

Yong Zheng

Department of Physics, Applied Physics, and Astronomy
Rensselaer Polytechnic Institute, Troy, NY
January, 2023

zhengy14@rpi.edu
[ORCID:0000-0003-4158-5116](https://orcid.org/0000-0003-4158-5116)
<https://yzhenggit.github.io/yongzheng/>

RESEARCH INTERESTS

Galaxy Evolution, Cosmic Baryon Cycle, Circumgalactic Medium, Spectral Line Analysis
Tools: H I 21cm/Optical/Ultraviolet Spectroscopy, Cosmological Hydrodynamic Simulations

EDUCATION & PROFESSIONAL APPOINTMENTS

7. Assistant Professor, Department of Physics, Applied Physics, and Astronomy, 2023-present
Rensselaer Polytechnic Institute, Troy, NY
6. Research Scientist, Department of Physics, Applied Physics, and Astronomy, 10/2022-12/2022
Rensselaer Polytechnic Institute, Troy, NY
5. Postdoctoral Scholar, Department of Astronomy, 2021-present
University of California, Berkeley, CA
4. Miller Postdoctoral Fellow, Miller Institute for Basic Research in Science, 2018-2021
Department of Astronomy, University of California, Berkeley, CA
3. Ph.D., Astronomy, Columbia University, NY 2018
2. M.A. & M.Phil., Astrophysics, Columbia University, NY 2014
1. B.S., Astronomy, Peking University, Beijing, China 2012

PROPOSALS & GRANTS

10. PI, “Braving the Storm: Quantifying the Effects of Ram Pressure and Stellar Feedback in the Large Magellanic Cloud”, Hubble Space Telescope 2021
9. CoI, “Mainly on the Plane: Solving the Milky Way CGM Anomaly with Low-Galactic-Latitude QSOs”, Hubble Space Telescope 2021
8. PI, “Unveiling the Interaction between the Magellanic Stream and the Milky Way’s Circumgalactic Medium”, Five-hundred-meter Aperture Spherical Telescope 2021
7. CoI, “The Circumgalactic Medium at the Lowest Mass End”, Hubble Space Telescope 2020
6. CoI, “What Holds Up the CGM?”, Hubble Space Telescope 2020
5. PI, “Probing M33’s Multiphase Disk-Halo Interface with Resolved Kinematics”, W. M. Keck Observatory, DEIMOS, Two Half Nights 2019
4. CoI, “METAL-Z: Metal Evolution, Transport, and Abundance at Low Metallicity”, Hubble Space Telescope 2019
3. PI, “Observations of H I toward the Halo of a Dwarf Galaxy”, Green Bank Telescope 2018
2. CoI, “QuaStar: The First Unobscured View of the Milky Way’s Circumgalactic Medium”, Hubble Space Telescope 2018
1. PI, “Mapping Gas Flows from the Disk to the Circumgalactic Medium”, Hubble Space Telescope 2017

SELECTED TALKS & CONFERENCES

24. (Upcoming) Invited Talk, “Oases in the Cosmic Desert: Understanding the Structure of the Circumgalactic Medium”, Tempe, AZ 02/2023
23. Lecturer, the 1st “High-Resolution X-ray and UV (HiXUV) Spectroscopy Capability Building Workshops”, Virtual Workshop 08/2022

