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Education and Employment

Associate Fellow, KICP, University of Chicago, 2021-.
Host: Hsiao-Wen Chen.

PhD, Astrophysics, University of Michigan, Ann Arbor, 2017-2021.
Advisor: Joel N. Bregman.

MS, Astrophysics, University of Michigan, Ann Arbor, 2015-2017.

BS, Astronomy (Graduate with Honors), Peking University, 2011-2015
Advisor: Renxin Xu and M.B.N. (Thijs) Kouwenhoven.

Scholarships & Awards

2021 - The IAU PhD Prize (Galaxies and Cosmology), IAU.

2021 - The ProQuest Distinguished Dissertation Awards, The University of Michigan.

2020 - Rackham Dissertation Fellowship, The University of Michigan.

2016-2019 - Rackham Travel Awards, The University of Michigan.

2015 - Weiming Physics Scholarship, School of Physics, Peking University.

2015 - Xingcheng Undergrad Research Forum, First Prize, School of Physics, Peking University.

2014 - Science Base Scholarship, Second Prize, Peking University.

2014 - NAOC Scholarship, National Astronomical Observatories, Chinese Academy of Sciences.

2013 - Lin Bridge Scholarship, Department of Astronomy, Peking University.

2013 - Zhang Wenxin Scholarship, School of Physics, Peking University.

Professional Services

Referee of AAS Journals, A&A, MNRAS

External reviewer for HST Cycle 31

Research Advising

4. Suyash Kumar (Grad @ UChicago), Co-advised with Hsiao-Wen Chen, 2022-*present*.
3. Zeyang Pan (Grad @ UCAS), 2021-*present*.
2. Hang Yang (visiting Grad @ UMich from PMO), Co-advised with Joel Bregman, 2019-*present*.
1. Ryan Lindley (Undergrad @ UMich), 2019-2021.

Proposals and Grants

10. 2023 - *Hubble Space Telescope*, Cycle 31, 17517, GO, 131 orbits, Co-I (PI: Chen)
"CONTACT: Circumgalactic Observations of Nuv-shifted Transitions Across Cosmic Time"
9. 2022 - NASA Astrophysics Data Analysis Program, **Co-PI** (PI: Chen), $454.6k
"Probing Feeding and Feedback in the Circumgalactic Medium Using OVI As a Tracer"
8. 2022 - *Hubble Space Telescope*, Cycle 30, 17116, GO, 30 orbits, Co-I (PI: Bregman)
"The Hot Multi-Temperature Gaseous Halos of Galaxies and Groups"
7. 2022 - *Hubble Space Telescope*, Cycle 30, 17049, AR, **Co-PI** (PI: Polzin)
"Elucidating Galaxy Quenching with Absorption Probes of Halos around Low-mass Dwarfs"
6. 2021 - NASA Astrophysics Data Analysis Program, Co-I (PI: Bregman), $692.8k ($80.0k goes to U. Chicago)
"Resolving the Hot Halos to the Virial Radius and Beyond in the Local Universe"
5. 2019 - *Hubble Space Telescope*, Cycle 27, 15806, AR, **PI**, $97.6k
"The Rotation, Accretion, and Mass of the Milky Way Warm Gas Disk and CGM"
4. 2018 - NASA Astrophysics Data Analysis Program, Co-I (PI: Bregman), 526.4k
"Hot Halos of Galaxies and Galaxy Groups-Reservoirs of Baryons and Metals"
3. 2018 - Magellan Telescope, Cycle 2018A, 2 nights, **PI**,
"Host Galaxies of the Mg X/Ne VIII Absorption Systems: LBQS 1435-0134"
2. 2018 - Magellan Telescope, Cycle 2017B, 3 nights, **PI**,
"Host Galaxies of the Mg X/Ne VIII Absorption Systems: PHL 1377"
1. 2017 - *Chandra* X-ray Observatory, Cycle 18, 50 ks, Co-I (PI: Bregman),
"Gaseous Galaxy Halos in the Transition Between Hot and Cold Mode Accretion."

