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### **Education:**

Ph.D. **University of Wisconsin-Madison**, Astronomy, May 1999  
B.A. **Hanover College**, Physics, *cum laude*, May 1994

### **Research Interests:**

- Galaxy evolution
- Multiphase interstellar medium
- Low-redshift intergalactic medium
- Light element abundances
- Galactic outflows
- Damped Lyman- $\alpha$  galaxies

### **Professional Experience:**

**Director of Graduate Studies, Associate Chair**  
**Associate Professor**  
**Assistant Professor**  
Department of Physics  
University of Notre Dame, Notre Dame, IN

*July 2013 – present*  
*July 2011 – present*  
*September 2005–June 2011*

**Assistant Research Physicist**  
Center for Astrophysics & Space Sciences  
University of California, San Diego La Jolla, CA

*September 2002–August 2005*

**Associate Research Scientist**  
Member of the *Far Ultraviolet Spectroscopic Explorer* PI Team  
Department of Physics & Astronomy  
The Johns Hopkins University Baltimore, MD

*January 2001–August 2002*

**Postdoctoral Fellow**  
Department of Physics & Astronomy  
The Johns Hopkins University Baltimore, MD

*May 1999–December 2000*

**Physics Teacher** (part time)  
Southwestern High School Hanover, IN

*September 1993–May 1994*

**Peer Reviewed Publications:**

**92 refereed publications; h-index: 38; Number of citations: 3,262 (August 2013)**

1. “The COS/UVES Absorption Survey of the Magellanic Stream: II. Evidence for a complex enrichment history of the Stream from the Fairall 9 sightline,” Richter, P., Fox, A.J., Wakker, B.P., Lehner, N., Howk, J.C., Bland-Hawthorn, J., Ben Bekhti, N., Fechner, C., *Astrophysical Journal*, 772, 111 [19 pp] (2013)
2. “The COS/UVES Absorption Survey of the Magellanic Stream: I. One-Tenth Solar Abundances along the Body of the Stream,” Fox, A.J., Richter, P., Wakker, B.P., Lehner, N., Howk, J.C., Ben Bekhti, N., Bland-Hawthorn, J., Lucas, S., *Astrophysical Journal*, 772, 110 [16 pp] (2013)
3. “The Bimodal Metallicity Distribution of the Cool Circumgalactic Medium at  $z \lesssim 1$ ,” 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., *Astrophysical Journal*, 770, 138 [32 pp] (2013)
4. “QSO absorption systems detected in Ne VIII: Evidence for high-metallicity, multiphase gas far from galaxies,” Meiring, J.D., Tripp, T.M., Werk, J.K., Howk, J.C., Jenkins, E.B., Prochaska, J.X., Lehner, N., & Sembach, K.R., *Astrophysical Journal*, 767, 49 [20pp] (2013)
5. “The Relationship Between the Diffuse Neutral and Diffuse Ionized Gas in the Thick Disks of Two Edge-On Spiral Galaxies,” Rueff, K.M., Howk, J.C., Pitterle, M., Hirschauer, A.S., Fox, A.J., & Savage, B.D., *Astronomical Journal*, 145, 62 [18pp] (2013)
6. “Detection of Interstellar C<sub>2</sub> and C<sub>3</sub> in the Small Magellanic Cloud,” Welty, D., Howk, J.C., Lehner, N., & Black, J.H., *Monthly Notices of the Royal Astronomical Society*, 428, 1107–1115 (2013)
7. “Ionized Gas in the First 10 Kiloparsecs of the Interstellar Galactic Halo: Metal Ion Fractions,” Howk, J.C., & Consiglio, S.M., *Astrophysical Journal*, 759, 97 [12pp] (2012)
8. “The detection of interstellar lithium in the low-metallicity Small Magellanic Cloud,” Howk, J.C., Lehner, N., Fields, B.D., & Mathews, G.J., *Nature*, 489, 121–123 (2012)
9. “High-velocity clouds as streams of ionized and neutral gas in the halo of the Milky Way,” Lehner, N., Howk, J. C., Thom, C., Fox, A. J., Tumlinson, J., Tripp, T. M., & Meiring, J. D., *Monthly Notices of the Royal Astronomical Society*, 424, 2896–2913 (2012)
10. “Evidence for Cold Accretion: Primitive Gas Flowing onto a Galaxy at  $z \sim 0.274$ ,” Ribaldo, J., Lehner, N., Howk, J.C., Werk, J.K., Tripp, T.M., Prochaska, J.X., Meiring, J.D., and Tumlinson, J., *Astrophysical Journal*, 743, 207 [7pp] (2011)
11. “A Reservoir of Ionized Gas in the Galactic Halo to Sustain Star Formation in the Milky Way,” Lehner, N., and Howk, J.C., *Science*, 334, 955–958 (2011)
12. “The Hidden Mass and Large Spatial Extent of a Post-Starburst Galaxy Outflow,” Tripp, T.M., Meiring, J.D., Prochaska, J.X., Willmer, C.N.A., Howk, J.C., Werk, J.K., Jenkins,