22. Invited Talk, “Galactic and Extragalactic High Velocity Clouds”, A Green Bank Observatory Workshop, WV	06/2022
21. Colloquium, Department of Physics, University of North Texas, TX	04/2022
20. Invited Talk, the Arthur M. Wolfe Symposium in Astrophysics, Department of Astronomy and Astrophysics, University of California, Santa Cruz, CA	2016,2022
19. Conference Talk, “The 1st KIAA Forum on Gas in Galaxies for Early Career Scientists”, Kavli Institute for Astronomy and Astrophysics, PKU, China	11/2021
18. Invited Tutorial Talk, “Fundamentals of Gaseous Halos”, Virtual Conference, Kavli Institute for Theoretical Physics, Santa Barbara, CA	01-02/2021
17. Colloquium, Carnegie Observatories, Pasadena, CA	11/2020
16. Conference Talk, “Spring Symposium: The Local Group Assembly and Evolution”, Space Telescope Science Institute, MD	09/2020
15. Colloquium, Department of Astronomy, Xiamen University, China	12/2019
14. Invited Seminar, Department of Astronomy, Tsinghua University, China	12/2019
13. Colloquium, NASA Ames Research Center, SOFIA Team, CA	10/2019
12. Highlighted Conference Talk, “The Cosmic Baryon Cycle: Impact on Galaxy Evolution”, 7th Annual GMT Community Science Meeting, CA	09/2019
11. Conference Talk, “What Matter(s) Between Galaxies: Unraveling the Knots in the Cosmic Web”, Abbazia di Spineto, Italy	06/2019
10. Colloquium, Department of Astronomy, University of Washington, Seattle, WA	05/2019
9. Invited Seminar, Center for Astrophysics & Space Sciences, University of California, San Diego, CA	04/2019
8. Colloquium, Department of Astronomy and Astrophysics, University of California, Santa Cruz, CA	02/2019
7. Conference Talk, “In & Out. What Rules the Galaxy Baryon Cycle?” Munich Institute for Astro- and Particle Physics, Germany	07/2017
6. Conference Talk, “What Matter(s) Around Galaxies: Resolving the Physics of the Circumgalactic Medium”, Durham University, UK	06/2017
5. Conference Talk, “Life Cycle of Metals Throughout the Universe: Celebrating 50 Years of UV Astronomy”, Space Telescope Science Institute, MD	04/2017
4. Invited Seminar, American Museum of Natural History, NY	10/2016
3. Conference Talk, “Observational Evidence of Gas Accretion onto Galaxies”, National Radio Astronomy Observatory, WV	10/2015
2. Conference Talk, “Life Cycle of Gas in Galaxies: A Local Perspective”, ASTRON, Dwingeloo, Netherlands	09/2015
1. Conference Talk, “The Role of Hydrogen in the Evolution of Galaxies”, Malaysia	09/2014

PEER REVIEW & COMMUNITY SERVICE

8. Referee for Nature, Nature Astronomy, The Astrophysical Journal, & Monthly Notices of the Royal Astronomical Society	
7. Member of Thirty Meter Telescope Wide Field Optical Spectrometer Science Team	2021- Present
6. Subject-Matter Expert Reviewer in a NASA Peer Review	2019,2022
5. Reviewer for the Five-hundred-meter Aperture Spherical Radio Telescope	2022
4. Co-chair of the Hot Universe Baryon Surveyor Milky Way and Local Group Science Working Group	2021-2022
3. Panelist for Hubble Space Telescope Time Allocation Committee	2021
2. Panelist for NASA Astrophysics Data Analysis Program	2020
1. Reviewer for the China Telescope Access Program	2020

ADVISING & TEACHING SERVICE

- | | |
|--|--------------|
| 7. Advisor of Undergraduate A. Days, Rensselaer Polytechnic Institute | 2023-present |
| 6. Advisor of Undergraduate Q. Qian, Sun Yat-Sen University, China | 2021-2022 |
| 5. Advisor of Undergraduate R. Zhu, University of California, Berkeley, CA | 2019-2021 |
| 4. Co-advisors of Undergraduates H. Cook, A. Johnson, & L. Li
Columbia University, NY | 2015-2019 |
| 3. Lab Observing Instructor, Astronomy Labs I & II, Columbia University, NY | 2014-2015 |
| 2. Lab Instructor, Stars, Galaxies and Cosmology, Columbia University, NY | Spring 2014 |
| 1. Lab Instructor, Earth, Moon, and Planets, Columbia University, NY | Fall 2013 |

SELECTED OUTREACH

- | | |
|--|------------|
| 15. Mentor, Science Internship Program, University of California, Santa Cruz, CA
Advise High-School Students to Investigate H I Clouds in the Milky Way | 06-08/2022 |
| 14. Invited Guest Speaker, Riverside Astronomical Society, CA | 07/2021 |
| 13. Co-Leader, the “Miller Diversity, Equity, & Inclusion Working Group”,
Miller Institute for Basic Research in Science, CA | 2020-2021 |
| 12. Initiator & Organizer, the “Meet a Miller Fellow” Outreach Program
to Connect High-School Students with Scientists at Miller Institute | Fall 2020 |
| 11. Member, the “Astronomy Postdoc Team to Dismantle Anti-Blackness”
Department of Astronomy, University of California Berkeley, CA | 2020-2021 |
| 10. Invited Guest Speaker, the Mount Tam Astronomy Program, CA | 08/2020 |
| 9. Guest Speaker, the Berkeley Public Library, CA | 06/2019 |
| 8. Member, the “Reading Team Math Program” in Bronx, NY
Teach Math to Kindergarteners from Low-Income Families Every Friday | 2017-2018 |
| 7. Guest Speaker, Astronomy on Tap, NY | 09/2017 |
| 6. Guest Speaker, Columbia Public Lectures and Stargazing Nights, NY | 03/2016 |
| 5. Telescope Volunteer, World Science Festival, Brooklyn Bridge Park, NY | 06/2016 |
| 4. Experiment Leader, Girls Science Day, Columbia University, NY | 10/2016 |
| 3. Mentor, GOALS for Girls Summer Intensive Program, the Intrepid Museum, NY | 2016,2017 |
| 2. Mentor, the “Astronomy Peer Mentoring Program”, Columbia University, NY | 2015-2017 |
| 1. Volunteer, Columbia Public Lectures and Stargazing Nights, NY | 2012-2018 |

