Cassandra Lochhaas

Postdoctoral Scholar
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Education

PhD in Astronomy 2019	The Ohio State University, Columbus, OH
Master's of Astronomy 2016	The Ohio State University, Columbus, OH
Bachelor of Science in Physics 2013	California Institute of Technology, Pasadena, CA

Research Interests

Analytic and computational theory of galactic winds, the circumgalactic medium, baryon cycles in galaxy formation and evolution, and impacts of star formation feedback

First Author Publications

1. Cassandra Lochhaas, Greg L. Bryan, Yuan Li, et al., "Properties of the Simulated Circumgalactic Medium." 2020, MNRAS 493, 1461

2. Cassandra Lochhaas, Smita Mathur, Stephan Frank, et al., "A High Signal-to-Noise HST Spectrum Toward J1009+0713: Precise Absorption Measurements and the Origin of O VI." 2019, MNRAS 489, 78

3. Cassandra Lochhaas, Todd A. Thompson, Eliot Quataert, et al., "Fast Winds Drive Slow Shells: A Model for the CGM as Galactic Wind-Driven Shells." 2018, MNRAS, 481:2, 1873-1896

4. Cassandra Lochhaas & Todd A. Thompson, "Second Generation Stars in Globular Clusters from Rapid Radiative Cooling of Pre-Supernova Massive Star Winds." 2017, MNRAS, 470:1, 977-991

5. Cassandra Lochhaas, David H. Weinberg, Sébastien Peirani, et al. "Modeling Lyman-α Forest Cross-Correlations with LyMAS." 2016, MNRAS, 461:4, 4353-4373

Substantial Contribution Publications

1. Raymond C. Simons, Molly S. Peeples, Jason Tumlinson, et al., "Figuring Out Gas & Galaxies In Enzo (FOGGIE). IV. The Stochasticity of Ram Pressure Stripping in Galactic Halos", 2020, arXiv:2004.14394

2. Yong Zheng, Molly S. Peeples, Brian W. O'Shea, et al., "Figuring Out Gas & Galaxies In Enzo (FOGGIE). III. The Mocky Way: Investigating Biases in Observing the Milky Way's Circumgalactic Medium", 2020, ApJ 896, 143

3. Yuan Li, Marie-Lou Gendron-Marsolais, Irina Zhuravleva, et al., "Direct Detection of Black Hole-driven Turbulence in the Centers of Galaxy Clusters", 2020, ApJL 889, 1

Other Publications

1. Williams, P. R., Pancoast, A., Treu, T., et al., "Space Telescope and Optical Reverberation Mapping Project. XII. Broad-Line Region Modeling of NGC 5548", 2020, arXiv:2010.00594

2. Keith Horne, G. De Rosa, B. M. Peterson, et al., "Space Telescope and Optical Reverberation Mapping Project. IX. Velocity-Delay Maps for Broad Emission Lines in NGC 5548", 2020, arXiv:2003.01448

3. G. A. Kriss, G. De Rosa, J. Ely, et al., "Space Telescope and Optical Reverberation Mapping Project. VIII. Time Variability of Emission and Absorption in NGC 5548 Based on Modeling the Ultraviolet Spectrum", 2019, ApJ 881, 153

4. G. De Rosa, M. M. Fausnaugh, C. J. Grier, et al., "Velocity-resolved Reverberation Mapping of Five Bright Seyfert 1 Galaxies." 2018, ApJ 866, 133

5. M. M. Fausnaugh, D. A. Starkey, Keith Horne, et al., "Continuum Reverberation Mapping of the Accretion Disks in Two Seyfert 1 Galaxies." 2018, ApJ, 854, 107

6. M. M. Fausnaugh, C. J. Grier, M. C. Bentz, et al., "Reverberation Mapping of Optical Emission Lines in Five Active Galaxies." 2017, ApJ, 840, 97

7. L. Pei, M. M. Fausnaugh, A. J. Barth, et al., "Space Telescope and Optical Reverberation Mapping Project. V. Optical Spectroscopic Campaign and Emission-line Analysis for NGC 5548." 2017, ApJ, 837, 131

Invited Talks

"Using Simulations to Understand the Structure of the Circumgalactic Medium"   October 13, 2020
    Astrophysics Seminar
    University of Notre Dame, Notre Dame, IN

"Thermal and Kinetic Properties of the Simulated Circumgalactic Medium"   June 24, 2020
    The Circumgalactic Medium Around Galaxies: When Baryons Invest Halos (virtual meeting)
    Institut d'Astrophysique de Paris, Paris, France

"Multiphase CGM: Fast Winds, Slow Shells"   November 7, 2019
    Cosmic Turbulence and Magnetic Fields: Physics of Baryonic Matter Across Time and Scales
    Institut d'Etudes Scientifiques de Cargèse, Corsica, France

Other Presentations

"Blowing Bubbles: Galactic Winds and the Circumgalactic Medium"   January 7, 2019
    American Astronomical Society 233rd Meeting
    Seattle, WA

"Fast Winds Drive Slow Shells: The CGM as Galactic Wind-Driven Shells"   June 19, 2017
    What Matter(s) Around Galaxies 2017
    Durham University, UK

"Modeling Cross-Correlations with LyMAS"   August 1, 2014
    Sloan Digital Sky Survey Collaboration Meeting 2014
    Park City, UT

"Predicting the Blazar Anisotropy Energy Spectrum of the Gamma-Ray Background"   April 20, 2013
    American Physical Society April Meeting
    Denver, CO

Successful Proposals and Grants

Hubble Space Telescope Archive Research Theory Cycle 28 #16140   October 2020
    "What Holds up the CGM?"
    PI: Cassandra Lochhaas
    Co-Is: Molly S. Peeples, Jason Tumlinson, Brian W. O'Shea, Yong Zheng

Fellowships and Honors

American Astronomical Society Rodger Doxsey Travel Prize   January 2019
    American Astronomical Society 233rd Meeting, Seattle, WA

Ann S. Tuttle Citizenship, Engagement, and Outreach Prize   December 2018
    The Ohio State University, Columbus, OH

Presidential Fellow, The Ohio State University   August 2018-July 2019
    The Ohio State University, Columbus, OH

Student Fellow, Kavli Summer Program in Astrophysics   June 2018-August 2018
    Flatiron Institute, New York City, NY

Graduate Student Fellow, The Ohio State University   September 2013-August 2014
    The Ohio State University, Columbus, OH

Robert L. Blinkenberg SURF Fellow   Summers 2011, 2012
    California Institute of Technology, Pasadena, CA

Outreach and Teaching Experience

Planetarium TA, The Ohio State University   May 2015-May 2017

- Scheduled planetarium shows, trained volunteers, produced software documention and show scripts

- Presented a total of 89 shows for the public, private field trip groups, and college classes

- Developed new content, including an all-new full-length production, "Pluto: The Distant, Icy World"

TA for introductory-level astronomy courses, The Ohio State University   Spring 2015

- Developed problems for homework sets, generated exams, quizzes, and study guides, graded all student work, held review sessions and office hours