- E.B., Bowen, D.V., Lehner, N., Sembach, K.R., Thom, C., and Tumlinson, J. *Science*, 334, 952-955 (2011)
13. "A Hubble Space Telescope Study of Lyman Limit Systems: Census and Evolution," Ribaudo, J., Lehner, N., Howk, J.C., *Astrophysical Journal*, 736, 42 [23pp] (2011)
  14. "The Interstellar Medium and Star Formation in Edge-On Galaxies. I. NGC 891," Yim, K., Wong, T., Howk, J.C., and van der Hulst, J.M., *Astronomical Journal*, 141, 48 [17pp] (2011).
  15. "Fundamental Properties of the Highly Ionized Plasmas in the Milky Way," Lehner, N., Zech, W.F., Howk, J.C., and Savage, B.D. *Astrophysical Journal*, 727, 46 [28 pp] (2011)
  16. "Origin(s) of the Highly Ionized High-Velocity Clouds Based on Their Distances," Lehner, N., & Howk, J.C. *Astrophysical Journal Letters*, 709, L138-L141 (2010).
  17. "Wavelength Accuracy of the Keck HIRES Spectrograph and Measuring Changes in the Fine Structure Constant," Greist, K., Whitmore, J.B., Wolfe, A.M., Prochaska, J.X., Howk, J.C., & Marcy, G.W. *Astrophysical Journal*, 708, 158-170 (2010).
  18. "Properties and Origin of the High-Velocity Gas Toward the Large Magellanic Cloud," Lehner, N., Stavely-Smith, L., & Howk, J.C. *Astrophysical Journal*, 702, 940-954 (2009).
  19. "Strong  $z \sim 0.5$  O VI Absorption Toward PKS 0405-123: Implications for Ionization and Metallicity of the Cosmic Web," Howk, J.C., Ribaudo, J.S., Lehner, N., Prochaska, J.X., Chen, H.-W. *Monthly Notices of the Royal Astronomical Society*, 396, 1875-1894 (2009)
  20. "The Connection Between a Lyman Limit System, a Very Strong OVI Absorber, and Galaxies at  $z \sim 0.203$ ," Lehner, N., Prochaska, J.X., Kobulnicky, H.A., Cooksey, K.L., Howk, J.C., Williger, G.M., & Cales, S.L. *Astrophysical Journal*, 694, 734-750 (2009)
  21. "Probing feedback in protogalaxies: Multiphase gas in a DLA at  $z \sim 2.4$ ," Lehner, N., Howk, J.C., Prochaska, J.X., & Wolfe, A.M. *Monthly Notices of the Royal Astronomical Society*, 390, 2-20 (2008)
  22. "Simulating Anisotropic Thermal Conduction in Supernova Remnants II: Implications for the Interstellar Medium," Balsara, D.S., Bendenelli, A.J., Tilley, D.A., Massari, A.R., & Howk, J.C. *Monthly Notices of the Royal Astronomical Society*, 386, 642-656 (2008)
  23. "Simulating Anisotropic Thermal Conduction in Supernova Remnants I : Numerics and the Evolution of Remnants," Balsara, D.S., Tilley, D.A., & Howk, J.C. *Monthly Notices of the Royal Astronomical Society*, 386, 627-641 (2008)
  24. "The High Velocity Gas toward Messier 5: Tracing Feedback Flows in the Inner Galaxy," Zech, W.F., Lehner, W., Howk, J.C., Dixon, W.V., Brown, T.M., *Astrophysical Journal*, 679, 460-480 (2008)
  25. "Metallicity and Physical Conditions in the Magellanic Bridge," Lehner, N., Howk, J.C., Keenan, F.P., Smoker, J.V., *Astrophysical Journal*, 678, 219-233 (2008)