REFERENCES

- Mary E. Putman, mputman@astro.columbia.edu
Professor of Astronomy, Department of Astronomy, Columbia University, NY
- Jason X. Prochaska, xavier@ucolick.org
Professor of Astronomy Astrophysics
Department of Astronomy Astrophysics, University of California, Santa Cruz, CA
- Daniel Weisz, dan.weisz@berkeley.edu
Associate Professor, Department of Astronomy, University of California, Berkeley, CA
- Jessica K. Werk, jwerk@uw.edu
Associate Professor, Department of Astronomy, University of Washington, WA
- Joshua E. G. Peek, jegpeek@stsci.edu
Associate Astronomer, Project Scientist, Space Telescope Science Institute, MD

PUBLICATION LIST

FIRST-AUTHORED JOURNAL ARTICLES

7. **Y. Zheng**, A. Emerick, M. E. Putman, J. K. Werk, E. N. Kirby, J. Peek, *Characterizing the Circumgalactic Medium of the Lowest-Mass Galaxies: A Case Study of IC 1613*, [2020, ApJ, 905, 133](#)
6. **Y. Zheng**, M. S. Peeples, B. W. O'Shea, R. C. Simons, C. Lochhass, L. Corlies, J. Tumlinson, B. Smith, R. Augustin, *Figuring Out Gas & Galaxies in Enzo (FOGGIE). III. The Mocky Way: Investigating Biases in Observing the Milky Way's Circumgalactic Medium*, [2020, ApJ, 896, 143Z](#).
5. **Y. Zheng**, M. E. Putman, A. Emerick, K. B. W. McQuinn, J. K. Werk, F. J. Lockman, B. D. Oppenheimer, A. J. Fox, E. N. Kirby, J. N. Burchett. *The Circumgalactic Medium of the Isolated Low-Mass Dwarf Galaxy WLM*, [2019, MNRAS, 490, 467Z](#).
4. **Y. Zheng**, J. E. G. Peek, M. E. Putman, & J. K. Werk. *Revealing the Milky Way's Hidden Circumgalactic Medium with the Cosmic Origins Spectrograph Quasar Database for Galactic Absorption Lines*, [2019, ApJ, 871, 35](#).
3. **Y. Zheng**, J. E. G. Peek, J. K. Werk, & M. E. Putman. *HST/COS Observations of Ionized Gas Accretion at the Disk-Halo Interface of M33*, [2017, ApJ, 834, 179Z](#).
2. **Y. Zheng**, J. K. Werk, J. E. G. Peek, & M. E. Putman. *The Discovery and Origin of A Very-High Velocity Cloud toward M33*, [2017, ApJ, 840, 65Z](#).
1. **Y. Zheng**, M. E. Putman, J. E. G. Peek, & M. R. Joung. *The Circumgalactic Medium of the Milky Way is Half Hidden*, [2015, ApJ, 807, 103Z](#).

SECOND/THIRD-AUTHORED JOURNAL ARTICLES

4. M. E. Putman, **Y. Zheng**, A. M. Price-Whelan, J. Grcevich, E. Tollerud, J. E. G. Peek, *The Gas Content and Stripping of Local Group Dwarf Galaxies*, [2021, ApJ, 913, 53](#).
3. J. X. Prochaska, & **Y. Zheng**, *Probing Galactic Halos with Fast Radio Bursts*, [2019, MNRAS, 485, 648P](#).
2. J. E. G. Peek, B. L. Babler, **Y. Zheng**, S. E. Clark, K. Douglas, E. J. Korpela, M. E. Putman, S. Stanimirovic, S. Gibson, C. Heiles. *The GALFA-HI Survey Data Release 2*, [2018, ApJS, 234, 2P](#).
1. R. de Grijs, C. Li, **Y. Zheng**, L. Deng, Y. Hu, M. B. N. Kouwenhoven, & J. E. Wicker. *Gravitational Conundrum? Dynamical Mass Segregation versus Disruption of Binary Stars in Dense Stellar Systems*, [2013, ApJ, 765, 4D, 2013](#).

