Yuguang Chen 陈昱光

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Education

- 2015–2021 **California Institute of Technology**, *M.S., 2017; Ph.D. in Astrophysics, 2021*, Thesis: The Absorption and Emission of Neutral Hydrogen around High-Redshift Star-Forming Galaxies, Advisor: Charles C. Steidel.
- 2011–2015 **Peking University**, *B.S. in Astronomy, 2015*, Advisors: Gregory J. Herczeg, Luis C. Ho.

Employment

- 2021–now **Postdoc Researcher**, *University of California, Davis*, Host: Tucker Jones.
- 2015–2021 **Research assistant, teaching assistant**, *California Institute of Technology*.
- 2012–2015 **Undergraduate research assistant**, *Peking University*.
- 2014 **Visiting undergraduate research assistant**, *The University of Arizona*.

Research Interests

Current:
Observations of the galactic ecosystem from large samples: how gas on all scales affects the evolution trajectory of galaxies through the history of the universe? The chemical composition of ISM/CGM/IGM. The inflow, outflow, and distribution of the CGM and IGM gas. Observational constraints of the Lyα radiative transfer.

Previous:
The accretion of classical T Tauri stars. Measuring the mass of supermassive blackholes through reverberation mapping.

Teaching

Instructor

- **Galaxies and Cosmology, and project instructor**. California State Summer School for Mathematics and Science (COSMOS), Cluster 4, UC Davis, 2023.

Teaching Assistantship

- **Ay121 – Radiative Process (Caltech)**. Instructor: Prof. Evan Kirby, 2016.
- **Ay124 – Structure and Dynamics of Galaxies (Caltech)**. Instructor: Prof. Phil Hopkins, 2017.
- **Ay105 – Optical Astronomy Instrumentation Lab (Caltech)**. Completely renovated the class equipment and content. Instructor: Prof. Dimitri Mawet, 2017.
- **Ay20 – Basic Astronomy and the Galaxy (Caltech)**. Instructor: Prof. Evan Kirby, 2018.
- **Ay127 – Cosmology and Galaxy Formation (Caltech)**. Instructors: Prof. Chuck Steidel and Prof. D. Chris Martin, 2019.

Professional Experiences

Observations

- **The Keck Observatories**
  KCWI: $\gg$30 nights;
  LRIS: $>$30 nights;
  MOSFIRE: $>$30 nights;
  OSIRIS: 3 nights.
- **Palomar 200-inch**, CWI: 3 nights.
- **The Bok Telescope of the University of Arizona**, 90Prime: $\sim$25 nights.
- **The University of Hawaii 88-Inch Telescope**, SNIFS: 10 nights.
- **The Large Binocular Telescope**, MODS, LUCI: 5 nights.

Software

- Skilled in Python, IDL, LaTeX, HTML.
  Personal Github: https://github.com/yuguangchen1.
- **KCWIKit**: KCWI Post-Processing and Improvements (Prusinski & Chen, 2024).
- Significant contributions to the official Keck/KCWI data reduction pipeline.
- **CWITools**: a Python package for scientific analysis of PCWI/KCWI data (O'Sullivan & Chen, 2020).
- **XTRIMPy**: A light-weight spectroscopic analysis and identification tool.

Awards

- **UC Davis Postdoctoral Research Symposium outstanding presentation**, 2023.
- **NASA Astrophysics Data Analysis Program (ADAP)**, 2023.
- **NAOC Scholarship**, 2013, 2014.
- **Lin-Bridge Scholarship**, 2013, 2014.

- **CSC Undergraduate International Visiting Fellowship**, 2013.
- **May-4th Scholarship**, 2012.

Community Service

- **UC Davis Astronomy & Cosmology Seminar**: Organizer, 2022 – Now.
- **Poster Symposium Targeting Early-career Researchers (PoSTER-2022)**: Official AAS and Astro3D event. Chair of the organizing committee, 2022.
- **Astronomy on Tap Chinese by AoT LA chapter**: Permanent organizer, host, 2020 – Now.
  YouTube playlist: `https://youtube.com/playlist?list=PL0yNjaybQwdsgV8Q_-K10nS7bxPb5TEf_`
- **Cahill Galaxy Formation Astro-ph**: Organizer, 2020.
- **Cahill Rooftop Observatory**: Manager; managing daily operations for astronomy enthusiasts on campus; hosting outreach events; hosting tests for scientific equipments. 2017 – 2021.
- **Caltech Astronomy Outreach**: Volunteer; lecturer; general management for daily operations; lecture and stargazing captain. 2016 – 2021.
  Public lecture: The Gas Around Galaxies (https://youtu.be/SG0RGdtWsfI).
- **Peking University Youth Astronomy Society**: President, 2012 – 2013.
- **Astronomy Undergraduate Research Symposium at Peking University**: SOC, LOC. 2013.