26. "Distances to Galactic High-Velocity Clouds. I. Cohen Stream, Complex GCP, Cloud G1," B.P. Wakker, D.B. York, R. Wilhelm, J.C. Barentine, P. Richter, Z. Ivezic, and J.C. Howk, *Astrophysical Journal*, 672, 298-319 (2008)
27. "Distances to Galactic High-Velocity Clouds: Complex C," Wakker, B.P., York, D.G., Howk, J.C., Barentine, J.C., Wilhelm, R., Peletier, R.F., van Woerden, H., Beers, T.C., Ivezić, Ž., Richter, P., and Schwarz, U.J. *Astrophysical Journal Letters*, 670, L113-L116 (2007)
28. "The UCSD/Keck Damped Ly $\alpha$  Abundance Database: A Decade of High-Resolution Spectroscopy," Prochaska, J.X., Wolfe, A.M., Howk, J.C., Gawiser, E., Burles, S.M., and Cooke, J. *Astrophysical Journal Supplements*, 171, 29-60 (2007)
29. "Highly ionized plasma in the Large Magellanic Cloud: evidence for outflows and a possible galactic wind," Lehner, N. and Howk, J.C. *Monthly Notices of the Royal Astronomical Society*, 377, 687-704 (2007)
30. "Strongly Variable  $z=1.48$  Fe II and Mg II Absorption in the Spectra of  $z=4.05$  GRB 060206," Hao, H., Stanek, K.Z., Dobrzycki, A., Matheson, T., Bentz, M.C., Kuraszkiewicz, J., Garnavich, P.M., Howk, J.C., Calkins, M.L., Worthey, G., Modjaz, M., and Seren, J. *Astrophysical Journal Letters*, 659, L99-L102 (2007)
31. " "Anomalous" Optical Gamma-Ray Burst Afterglows Are Common: Two  $z \sim 4$  Bursts, GRB 060206 and GRB 060210," Stanek, K.Z., Dai, X., Prieto, J.L., An, D., Garnavich, P.M., Calkins, M.L., Seren, J., Worthey, G., Hao, H., Dobrzycki, A., Howk, C., and Matheson, T. *Astrophysical Journal Letters*, 654, L21-L24 (2007)
32. "Simulations of mixed-morphology supernova remnants with anisotropic thermal conduction," Tilley, D.A., Balsara, D.S., and Howk, J.C. *Monthly Notices of the Royal Astronomical Society*, 371, 1106-1112 (2006)
33. "The Metal-strong Damped Ly $\alpha$  Systems," Herbert-Fort, S., Prochaska, J.X., Dessauges-Zavadsky, M., Ellison, S.L., Howk, J.C., Wolfe, A.M., and Prochter, G.E. *Publications of the Astronomical Society of the Pacific*, 118, 1077-1097 (2006)
34. "The UCSD Radio-selected Quasar Survey for Damped Ly $\alpha$  Systems," Jorgenson, R.A., Wolfe, A.M., Prochaska, J.X., Lu, L., Howk, J.C., Cooke, J., Gawiser, E., and Gelino, D.M. *Astrophysical Journal*, 646, 730-741 (2006)
35. "A Method for Deriving Accurate Gas-Phase Abundances for the Multiphase Interstellar Galactic Halo," Howk, J.C., Sembach, K.R., and Savage, B.D. *Astrophysical Journal*, 637, 333-341 (2006)
36. "Cold Neutral Gas in a  $z = 4.2$  Damped Ly $\alpha$  System: Fuel for Star Formation," Howk, J.C., Wolfe, A.M., and Prochaska, J.X. *Astrophysical Journal Letters*, 622, L81-L84 (2005)
37. "Evidence of Correlated Titanium and Deuterium Depletion in the Galactic Interstellar Medium," Prochaska, J.X., Tripp, T.M., and Howk, J.C. *Astrophysical Journal Letters*, 620, L39-L42 (2005)

38. "Elemental Abundances in Two High Column Density Damped Ly $\alpha$  Systems at  $z < 1.5$ ," Rao, S.M., Prochaska, J.X., Howk, J.C., and Wolfe, A.M. *Astronomical Journal*, 129, 9-19 (2005)
39. "Probing the Intergalactic Medium-Galaxy Connection toward PKS 0405-123. I. Ultraviolet Spectroscopy and Metal-Line Systems," Prochaska, J.X., Chen, H.-W., Howk, J.C., Weiner, B.J., and Mulchaey, J. *Astrophysical Journal*, 617, 718-745 (2004)
40. "On the Nature of the Heat Source for Damped Ly $\alpha$  Systems," Wolfe, A.M., Howk, J.C., Gawiser, E., Prochaska, J.X., and Lopez, S. *Astrophysical Journal*, 615, 625-644 (2004)
41. "Small-Scale Structure of O VI Interstellar Gas in the Direction of the Globular Cluster NGC 6752," Lehner, N. and Howk, J.C. *Publications of the Astronomical Society of the Pacific*, 116, 895-902 (2004)
42. "Hubble Space Telescope Imaging of Extraplanar Dust Structures in the Edge-On Spiral NGC 4217," Thompson, T.W.J., Howk, J.C., and Savage, B.D. *Astronomical Journal*, 128, 662-673 (2004)
43. "Cooling in Coronal Gas in the M82 Starburst Superwind," Hoopes, C.G., Heckman, T.M., Strickland, D.K., and Howk, J.C. *Astrophysical Journal Letters*, 596, L175-L178 (2003)
44. "On the Origin of the High-Ionization Intermediate-Velocity Gas toward HD 14434," Knauth, D.C., Howk, J.C., Sembach, K.R., Lauroesch, J.T., and Meyer, D.M. *Astrophysical Journal*, 592, 964-974 (2003)
45. "Oxygen Gas-Phase Abundance Revisited," André, M.K., Oliveira, C.M., Howk, J.C., Ferlet, R., Désert, J.-M., Hébrard, G., Lacour, S., Lecavelier des Étangs, A., Vidal-Madjar, A., and Moos, H.W. *Astrophysical Journal*, 591, 1000-1012 (2003)
46. "Probing O VI Emission in the Halos of Edge-on Spiral Galaxies," Otte, B., Murphy, E.M., Howk, J.C., Wang, Q.D., Oegerle, W.R., and Sembach, K.R. *Astrophysical Journal*, 591, 821-826 (2003)
47. "H<sub>2</sub> absorption in a dense interstellar filament in the Milky Way halo," Richter, P., Sembach, K.R., and Howk, J.C. *Astronomy & Astrophysics*, 405, 1013-1023 (2003)
48. "The elemental abundance pattern in a galaxy at  $z = 2.626$ ," Prochaska, J.X., Howk, J.C., and Wolfe, A.M. *Nature*, 423, 57-59 (2003)
49. "Interstellar Deuterium, Nitrogen, and Oxygen Abundances toward GD 246, WD 2331-475, HZ 21, and Lanning 23: Results from the FUSE Mission," Oliveira, C.M., Hébrard, G., Howk, J.C., Kruk, J.W., Chayer, P., and Moos, H.W. *Astrophysical Journal*, 587, 235-255 (2003)
50. "Far-Ultraviolet and H $\alpha$  Spectroscopy of SNR 0057-7226 in the Small Magellanic Cloud H II Region N66," Danforth, C.W., Sankrit, R., Blair, W.P., Howk, J.C., and Chu, Y.-H. *Astrophysical Journal*, 586, 1179-1190 (2003)

