

Jessica Werk

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Education

- Ph.D.** in Astronomy & Astrophysics 2010
University of Michigan, Ann Arbor, MI
Advisor: Professor Mary Putman
Ph.D. Thesis: *The Outermost HII Regions of Nearby Galaxies*
- B.A.** in Astronomy and Physics 2003
Wesleyan University, with High Honors in Astronomy
Advisor: Professor John Salzer
Senior Thesis: *Luminous Blue Compact Galaxies in the Local Universe*

Appointments:

- Hubble Postdoctoral Fellow at University of California Santa Cruz 2013 - present
IMPS Postdoctoral Fellow at University of California Santa Cruz 2010 - 2013
Research: *The Circumgalactic Medium (CGM via QSO Abs. Lines), HST/COS Spectroscopy*
Mentor: Prof. J. Xavier Prochaska
- Visiting Graduate Student Scholar at Columbia University 2008 - 2010
Research: *Metallicity of HII Regions in Extended HI Disks, Low-Density Star Formation*
Advisor: Prof. Mary Putman
- NSF Graduate Student Fellow at University of Michigan, Ann Arbor 2006 - 2009
Research: *Resolved Stellar Populations and Frequency of Outlying HII Regions*
- Research Assistant at Wesleyan University with Prof. John Salzer 2003 - 2004
Research: *Luminous Blue Compact Galaxies, Galaxy Objective Prism Redshift Survey (KISS)*
- REU Student at Wesleyan University and Haverford College 2000 - 2002
Advisors: Prof. Kathryn Johnston, Prof. Steven Boughn

Awards:

- Hubble Postdoctoral Fellowship 2013 - 2016
IMPS Postdoctoral Fellowship 2010 - 2013
NSF Graduate Research Fellowship 2006 - 2009
Baldwin Graduate Student Fellowship, University of Michigan 2005
Littell Prize in Astronomy, Wesleyan University 2003

Proposals and Observing:

- PI on successful Gemini Large Program Proposal 2014-2015 (100+ hours)
- PI on successful HST/STIS Archival Proposal Cycle 21 (\$60,000)
- PI on successful GALEX Archival Proposal (\$100,000)
- PI on successful Gemini General Observer Proposals (~50 hours total)
- CoI on many successful HST Large Programs, General Observer Programs, and Archival Programs (~300 orbits; \$500K) and Spitzer Proposals
- Extensive observing experience with optical imaging and spectroscopy: (Keck LRIS/HIRES & DEIMOS, Magellan IMACS, Gemini GMOS, KPNO 4-m MOSAIC, Lick Observatory Shane 3-m, KPNO 2.1m, KPNO 0.9m, MDM 2.4m)
- Expert in analysis and reduction of UV spectroscopic data: *HST*/COS and STIS
- Experience with radio telescopes/data: VLA and Arecibo

Public Outreach and Teaching:

- Institute for Scientist & Engineer Educators (ISEE) Professional Development Program, Participant 2014
Completed Inquiry and Design Institutes, with a focus on inquiry-based teaching methods for instruction in the sciences and equity and inclusion. Designed and taught an inquiry-based short-course on statistics and error analysis for UCLA summer REU students.
- Work with Graduate Students: Amanda Ford, University of Arizona graduate student (now a postdoc at MPIA), Joseph Burchett, University of Massachusetts Amherst graduate student
- Co-advised the thesis work of UCSC undergraduate Scott Lange, 2012 - 2013
- UCSC *SIP Program* Mentor (Program for high-school students), Summers 2012 - 2014; Mentored two current *Siemens* Competition finalists (top 50 of 3000 students nationwide)
- *MAGIC Program* Mentor (Getting young women involved in STEM fields), 2012-2014; One-on-one mentoring of 7th grade girls in astrophysics and computer programming
- *Bay Area Project Astro*, Classroom Astronomer, 2011 - 2013: Teach hands-on astronomy-related activities to underrepresented 5th and 6th graders
- COSMOS Mentor/Instructor at UCSC, Astronomy Cluster 7 (program for high school students): Summer 2013, Designed a research project in which the students derived the galaxy mass-metallicity relation from observational data
- Advised two visiting French students (undergraduates at Polytechnique, in Paris France) in a UCSC summer research project on the kinematics of CGM absorption, over the summer of 2012
- Co-advised the research project of Nitza Santiago (2008 - 2010), a post-baccalaureate student at Columbia University and member of the *Bridge to Ph.D. Program* that provides research opportunities to talented scholars from underrepresented ethnic groups
- Columbia University Public Outreach Volunteer, 2008 - 2010
- Columbia University Middle School Outreach Program Organizer, 2008 - 2010
- University of Michigan Astronomy Public Outreach Coordinator, 2006 - 2008