References

Prof. Joel N. Bregman at the University of Michigan, Ann Arbor
Email: `jbregman@umich.edu`

Prof. Hsiao-Wen Chen at the University of Chicago
Email: `hchen@astro.uchicago.edu`

Dr. Gwen C. Rudie at Carnegie Observatories
Email: `gwen@carnegiescience.edu`

Conferences & Talks

16. Feb. 2024 - Diffuse Gas in Cosmic Ecosystems (DGCE) Science Interest Group.
15. 2023 - Seminars, FDU, XAO, XMU, SYSU, SHAO, SJTU, ZJU, THU, PKU, NAOC, PMO, USTC, NJU, China.
14. Dec. 2023 - Contributing talk, Resolving Galaxy Ecosystems Across All Scales, Hong Kong.
13. Nov. 2023 - Invited talk, Astro Galread Discussion Group, Princeton.
12. Feb. 2023 - Contributing talk, Oases in the Cosmic Desert, "On the thermodynamic properties of the cool CGM at z < 1", Tempe, Arizona.
11. Aug. 2022 - Instructor, The 1st "High-Resolution X-ray and UV (HiXUV) Spectroscopy Capability Building Workshops", Virtual Workshop.
10. Jan. 2021 - OSU CCAPP Seminar, "Warm-Hot Circumgalactic Medium and its Co-Evolution with Galaxy Disk", Columbus, Ohio.
9. Nov. 2020 - Caltech CGM Seminar, "Warm-Hot Circumgalactic Medium and its Co-Evolution with Galaxy Disk", Pasadena, California.
8. Oct. 2019 - WIM Workshop, Contributing Talk, "The Warm Gas in the MW – Rotation, Accretion, and Mass", Green Bank, West Virginia.
7. Aug. 2018 - XXX IAU General Assembly, "The Mass and Column Densities of Galactic Gaseous Halos", Vienna, Austria.
6. Jul. 2018 - CGM Workshop 2018, Contributing Talk, "The Mass and Column Densities of Galactic Gaseous Halos", Northwestern University, Evanston, Illinois.
5. Mar. 2018 - Seminar, "Understanding the Galaxy Evolution with Gaseous Halos", Peking University, Beijing, China.
4. Mar. 2018 - Colloquium, "Understanding the Galaxy Evolution with Gaseous Halos", The Purple Mountain Observatory, Nanjing, China.
3. Jan. 2018 - 231st AAS Meeting, "The Mass and Absorption Columns of Galactic Gaseous Halos", Washington, DC.
2. Aug. 2017 - 16th HEAD Meeting, "Detection of Possible Intervening Mg X Associated with A Hot Gaseous Galaxy Halo", Sun Valley, Idaho.
1. Jul. 2014 - Fast Pulsar Symposium 3, "Analysis of Short Bursts in AXPs/SGRs", Shanghai, China.

Publications (First-Authored or Corresponding-Authored; *Student)

16. *Zeyang Pan, **Zhijie Qu**, Joel N. Bregman, and Jifeng Liu. The XMM-Newton Line Emission Analysis Program (X-LEAP) I: Overview and Emission Line Survey of O VII, O VIII, and Fe L-Shell Transitions. *ApJS submitted*

15. **Zhijie Qu**, Hsiao-Wen Chen, Sean D. Johnson, Gwen C. Rudie, Fakhri S. Zahedy, David DePalma, Joop Schaye, Erin T. Boettcher, Sebastiano Cantalupo, Mandy C. Chen, Claude-André Faucher-Giguère, Jennifer I-Hsiu Li, John S. Mulchaey, Patrick Petitjean, and Marc Rafelski. The Cosmic Ultraviolet Baryon Survey (CUBS) - VII. on the warm-hot circumgalactic medium probed by O VI and Ne VIII at $0.4 < z < 0.7$. *ApJ Submitted*, 2024