Selected Presentations

- **CGCA Seminar**, University of Wisconsin, Milwaukee, February 2021 (invited).
- **MAAT Data System Workshop**, IAA-CSIC, March 2021 (invited).
- **SOFIA Science Meeting**, February 2022 (contribution).
- **AAS 240**, Pasadena, June 2022 (dissertation).
- **Keck Science Meeting**, September 2022, 2023 (contribution).
- **STScI Spring Symposium**, April 2024 (contribution).
- **STScI Journal Club**, June 2024 (invited).
- **Keck Science Meeting**, September 2024 (chair of the breakout session on KCWI data reduction).

Publications

Total: 35; h-index: 17

Link to ADS: https://ui.adsabs.harvard.edu/public-libraries/skD6E57kS8WLR3PhbibihQ

- Coleman, Erin ; Keerthi Vasan G., C. search by orcid ; **Chen, Yuguang**; et al; 2024, submitted; "Detection of gas inflow during the onset of a starburst in a low-mass galaxy at z=2.45".
- Nunez, Evan Haze ; Steidel, Charles C.; **et al**; 2024, submitted;

"KBSS-InCLOSE I: Design and First Results from the Inner CGM of QSO Line Of Sight Emitting Galaxies at z 2-3".

- Barisic, Ivana ; Jones, Tucker; **et al**; 2024, submitted;
  "MSA-3D: dissecting galaxies at z 1 with high spatial and spectral resolution".
- Bolda, Claire; Li, Zhihui; **et al**; 2024, submitted;
  "Gas Accretion Traced by Blue-Dominated Lyα Emission and Redshifted UV Absorption Lines in Protocluster Galaxies at z = 2.3 from the KBSS-KCWI Survey".
- Song, Zhiyuan; Reddy, Naveen A.; **Chen, Yuguang**; et al; 2024, ApJ, 969, 103S;
  "Lyα Halo Properties and Dust in the Circumgalactic Medium of z $\sim$ 2 Star-forming Galaxies".
- Shen, Yue; Grier, Catherine J.; **et al**; 2024, ApJS, 272, 26S;
  "The Sloan Digital Sky Survey Reverberation Mapping Project: Key Results".
- **Chen, Yuguang**; Jones, Tucker; et al; 2024, submitted;
  "Robust Nitrogen and Oxygen Abundances of Haro 3 from Optical and Infrared Emission".
- Prusinski, Nikolaus Z. & **Chen, Yuguang**; 2024, ASCL record: 2404.003;
  "KCWIKit: KCWI Post-Processing and Improvements".
- **Chen, Yuguang**; Jones, Tucker; et al; 2024, NatAs, 8, 278;
  "Reply to: Effects of density and temperature variations on the metallicity of Mrk71".
- Keerthi Vasan G., C.; Jones, Tucker; **et al**; 2024, submitted;
  "Spatially Resolved Galactic Winds at Cosmic Noon: Outflow Kinematics and Mass Loading in a Lensed Star-Forming Galaxy at z=1.87".
- Pahl, Anthony J.; Shapley, Alice E.; **et al**; 2024, submitted;
  "Lyα profile shape as an escape-fraction diagnostic at high redshift".
- Strom, Allison L.; Rudie, Gwen C.; **et al**; 2023, ApJ, 958L, 11;
  "CECILIA: The Faint Emission Line Spectrum of z$\sim$2-3 Star-forming Galaxies".
- Herczeg, Gregory J.; **Chen, Yuguang (joint first author)**; et al, 2023, ApJ, 956, 102;
  "Twenty-five Years of Accretion onto the Classical T Tauri Star TW Hya".
- Erb, Dawn K.; Li, Zhihui; Steidel, Charles C.; **Chen, Yuguang**; et al, 2023, ApJ, 953, 118;
  "The Circumgalactic Medium of Extreme Emission Line Galaxies at z $\sim$ 2: Resolved Spectroscopy and Radiative Transfer Modeling of Spatially Extended Lyman-alpha Emission in the KBSS-KCWI Survey".
- **Chen, Yuguang**; Jones, Tucker; et al, 2023, NatAs, 7, 771,
  "Accurate oxygen abundance of interstellar gas in Mrk 71 from optical and infrared spectra".
- Jones, Tucker; Sanders, Ryan; **Chen, Yuguang**; et al, 2023, ApJL, 951L, 17;
  "Early Results from GLASS-JWST. XXI: Rapid assembly of a galaxy at z=6.23 revealed by its C/O abundance".
- de los Reyes, Mithi A. C.; Kirby, Evan N.; **et al**, 2023, ApJ, 951, 52;
  "Dwarfs in Void Environments (DIVE): The Stellar Kinematics of Void Dwarf Galaxies Using the Keck Cosmic Web Imager".