- Graduate Student Instructor at the University of Michigan, *Introductory Astronomy*, 2004 - 2005

Service:

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- Member of Scientific Organizing Committee, Aspen Center for Physics 3-week Summer Workshop in 2015: “The Physics of Accretion and Feedback in the Circumgalactic Medium”
 - Member of Scientific Organizing Committee, *The Role of Hydrogen in the Evolution of Galaxies*, September 15 - 19, 2014, Kuching, Sarawak, Malaysia
 - Panel Member on the NASA/Keck Telescope Allocation Committee for 2014B
 - Panel Member of *HST* Cycle 20 and 21 Telescope Allocation Committees
 - Postdoc Representative to UCSC Faculty, 2013-2014
 - Organizer for IMPS Seminars at UCSC, 2011 - 2013
 - UCSC Astronomy Department Jamboree Organizer, March 2012
 - Referee: *Astronomical Journal*, and *Astrophysical Journal* (since 2008)
 - Graduate Student Representative to University of Michigan Faculty, 2006 - 2007

Invited and Contributed Talks (Last Two Years):

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- Colloquium Speaker, *Harvard University*, Cambridge, MA October 2014
 - Colloquium Speaker, *Texas A&M*, College Station, TX, October 2014
 - Colloquium Speaker, *University of Washington*, Seattle, WA, October 2014
 - Invited Review Talk, *The Role of Hydrogen in the Evolution of Galaxies*, Kuching Malaysia, Sept. 2014
 - Invited Speaker, *Quenching and Quiescence*, Heidelberg Germany, July 2014
 - Invited Speaker, *The CGM @ Notre Dame*, South Bend, IN, February 2014
 - Invited Speaker, *AAS Special Session on the CGM*, Washington D.C. January 2014
 - Colloquium Speaker, *Carnegie Institute*, Pasadena, CA December 2013
 - Colloquium Speaker, *University of Kentucky*, December 2013
 - Invited Speaker, *Feeding Feedback, and Fireworks*, Hamilton Island, AU July 2013
 - Invited Speaker, *Galactic Winds Near and Far*, Ringberg Castle, June 2013
 - Colloquium Speaker, *Boston University*, April 2013
 - Seminar Speaker, *Berkeley TAC Seminar*, April 2013
 - Colloquium Speaker, *Wheaton College*, February 2013
 - Colloquium Speaker, *UMASS Amherst*, December 2012
 - OIR Seminar, *Center for Astrophysics*, December 2012
 - Invited Seminar Speaker, *MIT*, December 2012
 - Colloquium Speaker, *Grinnell College*, Nov. 2012
 - Invited Seminar Speaker, *University of Notre Dame*, Nov. 2012
 - Colloquium Speaker, *The Ohio State University*, Oct. 2012
 - Contributed Talk, *Keck Science Meeting 2012, UCSD*, Sept. 2012
 - Invited, *The Dynamic Nature of Baryons in Halos*, Lorentz Center, Aug. 2012
 - Invited Speaker, *The Whereabouts, Physical State, and Metallicity of the Missing Baryons in the Local Universe*, Cervia Italy, June 2012
 - Invited Speaker, *Metals in Tuscany*, Abiaza di Spineto, June 2012
 - KIPAC Tea Talk (invited), Stanford University, June 2012

- Seminar Speaker, University of California, Irvine, Jan. 2012
- Seminar Speaker, University of California, Santa Barbara, Jan. 2012

Refereed Publications (9 First-Author, 36 Total Publications):