14. **Zhijie Qu**, *Zeyang Pan, Joel N. Bregman, and Jifeng Liu. The XMM-Newton Line Emission Analysis Program (X-LEAP) II: The Multi-scale Temperature Structures in the Milky Way Hot Gas. *ApJ submitted*, 2024

13. **Zhijie Qu**, Hsiao-Wen Chen, Gwen C. Rudie, Sean D. Johnson, Fakhri S. Zahedy, David DePalma, Erin Boettcher, Sebastiano Cantalupo, Mandy C. Chen, Kathy L. Cooksey, Claude-André Faucher-Giguère, Jennifer I. Hsiu Li, Sebastian Lopez, Joop Schaye, and Robert A. Simcoe. The Cosmic Ultraviolet Baryon Survey (CUBS) - VI. Connecting physical properties of the cool circumgalactic medium to galaxies at $z \approx 1$. *MNRAS*, 524(1):512–528, September 2023

12. **Zhijie Qu**, Hsiao-Wen Chen, Gwen C. Rudie, Fakhri S. Zahedy, Sean D. Johnson, Erin Boettcher, Sebastiano Cantalupo, Mandy C. Chen, Kathy L. Cooksey, David DePalma, Claude-André Faucher-Giguère, Michael Rauch, Joop Schaye, and Robert A. Simcoe. The Cosmic Ultraviolet Baryon Survey (CUBS) V: on the thermodynamic properties of the cool circumgalactic medium at $z < 1$. *MNRAS*, 516(4):4882–4897, November 2022

11. **Zhijie Qu**, Dimitra Koutroumpa, Joel N. Bregman, Kip D. Kuntz, and Philip Kaaret. The Solar Cycle Temporal Variation of the Solar Wind Charge Exchange X-Ray Lines. *ApJ*, 930(1):21, May 2022

10. **Zhijie Qu** and Joel N. Bregman. Absorption Line Search through Three Local Group Dwarf Galaxy Halos. *ApJ*, 927(2):228, March 2022

9. **Zhijie Qu**, *Ryan Lindley, and Joel N. Bregman. The Warm Gas in the Milky Way: The Kinematical Model of C IV and Its Connection to Si IV. *ApJ*, 924(2):86, January 2022

8. **Zhijie Qu**, Rui Huang, Joel N. Bregman, and Jiang-Tao Li. An X-Ray- and SZ-bright Diffuse Source toward M31: A Local Hot Bridge. *ApJ*, 907(1):14, January 2021

7. **Zhijie Qu**, Joel N. Bregman, Edmund Hodges-Kluck, Jiang-Tao Li, and *Ryan Lindley. The Warm Gas in the MW: A Kinematical Model. *ApJ*, 894(2):142, May 2020

6. **Zhijie Qu** and Joel N. Bregman. The Warm Gaseous Disk and the Anisotropic Circumgalactic Medium of the Milky Way. *ApJ*, 880(2):89, Aug 2019

5. **Zhijie Qu**, Joel N. Bregman, and Edmund J. Hodges-Kluck. HST/COS Observations of the Warm Ionized Gaseous Halo of NGC 891. *ApJ*, 876(2):101, May 2019

4. **Zhijie Qu** and Joel N. Bregman. The Mass and Absorption Column Densities of Galactic Gaseous Halos. II. The High Ionization State Ions. *ApJ*, 862(1):23, July 2018

3. **Zhijie Qu** and Joel N. Bregman. The Mass and Absorption Columns of Galactic Gaseous Halos. *ApJ*, 856(1):5, March 2018

2. **Zhijie Qu** and Joel N. Bregman. A Hot Gaseous Galaxy Halo Candidate with Mg X Absorption. *ApJ*, 832:189, December 2016