51. "Highly Ionized Gas in the Galactic Halo: A FUSE Survey of O VI Absorption toward 22 Halo Stars," Zsargó, J., Sembach, K.R., Howk, J.C., and Savage, B.D. *Astrophysical Journal*, 586, 1019-1049 (2003)
52. "Ionized Gas in the First 10 Kiloparsecs of the Interstellar Galactic Halo," Howk, J.C., Sembach, K.R., and Savage, B.D. *Astrophysical Journal*, 586, 249-267 (2003)
53. "Origins of the Highly Ionized Gas along the Line of Sight toward HD 116852," Fox, A.J., Savage, B.D., Sembach, K.R., Fabian, D., Richter, P., Meyer, D.M., Lauroesch, J., and Howk, J.C. *Astrophysical Journal*, 582, 793-809 (2003)
54. "An Atlas of Galactic OB Spectra Observed with the Far Ultraviolet Spectroscopic Explorer," Pellerin, A., Fullerton, A.W., Robert, C., Howk, J.C., Hutchings, J.B., Walborn, N.R., Bianchi, L., Crowther, P.A., and Sonneborn, G. *Astrophysical Journal Supplements*, 143, 159-200 (2002)
55. "Far-Ultraviolet Spectroscopic Explorer Observations of Degree-Scale Variations in Galactic Halo OVI," Howk, J.C., Savage, B.D., Sembach, K.R., and Hoopes, C.G. *Astrophysical Journal*, 572, 264-275 (2002)
56. "The UCSD HIRES/Keck I Damped Ly $\alpha$  Abundance Database. III. An Empirical Study of Photoionization in the Damped Ly $\alpha$  System toward GB 1759+7539," Prochaska, J.X., Howk, J.C., O'Meara, J.M., Tytler, D., Wolfe, A.M., Kirkman, D., Lubin, D., and Suzuki, N. *Astrophysical Journal*, 571, 693-711 (2002)
57. "Deuterium Abundance toward WD 0621-376: Results from the FUSE Mission," Lehner, N., Gry, C., Sembach, K.R., Hébrard, G., Chayer, P., Moos, H.W., Howk, J.C., and Désert, J.-M. *Astrophysical Journal Supplements*, 140, 81-89 (2002)
58. "Deuterium Abundance toward G191-B2B: Results from the FUSE Mission," Lemoine, M., and 21 colleagues *Astrophysical Journal Supplements*, 140, 67-80 (2002)
59. "Interstellar Deuterium, Nitrogen, and Oxygen Abundances toward BD +28°4211: Results from the FUSE Mission," Sonneborn, G., André, M., Oliveira, C., Hébrard, G., Howk, J.C., Tripp, T.M., Chayer, P., Friedman, S.D., Kruk, J.W., Jenkins, E.B., Lemoine, M., Moos, H.W., Oegerle, W.R., Sembach, K.R., and Vidal-Madjar, A. *Astrophysical Journal Supplements*, 140, 51-66 (2002)
60. "Deuterium and Oxygen toward Feige 110: Results from the FUSE Mission," Friedman, S.D., Howk, J.C., Chayer, P., Tripp, T.M., Hébrard, G., André, M., Oliveira, C., Jenkins, E.B., Moos, H.W., Oegerle, W.R., Sonneborn, G., Lamontagne, R., Sembach, K.R., and Vidal-Madjar, A. *Astrophysical Journal Supplements*, 140, 37-49 (2002)
61. "Abundances of Deuterium, Nitrogen, and Oxygen toward HZ 43A: Results from the FUSE Mission," Kruk, J.W., Howk, J.C., André, M., Moos, H.W., Oegerle, W.R., Oliveira, C., Sembach, K.R., Chayer, P., Linsky, J.L., Wood, B.E., Ferlet, R., Hébrard, G., Lemoine, M., Vidal-Madjar, A., and Sonneborn, G. *Astrophysical Journal Supplements*, 140, 19-36 (2002)