- Pahl, Anthony J.; Shapley, Alice; **et al**, 2023, MNRAS, 521, 3247P;
  "The connection between the escape of ionizing radiation and galaxy properties at z∼3 in the Keck Lyman Continuum Spectroscopic Survey"
- Langen, Vivienne; Cantalupo, Sebastiano; Steidel, Charles C.; **Chen, Yuguang**; et al, 2023, MNRAS, 519, 5009L;
  "Characterizing the circumgalactic medium of quasars at z∼2.2 through Hα and Lyα emission".
- Pahl, Anthony J.; Shapley, Alice; **et al,**, 2022, MNRAS, 516, 2062P;
  "Searching for the connection between ionizing-photon escape and the surface density of star formation at z∼3"
- Li, Zhihui; Steidel, Charles C.; Gronke, Max; **Chen, Yuguang**; et al, 2022, MNRAS, 513, 3414L;
  "Where outflows meet inflows: gas kinematics in SSA22 Lyα blob 2 decoded by advanced radiative transfer modelling"
- **Chen, Yuguang**; Steidel, Charles C.; et al, 2021, MNRAS, 508, 19C;
  "The KBSS-KCWI survey: the connection between extended Ly α haloes and galaxy azimuthal angle at z∼2-3"
- Pahl, Anthony J.; Shapley, Alice; Steidel, Charles C.; **Chen, Yuguang**; et al, 2021, MNRAS, 505, 2447P;
  "An uncontaminated measurement of the escaping Lyman continuum at z∼3"
- Li, Zhihui; Steidel, Charles C.; Gronke, Max and **Chen, Yuguang**, 2021, MNRAS, 502, 2389L;
  "Revisiting the Gas Kinematics in SSA22 Lyman-α Blob 1 with Radiative Transfer Modeling in a Multiphase, Clumpy Medium".
- **Chen, Yuguang**; Steidel, Charles C.; et al, 2020, MNRAS, 499, 1721C;
  "The Keck Baryonic Structure Survey: Using foreground/background galaxy pairs to trace the structure and kinematics of circumgalactic neutral hydrogen at $z \sim 2$".
- O'Sullivan, Donal and **Chen, Yuguang**, arXiv:2011.05444;
  "CWITools: A Python3 Data Analysis Pipeline for the Cosmic Web Imager Instruments".
- Kinemuchi, K.; Hall, Patrick B.; **et al**, 2020, ApJS, 251, 10;
  "The Sloan Digital Sky Survey Reverberation Mapping Project: Photometric g and i Light Curves".

- Trainor, Ryan F.; Strom, Allison L.; **et al**, 2019, ApJ, 887, 85;
  "Predicting Lyα Emission from Galaxies via Empirical Markers of Production and Escape in the KBSS".
- Grier, C. J.; Shen, Yue; **et al**, 2019, ApJ, 887, 38;
  "The Sloan Digital Sky Survey Reverberation Mapping Project: Initial C IV Lag Results from Four Years of Data".
- Shen, Yue; Grier, C. J.; **et al**, 2019, ApJL, 883, L14;
  "The Sloan Digital Sky Survey Reverberation Mapping Project: Improving Lag Detection with an Extended Multiyear Baseline".
- Law, David R.; Steidel, Charles C.; **Chen, Yuguang**; et al, 2018, ApJ, 866, 119;

"Imaging Spectroscopy of Ionized Gaseous Nebulae around Optically Faint AGNs at Redshift z$\sim$2".

- Erb, Dawn K.; Steidel, Charles C. and **Chen, Yuguang**, 2018, ApJL, 862, L10;
  "The Kinematics of Extended Lyα Emission in a Low-mass, Low-metallicity Galaxy at z = 2.3".
- Grier, C. J.; Trump, J. R.; **et al**, 2017, ApJ, 851, 21;
  "The Sloan Digital Sky Survey Reverberation Mapping Project: Hα and Hβ Reverberation Measurements from First-year Spectroscopy and Photometry".
- Grier, C. J.; Hall, P. B.; **et al**, 2015, ApJ, 806, 111;
  "The Sloan Digital Sky Survey Reverberation Mapping Project: Rapid CIV Broad Absorption Line Variability".
- Shen, Yue; Brandt, W. N.; **et al**, 2015, ApJS, 216, 4;
  "The Sloan Digital Sky Survey Reverberation Mapping Project: Technical Overview".