Yi-Kuan Chiang

CCAPP Fellow · The Ohio State University
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Employment

2019–	**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

University of Texas at Austin — Austin, TX, USA

2016 **Ph.D. in Astronomy**

- Thesis: *Galaxy Protoclusters as an Interface of Structure, Cluster, and Galaxy Formation*
- Advisors: Karl Gebhardt and Roderik Overzier

National Tsing Hua University — Hsinchu, Taiwan

2009 **M.S. in Astronomy**

- Thesis: *The Long-term Variability of the X-ray Sources in M82*
- Advisor: Albert Kong

2007 **B.S. in Computer Science with Physics Minor**

Main Fields of Research

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

Major Collaborations

2020–	Co-Coordinator of Cosmology Working Group | SPHEREx Mission
2019–	Member | Dark Energy Spectroscopic Instrument (DESI)
2018–	Member | Dark Energy Science Collaboration (LSST-DESC)
2017–	External Collaborator | Subaru Hyper Suprime-Cam Subaru Strategic Program
2012–2016	Member | Hobby-Eberly Telescope Dark Energy Experiment (HETDEX)

Awards and PI Grants

2017–2020	Google Cloud Platform Research Credits Awards ($30K Total)
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 Grant ($25K)
2011	Taiwan Ministry of Education Study Abroad Scholarship ($32K)

Community Service

2020	Panel Member | Hubble Space Telescope Time Allocation
2020	Referee | Subaru Telescope Time Allocation
2020–	Organizer | Ohio State CCAPP Seminar Series
2019	Panel Organizer | DESI Collaboration Survey Validation and Early Spectroscopy Workshop
2014–	Paper Referee | ApJ and MNRAS

Accepted Proposals

Large Programs:

2020 — NOAO Survey Proposal (As Co-I | PI: K. Lee & E. Gawiser) — 78 Nights DECam Time, 2021 – 2023
A 100 deg^2 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 the Most 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

Onsite 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

Student Advising

2020–	Yiming Yan | Ph.D. Student at Huazhong University of Science and Technology *Galaxy Protoclusters in Cosmological Simulations*
2020	Michael Winfield | Undergraduate Student at Ohio State University *Clustering Redshift for WISE Sources with Self Organizing Map*
2018	Zhiyuan Song | Undergraduate at USTC | Now Graduate Student at UC Riverside *A Hybrid Galactic Dust Reddening Map Using HI and Distant Galaxy Standard Crayons*
2017	Richard Seifert | Undergraduate at UT Austin | Now Graduate Student at UVA *Submillimeter Stacking in Overdense Environments at z > 2* (Co-Supervised w C.-L. Hung)

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 March 2019 are listed

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
Apr 2020	**Conference (Talk; Postponed)** — Cosmic Cartography 2020: Exploring the Cosmic Web and Large-Scale Structure	Kavli IPMU, Japan
Mar 2020	**Conference (Invited Talk; Postponed)** — Caffe 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
Jun 2019	HotSci Talk Series	STScI, USA
Mar 2019	APEC Seminar	Kavli IPMU, JAPAN

Mar 2019	Special Seminar	ASIAA, Taiwan
Mar 2019	**Conference (Talk)** — Panchromatic Studies of Galaxy Clusters	ASIAA, Taiwan

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

22 **Chiang, Y.-K.**, Makiya, R., Komatsu, E., & Ménard, B., 2020, arXiv:2007.01679 **(ApJ Submitted)**
The Thermal and Gravitational Energy Densities in the Large-Scale Structure of the Universe

21 **Chiang, Y.-K.**, Makiya, R., Ménard, B., & Komatsu, E., 2020, arXiv:2006.14650 **(ApJ Accepted)**
The Cosmic Thermal History Probed by Sunyaev-Zeldovich Effect Tomography

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

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

18 **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

17 **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

16 **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

15 **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

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

13 Alberts, S., Lee, K.-S., Pope, A., Brodwin, M., **Chiang, Y.-K.**, & 11 Coauthors, 2020, arXiv:2007.01880 **(MNRAS Submitted)**
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 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., 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∼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., Suzuki, N., Ono, Y., Cai, Z., Inoue, A., **Chiang, Y.-K.**, & 2 Coauthors, 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., 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∼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

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Prof. Xavier Prochaska	Professor University of California, Santa Cruz	Phone: +1 831-459-2135 Email: xavier@ucolick.org
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