62. "Abundances of Deuterium, Nitrogen, and Oxygen in the Local Interstellar Medium: Overview of First Results from the FUSE Mission," Moos, H.W., and 35 colleagues *Astrophysical Journal Supplements*, 140, 3-17 (2002)
63. "A Far Ultraviolet Spectroscopic Explorer Survey of Interstellar O VI Absorption in the Small Magellanic Cloud," Hoopes, C.G., Sembach, K.R., Howk, J.C., Savage, B.D., and Fullerton, A.W. *Astrophysical Journal*, 569, 233-244 (2002)
64. "The Global Content, Distribution, and Kinematics of Interstellar O VI in the Large Magellanic Cloud," Howk, J.C., Sembach, K.R., Savage, B.D., Massa, D., Friedman, S.D., and Fullerton, A.W. *Astrophysical Journal*, 569, 214-232 (2002)
65. "An Atlas of Far Ultraviolet Spectroscopic Explorer Sight Lines toward the Magellanic Clouds," Danforth, C.W., Howk, J.C., Fullerton, A.W., Blair, W.P., and Sembach, K.R. *Astrophysical Journal Supplements*, 139, 81-189 (2002)
66. "Far-Ultraviolet Spectroscopy of the Intergalactic and Interstellar Absorption toward 3C 273," Sembach, K.R., Howk, J.C., Savage, B.D., Shull, J.M., and Oegerle, W.R. *Astrophysical Journal*, 561, 573-599 (2001)
67. "Observations of O VI Emission from the Diffuse Interstellar Medium," Shelton, R.L., and 24 colleagues *Astrophysical Journal*, 560, 730-741 (2001)
68. "Spectroscopic Classification of 42 Large Magellanic Cloud OB Stars: Selection of Probes for the Hot Gaseous Halo of the Large Magellanic Cloud," Jaxon, E.G., Guerrero, M.A., Howk, J.C., Walborn, N.R., Chu, Y.-H., and Wakker, B.P. *Publications of the Astronomical Society of the Pacific*, 113, 1130-1139 (2001)
69. "Far Ultraviolet Spectroscopic Explorer Observations of a Supernova Remnant in the Line of Sight to HD 5980 in the Small Magellanic Cloud," Hoopes, C.G., Sembach, K.R., Howk, J.C., and Blair, W.P. *Astrophysical Journal Letters*, 558, L35-L38 (2001)
70. "Ionization Properties and Elemental Abundances in Damped Ly $\alpha$  Systems," Vladilo, G., Centurión, M., Bonifacio, P., and Howk, J.C. *Astrophysical Journal*, 557, 1007-1020 (2001)
71. "STIS and GHRS Observations of Warm and Hot Gas Overlying the Scutum Supershell (GS 018-04+44)," Savage, B.D., Sembach, K.R., and Howk, J.C. *Astrophysical Journal*, 547, 907-921 (2001)
72. "FUSE Observations of Atomic Abundances and Molecular Hydrogen in the Leading Arm of the Magellanic Stream," Sembach, K.R., Howk, J.C., Savage, B.D., and Shull, J.M. *Astronomical Journal*, 121, 992-1002 (2001)
73. "Empirical Verification of the Fe II Oscillator Strengths in the FUSE Bandpass," Howk, J.C., Sembach, K.R., Roth, K.C., and Kruk, J.W. *Astrophysical Journal*, 544, 867-880 (2000)
74. "The Abundance of Interstellar Boron," Howk, J.C., Sembach, K.R., and Savage, B.D. *Astrophysical Journal*, 543, 278-283 (2000)

75. "No Diffuse H<sub>2</sub> in the Metal-deficient Galaxy I ZW 18," Vidal-Madjar, A., Kunth, D., Lecavelier des Etangs, A., Lequeux, J., André, M., BenJaffel, L., Ferlet, R., Hébrard, G., Howk, J.C., Kruk, J.W., Lemoine, M., Moos, H.W., Roth, K.C., Sonneborn, G., and York, D.G. *Astrophysical Journal Letters*, 538, L77-L80 (2000)
76. "Far Ultraviolet Spectroscopic Explorer Observations of Interstellar Gas toward the Large Magellanic Cloud Star SK -67°05," Friedman, S.D., Howk, J.C., Andersson, B.-G., Sembach, K.R., Ake, T.B., Roth, K., Sahnou, D.J., Savage, B.D., York, D.G., Sonneborn, G., Vidal-Madjar, A., and Wilkinson, E. *Astrophysical Journal Letters*, 538, L39-L42 (2000)
77. "Stagnation and Infall of Dense Clumps in the Stellar Wind of  $\tau$  Scorpii," Howk, J.C., Cassinelli, J.P., Bjorkman, J.E., and Lamers, H.J.G.L.M. *Astrophysical Journal*, 534, 348-358 (2000)
78. "Background and Scattered-Light Subtraction in the High-Resolution Echelle Modes of the Space Telescope Imaging Spectrograph," Howk, J.C. and Sembach, K.R. *Astronomical Journal*, 119, 2481-2497 (2000)
79. "An Empirical Test of the Mg II  $\lambda$ 1240 Doublet Branching Ratio and Oscillator Strength," Sofia, U.J., Fabian, D., and Howk, J.C. *Astrophysical Journal*, 531, 384-390 (2000)
80. "The Multiphase Halo of NGC 891: WIYN H $\alpha$  and BVI Imaging," Howk, J.C. and Savage, B.D. *Astronomical Journal*, 119, 644-667 (2000)
81. "Modeling the Warm Ionized Interstellar Medium and Its Impact on Elemental Abundance Studies," Sembach, K.R., Howk, J.C., Ryans, R.S.I., and Keenan, F.P. *Astrophysical Journal*, 528, 310-324 (2000)
82. "Accretion of low-metallicity gas by the Milky Way," Wakker, B.P., Howk, J.C., Savage, B.D., van Woerden, H., Tufté, S.L., Schwarz, U.J., Benjamin, R., Reynolds, R.J., Peletier, R.F., and Kalberla, P.M.W. *Nature*, 402, 388-390 (1999)
83. "Abundances and Physical Conditions in the Warm Neutral Medium toward  $\mu$  Columbae," Howk, J.C., Savage, B.D., and Fabian, D. *Astrophysical Journal*, 525, 253-293 (1999)
84. "Ionized Gas in Damped Lyman- $\alpha$  Systems and Its Effects on Elemental Abundance Studies," Howk, J.C. and Sembach, K.R. *Astrophysical Journal Letters*, 523, L141-L144 (1999)
85. "Dust in the Ionized Medium of the Galaxy: GHRS Measurements of AL III and S III," Howk, J.C. and Savage, B.D. *Astrophysical Journal*, 517, 746-766 (1999)
86. "A Search for Extraplanar Dust in Nearby Edge-on Spirals," Howk, J.C. and Savage, B.D. *Astronomical Journal*, 117, 2077-2101 (1999)
87. "Echelle Spectroscopy of Interstellar Absorption toward  $\mu$  Columbae with the Goddard High Resolution Spectrograph," Brandt, J.C., and 19 colleagues *Astronomical Journal*, 117, 400-409 (1999)



