430
SPHEREx: NASA's near-infrared spectrophotometric all-sky survey

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 Lyα 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∼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∼2.0–2.5

9 Heap, S., Hull, T., Kendrick, S., & 61 coauthers including **Chiang, Y.-K.**, 2019, BAAS, 51, 159
The Probe-Class Mission Concept, Cosmic Evolution Through UV Surveys (CETUS)

8 Higuchi, R., Ouchi, M., Ono, Y., & 17 coauthers including **Chiang, Y.-K.**, 2019, ApJ, 879, 28
SILVERRUSH. VII. Subaru/HSC Identifications of Protocluster Candidates at z∼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∼4

5 Mukae, S., Ouchi, M., Kakiichi, K., & 7 coauthers including **Chiang, Y.-K.**, 2017, ApJ, 835, 281
Cosmic Galaxy-IGM HI Relation at z∼2–3 Probed in the COSMOS/UltraVISTA 1.6 Deg^2 Field

4 Smolcic, V., Miettinen, O., Tomicic, N.,& 20 coauthers including **Chiang, Y.-K.**, 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., & 14 coauthers including **Chiang, Y.-K.**, 2016, ApJ, 817, 79
HST ELGs at z∼2: Comparing Physical Properties of Lyα 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. 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