1. **Zhijie Qu**, Zhaosheng Li, Yupeng Chen, Shi Dai, Long Ji, Renxin Xu, and Shu Zhang. The Short Bursts in SGR 1806-20, 1E 1048-5937, and SGR 0501+4516. *PASP*, 127(949):211, March 2015

Publications (Co-Authored)

15. Cameron T. Pratt, **Zhijie Qu**, Joel N. Bregman, and Christopher J. Miller. Optimizing NILC Extractions of the Thermal Sunyaev-Zeldovich Effect with Deep Learning. *arXiv e-prints: 2402.00167*, January 2024

14. Sean D. Johnson, Zhuoqi (Will) Liu, Jennifer I-Hsiu Li, Joop Schaye, Jenny E. Greene, Sebastiano Cantalupo, Gwen C. Rudie, **Zhijie Qu**, Hsiao-Wen Chen, Marc Rafelski, Sowgat Muzahid, Mandy C. Chen, Thierry Contini, Wolfram Kollatschny, Nishant Mishra, Patrick Petitjean, Michael Rauch, and Fakhri S. Zahedy. Discovery of optically emitting circumgalactic nebulae around the majority of UV-luminous quasars at intermediate redshift. *ApJ Submitted*, 2024

13. Jennifer I-Hsiu Li, Johnson Sean D., Erin Boettcher, Sebastiano Cantalupo, Hsiao-Wen Chen, Mandy C. Chen, DePalma David R., Zhuoqi (Will) Liu, Nishant Mishra, Patrick Petitjean, **Zhijie Qu**, Gwen C. Rudie, Joop Schaye, and Zahedy Fakhri S. The Cosmic Ultraviolet Baryon Survey (CUBS) VIII: Group Environment of the Most Luminous Quasars at $z \approx 1$. *ApJ Submitted*, 2024

12. Rui Huang, Jiang-Tao Li, Wei Cui, Joel N. Bregman, Xiang-Dong Li, Gabriele Ponti, **Zhijie Qu**, Q. Daniel Wang, and Yi Zhang. An XMM-Newton View of the ANdromeda Galaxy as Explored in a Legacy Survey (New-ANGELS) II: Luminosity Function of X-ray Sources. *MNRAS Submitted*, 2024

11. Mandy C. Chen, Hsiao-Wen Chen, Michael Rauch, **Zhijie Qu**, Sean D. Johnson, Joop Schaye, Gwen C. Rudie, Jennifer I-Hsiu Li, Zhuoqi, Liu, Fakhri S. Zahedy, Sebastiano Cantalupo, and Erin Boettcher. An ensemble study of turbulence in extended QSO nebulae at $z \approx 0.5$–1. *arXiv e-prints*, page arXiv:2310.18406, October 2023

10. Hsiao-Wen Chen, **Zhijie Qu**, Michael Rauch, Mandy C. Chen, Fakhri S. Zahedy, Sean D. Johnson, Joop Schaye, Gwen C. Rudie, Erin Boettcher, Sebastiano Cantalupo, Claude-André Faucher-Giguère, Jenny E. Greene, Sebastian Lopez, and Robert A. Simcoe. The Cosmic Ultraviolet Baryon Survey: Empirical Characterization of Turbulence in the Cool Circumgalactic Medium. *ApJL*, 955(1):L25, September 2023