88. "Extraplanar Dust in Spiral Galaxies: Observations and Implications," Howk, J.C. *Ap&SS*, 269, 293-300 (1999)
89. "Coronal C<sup>+3</sup> in the Large Magellanic Cloud: Evidence for a Hot Halo," Wakker, B., Howk, J.C., Chu, Y.-H., Bomans, D., and Points, S.D. *Astrophysical Journal Letters*, 499, L87-91 (1998)
90. "A Search for Optical Afterglow from GRB 970828," Groot, P.J., and 24 colleagues *Astrophysical Journal Letters*, 493, L27-30 (1998)
91. "Extraplanar Dust in the Edge-On Spiral NGC 891," Howk, J.C. and Savage, B.D. *Astronomical Journal*, 114, 2463-2478 (1997)
92. "The Distance to Two Neutral Hydrogen Clouds: The High-Velocity Complex A and the Low-Latitude Intermediate-Velocity Cloud," Wakker, B., Howk, C., Schwarz, U., van Woerden, H., Beers, T., Wilhelm, R., Kalberla, P., and Danly, L. *Astrophysical Journal*, 473, 834-848 (1996)

**Non-Reviewed Publications:**

93. "Interstellar Lithium as a probe of the primordial abundance," Howk, J.C. IAU Symposium, 268, 335-336 (2010)
94. "The Interstellar Medium in the Far Ultraviolet," Howk, J. C. American Institute of Physics Conference Series, 1135, 73-76 (2009)
95. "Are Highly-Ionized HVCs a Galactic Phenomenon?," Zech, W. F., Lehner, N., & Howk, J. C. American Institute of Physics Conference Series, 1135, 55-57 (2009)
96. "FUV Observations of a Strong OVI Absorber and a Lyman Limit System," Lehner, N., Howk, J. C., Prochaska, J. X., Cooksey, K. L., Kobulnicky, H. A., Cales, S. L., & Williger, G. M. American Institute of Physics Conference Series, 1135, 34-36 (2009)
97. "UCSD/Keck Damped Ly-alpha Abundance Database," Prochaska, J. X., Wolfe, A. M., Howk, J. C., Gawiser, E., Burles, S. M., & Cooke, J. VizieR Online Data Catalog, 217, 10029 (2009)
98. "The Cosmic Web," Bertone, S., et al. astro2010: The Astronomy and Astrophysics Decadal Survey, 2010, 270 (2009)
99. "Distances to the High Velocity Clouds: A Forty-Year Mystery on the Way to Solution," Barentine, J. C., et al. New Horizons in Astronomy, 393, 179-(2008)
100. "Metal-strong damped Ly $\alpha$  systems (Herbert-Fort+, 2006)," Herbert-Fort, S., Prochaska, J. X., Dessauges-Zavadsky, M., Ellison, S. L., Howk, J. C., Wolfe, A. M., & Prochter, G. E. VizieR Online Data Catalog, 611, 81077 (2007)
101. "Probing Starburst Superwinds Through O VI Emission," Hoopes, C. G., Heckman, T. M., Strickland, D. K., & Howk, J. C. Astrophysics in the Far Ultraviolet: Five Years of Discovery with FUSE, 348, 492-494 (2006)