OTHER CO-AUTHORED JOURNAL ARTICLES

10. Trung. Ha, Y. Li, M. Kounkel, S. Xu, H. Li, Y. Zheng, *Turbulence in Milky Way Star-Forming Regions Traced by Young Stars and Gas*, [2022, ApJ, 934, 7H](#).
9. H.V. Bish, J.K. Werk, J. Peek, **Y. Zheng**, M. Putman, *The QuaStar Survey: Detecting Hidden Low-Velocity Gas in the Milky Way's Circumgalactic Medium*, [2021, ApJ, 912, 8B](#).
8. R. Simons, M. Peeples, J. Tumlinson, B. O'Shea, B. Smith, L. Corlies, C. Lochhaas, **Y. Zheng**, R. Augustin, D. Prasad, G. Snyder, E. Tollerud, *Figuring Out Gas & Galaxies In Enzo (FOGGIE). IV. The Stochasticity of Ram Pressure Stripping in Galactic Halos*, [2020, ApJ, 905, 167](#).

7. Y. Li, M. Gendron-Marsolais, I. Zhuravleva, S. Xu, A. Simionescu, G. Tremblay, C. Lochhass, G. Bryan, E. Quataert, N. Murray, A. Boselli, J. Hlavacek-Larrondo, **Y. Zheng**, M. Fossati, M. Li, E. Emsellem, M. Sarzi, L. Arzamasskiy, T. Ethan, *Direct Detection of Black Hole-driven Turbulence in the Centers of Galaxy Clusters*, [2019, ApJ, 889, 1](#).
6. J. K. Werk, K. H. R. Rubin, H. V. Bish, J. X. Prochaska, **Y. Zheng**, J. M. O'Meara, D. Lenz, C. Hummels, & A. J. Deason. *The Nature of Ionized Gas in the Milky Way Galactic Fountain*, [2019, ApJ, 887, 89W](#).
5. H. Bish, J. K. Werk, J. X. Prochaska, K. H. R. Rubin, J. O'Meara, **Y. Zheng**, & A. J. Deason, *Galactic Gas Flows from Halo to Disk: Tomography and Kinematics at the Milky Way's Disk-Halo Interface*, [2019, ApJ, 882, 76B](#).
4. T. Finzell, L. Chomiuk, B. Metzger, F. M. Walter, J.D. Linford, K. Mukai, T. Nelson, J. H. S. Weston, **Y. Zheng**, J. L. Sokoloski, et al. *A Detailed Observational Analysis of V1324 Sco, the Most Gamma-Ray-luminous Classical Nova to Date*, [2018, ApJ, 852, 108F](#).
3. J. H. S. Weston, J. L. Sokoloski, B. D. Metzger, **Y. Zheng**, L. Chomiuk, M. I. Krauss, J. D. Linford, T. Nelson, A. J. Mioduszewski, M. P. Rupen, T. Finzell, & K. Mukai. *Non-thermal Radio Emission from Colliding Flows in Classical Nova V1723 Aql*, [2016, MNRAS, 457, 887, 2016](#).
2. J. E. G. Peek, R. Bordoloi, H. Sana, J. Roman-Duval, J. Tumlinson, & **Y. Zheng**. *The First Distance Constraint on the Renegade High-Velocity Cloud Complex WD*, [2016, ApJ, 828L, 20P](#).
1. M. S. Xiang, X. W. Liu, H. B. Yuan, Z. Y. Huo, Y. Huang, **Y. Zheng**, H. W. Zhang, B. Q. Chen, H. H. Zhang, N. C. Sun, C. Wang, Y. H. Zhao, J. R. Shi, A. L. Luo, G. P. Li, Z. R. Bai, Y. Zhang, Y. H. Hou, H. L. Yuan, G. W. Li. *Relative Flux Calibration for the LAMOST Spectroscopic Survey of the Galactic Anticentre*, [2015, MNRAS, 448, 90-103](#).