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1. **Werk, J. K.**, Prochaska, J.X., +5, "The COS-Halos Survey: The Highly Ionized Circumgalactic Medium", 2014, ApJ, submitted
 2. **Werk, J. K.**, Prochaska, J.X., +5, "The COS-Halos Survey: Physical Conditions and Baryonic Mass in the Low-Redshift Circumgalactic Medium", 2014, ApJ, 792, 8
 3. **Werk, J. K.**, Prochaska, J.X., +5, "The COS-Halos Survey: An Empirical Description of the Low-Redshift Circumgalactic Medium", 2013, ApJS, 204, 17
 4. **Werk, J. K.**, Prochaska, J.X., +5, "The COS-Halos Survey: Keck LRIS and Magellan Mage Optical Spectroscopy", 2012, ApJS, 198, 3
 5. **Werk, J. K.**, Putman, M.E., Meurer, G. R. "Metal Transport to the Outermost Regions of Gas-Rich Galaxies" 2011, ApJ, 735, 71
 6. **Werk, J. K.**, Putman, M.E., Meurer, G. R., Kravstov, A., & Freeman, K. "The Metal-Enriched Outer Gas Disk of NGC 2915" 2010 ApJ, 715, 656
 7. **Werk, J. K.**; Putman, M. E.; Meurer, G. R.; Ryan-Weber, E. V.; Kehrig, C.; Thilker, D.; Meyer, M.; +18 coauthors "Outlying HII Regions in HI-Selected Galaxies" 2010, AJ, 139, 279
 8. **Werk, J. K.**, Putman, M. E., Meurer, G. R., Oey, M. S., Ryan-Weber, E. V., Kennicutt, R. C., Jr., Freeman, K. C. "Isolated OB Associations in Stripped HI Gas Clouds." 2008, ApJ, 678, 888.
 9. **Werk, J. K.**, Jangren, A., Salzer, J. J. "Luminous Blue Compact Galaxies in the Local Universe." 2004, ApJ, 617, 1004
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10. Bordoloi, R., Tumlinson, J., **Werk, J. K.**, +11 co-authors, "The COS-Dwarfs Survey: The Carbon Reservoir Around sub-L* Galaxies", 2014, ApJ, accepted arXiv1406.0509
 11. Johnson, S., Chen, Hsiao-Wen, Mulchaey, J., Tripp, T., Prochaska, J.X., **Werk, J.K.**, "Discovery of a Transparent Sightline at $\rho < 20$ kpc from an Interacting Pair of Galaxies", 2014, MNRAS, 438, 3039
 12. Burchett, J., Tripp, T., **Werk, J. K.**, Howk, C., Prochaska, J. X., Ford, A., Dave, R., "A Deep Search for Faint Galaxies Associated with Very Low-Redshift CIV Absorbers: A Case with Cold Accretion Characteristics", 2013, ApJ, 779, 17
 13. Fox, A.; Lehner, N., Tumlinson J., Howk, C., Tripp, T., Prochaska J. X., O'Meara, J. M., **Werk, J. K.**, Bordoloi R., Katz, N. +2 coauthors, "The High-Ion Content and Kinematics of Low-Redshift Lyman Limit Systems", 2013, ApJL, 778, 187
 14. Peeples, M., **Werk, J. K.**, Tumlinson, J., Oppenheimer, B., Prochaska, J., Katz, N., "A Budget and Accounting of Metals at $z \sim 0$: Results from the COS-Halos Survey", 2014, ApJ, 786, 54
 15. Cucchiara, A.; Prochaska, J. X.; Perley, D.; Cenko, S. B.; **Werk, J.**; Cardwell, A.; Turner, J.; Cao, Y.; Bloom, J. S.; Cobb, B. E., "Gemini Spectroscopy of the Short-Hard Gamma-Ray Burst GRB 130603B Afterglow and Host Galaxy", 2013, ApJ, 777, 94