102. "Does the Line of Sight to M5 Intersect a Highly-Ionized High-Velocity Cloud?," Dixon, W. V., Brown, T. M., Howk, J. C., & Landsman, W. B. *Astrophysics in the Far Ultraviolet: Five Years of Discovery with FUSE*, 348, 218-220 (2006)
103. "The FUSE Legacy in the Magellanic Clouds," Blair, W. P., et al. *Astrophysics in the Far Ultraviolet: Five Years of Discovery with FUSE*, 348, 127-129 (2006)
104. "Spitzer Observations of Extraplanar PAH Emission from Spiral Galaxies," Lehner, N., & Howk, J. *Visions for Infrared Astronomy, Instrumentation, Measure, Metrologie*, 123-126 (2006)
105. "Extra-planar Dust as a Tracer of Cold Dense Gas in the Thick Disks of Spiral Galaxies," Howk, J. C. *Extra-Planar Gas*, 331, 287-294 (2005)
106. "No diffuse H<sub>2</sub> in the metal deficient galaxy I Zw 18," Kunth, D., et al. *Cosmic evolution*, 271-276 (2001)
107. "Empirical Determination of Fe II Oscillator Strengths in the FUSE Bandpass," Howk, J. C. *Spectroscopic Challenges of Photoionized Plasmas*, 247, 511-514 (2001)
108. "Extraplanar Dust and Star Formation in Nearby Edge-On Galaxies," Howk, J. C., & Savage, B. D. *The Physics and Chemistry of the Interstellar Medium*, 38-41 (1999)
109. "Observational Evidence for the Accretion of Low-metallicity Gas onto the Milky Way: Metallicity, Physical Conditions and Distance Limit for HVC Complex C," Wakker, B. P., Howk, J. C., Savage, B. D., Tufte, S. L., Reynolds, R. J., van Woerden, H., Schwarz, U. J., & Peletier, R. F. *Stromlo Workshop on High-Velocity Clouds*, 166, 26-38 (1999)
110. "The Metallicity of HVC Complex C: Observational Evidence for the Accretion of Low-Metallicity Gas onto the Milky Way," Wakker, B. P., Howk, J. C., Savage, B. D., Tufte, S. L., Reynolds, R. J., van Woerden, H., & Schwarz, U. J. *The Third Stromlo Symposium: The Galactic Halo*, 165, 464-468 (1999)
111. "Optical gamma-ray burst followup at Kitt Peak National Observatory," Rhoads, J. E., et al. *Gamma-Ray Bursts, 4th Hunstville Symposium*, 428, 548-551 (1998)
112. "The Distance to Two Hydrogen Clouds: The HVC Complex A and the Low-Latitude Intermediate-Velocity Arch," Wakker, B., Howk, C., van Woerden, H., Schwarz, U. J., Beers, T. C., Wilhelm, R., Kalberla, P., & Danly, L. *The Scientific Impact of the Goddard High Resolution Spectrograph*, 143, 280-284 (1998)
113. "GRB 970508," Schaefer, B., et al. *IAU Circular*, 6658, 1 (1997)

### **External Seminars and Talks:**

1. “*A New Approach to the Cosmic Lithium Problem,*” colloquium, Astronomy Department, Case Western Reserve University, October 30, 2013
2. “*A New Approach to the Cosmic Lithium Problem,*” contributed talk, Indiana Astrophysics Meeting, Valparaiso University, October 24, 2013
3. “*The Positive Side of the Galactic Baryon Ledger: the Evidence for Cold Inflow*”, contributed talk, The Physical Link Between Galaxies and their Halos, Garching, Germany, June 24–28, 2013
4. “*The Positive Side of the Galactic Baryon Ledger: the Evidence for Cold Inflow*”, invited talk, Galactic Winds Near and Far, Schloss Ringberg, Bavaria, Germany, June 3–7, 2013
5. “*Low  $N(\text{HI})$  Gas and the On-Going Build-up of Galaxies,*” contributed talk, The Galactic Gas Supply Workshop, National Radio Astronomy Observatory, Green Bank, WV, May 29–31, 2013. Also served on discussion panel: “*What are the high velocity clouds?*”
6. “*A New Approach to the Cosmic Lithium Problem,*” colloquium, Physics Department, West Virginia University, October 4, 2012
7. “*UVES observations of interstellar lithium in the SMC: new insight on primordial lithium,*” contributed talk, ESO@50, European Southern Observatory, Garching, Germany, September 3–7, 2012
8. “*The ins-and-outs of circumgalactic baryons in the  $z < 1$  Universe,*” contributed talk, The Dynamic Nature of Baryons in Halos, Leiden University, Leiden, The Netherlands, August 6–10, 2012
9. “*Discussion of Future Opportunities,*” Invited discussion panelist; Ultraviolet Astronomy: HST and Beyond, Kauai, HI, June 18–20, 2012
10. “*Observational Constraints on Cold Gas Inflow,*” invited review, Gas Flows in Galaxies, 2012 STScI May Symposium, Baltimore, MD, May 7–10, 2012
11. “*Lithium in the Interstellar Medium: an Independent Probe of Lithium Evolution,*” invited talk, Lithium in the Cosmos, Institut d’Astrophysique de Paris (France), February 27–29, 2012
12. “*Lyman Limit Systems Through Cosmic Time: Tracing the Evolving Circum-galactic Medium,*” invited talk, Galaxies in Absorption, Boulder, CO, September 5-7, 2011
13. “*Light Elements and the Chemical Evolution of Gas in the Universe,*” invited review, Exploring the nature of the Evolving Universe, PUC Rio de Janeiro, Brazil, August 15-19, 2011
14. “*Probing Galactic Outflows and Infall with Lyman Limit Systems,*” invited talk, A Quarter Century of DLAs: Celebrating the Career of Arthur Wolfe; Ringberg, Germany, July 4-7, 2011
15. “*Tracing the Evolution of the Accretion and Outflows over Cosmic Time with Lyman Limit Absorption,*” contributed talk, The Cosmic Odyssey of Baryons: accreting, outflowing and hiding; Marseille, France, June 20-24, 2011