9. Joel Bregman, Renyue Cen, Yang Chen, Wei Cui, Taotao Fang, Fulai Guo, Edmund Hodges-Kluck, Rui Huang, Luis C. Ho, Li Ji, Suoqing Ji, Xi Kang, Xiaoyu Lai, Hui Li, Jiangtao Li, Miao Li, Xiangdong Li, Yuan Li, Zhaosheng Li, Guiyun Liang, Helei Liu, Wenhao Liu, Fangjun Lu, Junjie Mao, Gabriele Ponti, **Zhijie Qu**, Chenxi Shan, Lijing Shao, Fangzheng Shi, Xinwen Shu, Lei Sun, Mouyuan Sun, Hao Tong, Junfeng Wang, Junxian Wang, Q. Daniel Wang, Song Wang, Tinggui Wang, Weiyang Wang, Zhongxiang Wang, Dandan Xu, Haiguang Xu, Heng Xu, Renxin Xu, Xiaojie Xu, Yongquan Xue, Hang Yang, Feng Yuan, Shuinai Zhang, Yuning Zhang, Zhongli Zhang, Yuanyuan Zhao, Enping Zhou, and Ping Zhou. Scientific objectives of the Hot Universe Baryon Surveyor (HUBS) mission. *Science China Physics, Mechanics, and Astronomy*, 66(9):299513, September 2023

8. Rui Huang, Jiang-Tao Li, Wei Cui, Joel N. Bregman, Xiang-Dong Li, Gabriele Ponti, **Zhijie Qu**, Q. Daniel Wang, and Yi Zhang. An XMM-Newton View of the Andromeda Galaxy as Explored in a Legacy Survey (New-ANGELS). I. The X-Ray Source Catalog. *ApJS*, 268(1):36, September 2023

7. Li-Yuan Lu, Jiang-Tao Li, Carlos J. Vargas, Rainer Beck, Joel N. Bregman, Ralf-Jürgen Dettmar, Jayanne English, Taotao Fang, George H. Heald, Hui Li, **Zhijie Qu**, Richard J. Rand, Michael Stein, Q. Daniel Wang, Jing Wang, Theresa Wiegert, and Yun Zheng. eDIG-CHANGES I: extended Hα emission from the extraplanar diffuse ionized gas (eDIG) around CHANG-ES galaxies. *MNRAS*, 519(4):6098–6110, March 2023

6. Mandy C. Chen, Hsiao-Wen Chen, Michael Rauch, **Zhijie Qu**, Sean D. Johnson, Jennifer I. Hsiu Li, Joop Schaye, Gwen C. Rudie, Fakhri S. Zahedy, Erin Boettcher, Kathy L. Cooksey, and Sebastiano Cantalupo. Empirical constraints on the turbulence in QSO host nebulae from velocity structure function measurements. *MNRAS*, 518(2):2354–2372, January 2023

5. Joel N. Bregman, Edmund Hodges-Kluck, **Zhijie Qu**, Cameron Pratt, Jiang-Tao Li, and Yansong Yun. Hot Extended Galaxy Halos around Local L* Galaxies from Sunyaev-Zeldovich Measurements. *ApJ*, 928(1):14, March 2022

4. Cameron T. Pratt, **Zhijie Qu**, and Joel N. Bregman. The Resolved Sunyaev-Zel'dovich Profiles of Nearby Galaxy Groups. *ApJ*, 920(2):104, October 2021

3. Xiaodi Yu, Jiang-Tao Li, **Zhijie Qu**, Ian U. Roederer, Joel N. Bregman, Xiaohui Fan, Taotao Fang, Sean D. Johnson, Feige Wang, and Jinyi Yang. Probing the He II re-Ionization ERa via Absorbing C IV Historical Yield (HIERACHY) I: A strong outflow from a z $\sim$ 4.7 quasar. *MNRAS*, 505(3):4444–4455, August 2021

2. Joel N. Bregman, Michael E. Anderson, Matthew J. Miller, Edmund Hodges-Kluck, Xinyu Dai, Jiang-Tao Li, Yunyang Li, and **Zhijie Qu**. The Extended Distribution of Baryons around Galaxies. *ApJ*, 862(1):3, July 2018

1. Zhaosheng Li, **Zhijie Qu**, Li Chen, Yanjun Guo, Jinlu Qu, and Renxin Xu. An Ultra-low-mass and Small-radius Compact Object in 4U 1746-37? *ApJ*, 798(1):56, January 2015

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