16. Tumlinson, J.; Thom, C., **Werk, J. K.**, +12 coauthors, “The COS-Halos Survey: Rationale, Design, and a Census of Circumgalactic Neutral Hydrogen”, *ApJ*, 777, 59
17. Lehner, N., Howk, J. C.; Tripp, T. M.; Tumlinson, J.; Prochaska, J. X.; O’Meara, J. M.; Thom, C.; **Werk, J. K.**; Fox, A. J.; Ribaldo, J., “The Bimodal Metallicity Distribution of the Circumgalactic Medium at $z < \sim 1$ ”, 2013, *ApJ*, 770, 138
18. Meiring, J. D.; Tripp, T. M.; **Werk, J. K.**; Howk, J. C.; Jenkins, E. B.; Prochaska, J. X.; Lehner, N.; Sembach, K. R., “QSO Absorption Systems Detected in NeVIII: High Metallicity Clouds with Large Effective Cross Section” 2013, *ApJ*, 767, 49
19. Thom, C., Tumlinson, J. , **Werk, J. K.**, + 11 coauthors, “Not Dead Yet: Cool Circumgalactic Gas in the Halos of Early Type Galaxies”, 2012, *ApJL*, 758, 41
20. Battisti, A., Meiring, J., Tripp, T., Prochaska, J. X., **Werk, J. K.** +4 coauthors, “First Observations of Low-Redshift Damped Ly Systems with the Cosmic Origins Spectrograph”, 2012, *ApJ*, 744, 93
21. Ribaldo, J., Lehner, N, Howk, C., **Werk, J. K.** + 4 coauthors, “Evidence for Cold Accretion: Primitive Gas Flowing onto a Galaxy at $z \sim 0.274$ ”, 2011, *ApJ*, 743, 207
22. Tripp, T, Meiring, J, Prochaska, J. X., Willmer , C., Howk, C., **Werk, J. K.** + 6 coauthors, 2011, “The Hidden Mass and Large Spatial Extent of a Post-Starburst Galaxy Outflow”, *Science* 2011, 334, 952
23. Thom, C., **Werk, J. K.**, Tumlinson, J. T., Prochaska, J. X. + 3 coauthors, “The Gas-Galaxy Connection at $z \sim 0.35$: OVI and HI Absorption toward J0943+0531”, 2011, *ApJ*, 736, 1
24. Santiago, N., Putman, M., **Werk, J.K.**, Meurer, G., Ryan-Weber, E. “A Gaseous Group with Unusual Remote Star Formation.” 2011, *PASA*, 28, 271
25. Tumlinson, J., Thom, C. **Werk, J. K.**, +11 coauthors , “The Large, Oxygen-Rich Halos of Star-forming Galaxies Are a Major Reservoir of Galactic Metals”, *Science*, 334, 938
26. Tumlinson, J. , **Werk, J. K.** , Thom, C. + 7 coauthors. “ Multiphase Gas in Galaxy Halos: The OVI Lyman-limit System toward J1009+0713”, 2011 *ApJ*, 733, 111
27. Meiring, J. , Tripp, T., Prochaska, J. X., Tumlinson, J. , **Werk, J. K.** +4 coauthors, 2011, “The First Observations of Low-redshift Damped Ly Systems with the Cosmic Origins Spectrograph”, *ApJ*, 732, 35
28. Lamb, J. B., Oey, M. S., **Werk, J. K.**, Ingleby, L. D. “The Sparsest Clusters with O Stars” 2010 *ApJ*, 725, 1886
29. Meurer, G. R., Wong, O. I., Kim, J. H., Hanish, D. J., Heckman, T. M., **Werk, J.**, Bland-Hawthorn, J., Dopita, M. A., Zwaan, M. A., Koribalski, B., +14 coauthors “Evidence for a Non-Uniform Initial Mass Function in the Local Universe.” 2009, *ApJ*, 695, 765
30. Oey, M. S., Meurer, G. R., Yelda, S., Furst, E. J., Caballero-Nieves, S. M., Hanish, D. J., Levesque, E. M., Thilker, D. A., Walth, G. L., Bland-Hawthorn, J., + **Werk, J. K.** and 17 coauthors, “The Survey for Ionization in Neutral Gas Galaxies. III. Diffuse, Warm Ionized Medium and Escape of Ionizing Radiation,” 2007, *ApJ*, 661, 801
31. Meurer, Gerhardt R., Hanish, D. J., Ferguson, H. C., Knezek, P. M., Kilborn, V. A., Putman, M. E., Smith, R. C., Koribalski, B., Meyer, M.,

- Oey, M. S., + **Werk, J. K.** and 12 coauthors, "The Survey for Ionization in Neutral Gas Galaxies. I. Description and Initial Results." 2006, ApJS, 165, 307
32. Hanish, D. J., Meurer, G. R., Ferguson, H. C., Zwaan, M. A., Heckman, T. M., Staveley-Smith, L., Bland-Hawthorn, J., Kilborn, V. A.; Koribalski, B. S., Putman, M. E + **Werk, J. K.** and 11 coauthors, "The Survey for Ionization in Neutral Gas Galaxies. II. The Star Formation Rate Density of the Local Universe" 2006, ApJ, 649, 150
33. Salzer, J. J., Jangren, A., Gronwall, C., **Werk, J. K.**, Chomiuk, L. B., Caperton, K. A., Melbourne, J., McKinstry, K. "Spectroscopy of KISS Emission-Line Galaxy Candidates. IV. KPNO and WIYN Observations" 2005, AJ, 130, 2584.
34. Jangren, A., Salzer, J. J., Sarajedini, V. L., Gronwall, C., **Werk, J. K.**, Chomiuk, L., Moody, J. W., Boroson, T. A. "The KPNO International Spectroscopic Survey. V. H α -selected Survey List 3." 2005, AJ, 130, 2571.
35. Jangren, A., Wegner, G., Salzer, J. J., **Werk, J. K.**, Gronwall, C. "Spectroscopy of KISS Emission-Line Galaxy Candidates. III. A Second Set of MDM Observations." 2005, AJ, 130, 496.
36. Gronwall, C., Jangren, A., Salzer, J. J., **Werk, J. K.**, Ciardullo, R. "Spectroscopy of KISS Emission-Line Galaxy Candidates. II. Hobby-Eberly Telescope Observations." 2004, AJ, 128, 644