16. "*A New Approach to the Cosmic Lithium Problem*," Astrophysics Seminar, Northwestern University, Department of Physics & Astronomy, September 28, 2010
17. "*On the importance of Outflows and Infall in Spiral Galaxies: Interstellar Dust as a Probe of Galaxy Assembly*," Colloquium, New Mexico State University, Astronomy Dept., September 17, 2010
18. "*The Legacy of the Hubble Space Telescope Spectrographs*," Invited plenary talk, The 2010 STScI Calibration Workshop, Space Telescope Science Institute, July 21, 2010
19. "*Interstellar Constraints on the Evolution of Cosmic Lithium*," Colloquium, University of Wisconsin-Madison, Astronomy Dept., March 2, 2010
20. "*Using the Gas Phase of the Universe to Constrain New Physics*," Colloquium, The Catholic University of America, Physics Dept., November 4, 2009
21. "*On the importance of Outflows and Infall in Spiral Galaxies: Interstellar Dust as a Probe of Galaxy Assembly*," Colloquium, Indiana University, Astronomy Dept., October 15, 2009
22. "*On the importance of Outflows and Infall in Spiral Galaxies: Interstellar Dust as a Probe of Galaxy Assembly*," Colloquium, University of Wyoming, Dept. of Physics & Astronomy, February 27, 2009
23. Invited *provocateur* for the Interstellar Medium session of NASA's Future Directions in Ultraviolet Spectroscopy, Annapolis, MD, October 20-22, 2008
24. "*The Evolution of Galaxies and Their Metals*," JINA Seminar, Michigan State University, Physics and Astronomy Department, October 6, 2008
25. "*Extraplanar Dust in Spiral Galaxies: Tracing Outflows in the Disk-Halo Interface*," Invited review at 'The Role of Disk-Halo Interaction in Galaxy Evolution: Outflow vs Infall' conference, Espinho, Portugal, August 18-22, 2008
26. "*Thick Disk Star Formation in Spiral Galaxies?*," Contributed talk at 'Formation and Evolution of Star Clusters and Associations' workshop, University of Toledo, June 7, 2008
27. "*Are Highly Ionized High Velocity Clouds Extragalactic?*," Contributed talk at 'Galaxy Formation and Evolution as Revealed by Cosmic Gas' conference, University of California, Irvine, April 17-19, 2008.
28. "*Gas Phase Physics and the Evolution of Galaxies*," Colloquium, Western Michigan University, Physics Department, February 4, 2008
29. "*Gas Phase Physics and the Evolution of Galaxies*," Colloquium, Department of Physics and Astronomy, University of Louisville, September 7, 2007
30. "*Gas Phase Physics and the Evolution of Galaxies*," Colloquium, University of Nevada Las Vegas, Physics Department, December 1, 2006
31. "*Studying the Cosmic Evolution of Galaxies Through Their Gas*," Colloquium, University of Toledo, Physics & Astronomy Department, November 2, 2006
32. "*Studying the Cosmic Evolution of Galaxies Through Their Gas*," Colloquium, University of Illinois, Astronomy Department, September 12, 2006

33. “*Interstellar Thick Disks*,” Colloquium, University of California at Santa Cruz, Astronomy Department, March 8, 2006
34. “*NASA’s Ultraviolet Spectrographs: Science and Atomic Data Needs*,” Invited Talk, NASA Laboratory Astrophysics Workshop, University of Nevada, Las Vegas, February 13-16, 2006
35. “*Studying the Cosmic Evolution of Galaxies Through Their Gas*,” Colloquium, University of Minnesota, Astronomy Department, February 3, 2006
36. “*Studying the Cosmic Evolution of Galaxies Through Their Gas*,” Colloquium, The Ohio State University, Astronomy Department, November 3, 2005
37. “*Studying the Cosmic Evolution of Galaxies Through Their Gas*,” Colloquium, University of Wisconsin, Astronomy Department, October 18, 2005
38. “*Studying the Cosmic Evolution of Galaxies Through Their Gas*,” Colloquium, New Mexico State University, Astronomy Department, April 15, 2005

**Selected Talks Prior to 2005:**

39. “*Extraplanar Dust in External Galaxies: Cold Gas in the Thick Disk*,” invited talk at ‘Extraplanar Gas’ conference, ASTRON, The Netherlands, June 7-11, 2004
40. “*Absorption Line Studies of Milky Way Halo Gas*,” invited review for topical session “Gaseous Galaxy Halos and Edges of Disk Galaxies” at the 200<sup>th</sup> AAS meeting, Albuquerque, NM, June 2002