

# Dawn Erb

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## Research Interests

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**Galaxy formation and evolution**

**Low mass galaxies at all redshifts**

**Evolution of the circumgalactic and intergalactic medium at high redshift**

**Chemical evolution, kinematics and stellar populations of galaxies at high redshift**

**Feedback processes in starburst galaxies**

**Gas ejection and accretion in high redshift galaxies**

## Employment

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**University of Wisconsin-Milwaukee**

Associate Professor, Department of Physics

[Milwaukee, WI](#)

2014 – present

**University of Wisconsin-Madison**

Visiting Associate Professor, Department of Astronomy

[Madison, WI](#)

2014 – present

**University of Wisconsin-Milwaukee**

Assistant Professor, Department of Physics

[Milwaukee, WI](#)

2010 – 2014

**University of Wisconsin-Madison**

Visiting Assistant Professor, Department of Astronomy

[Madison, WI](#)

2010 – 2014

**University of California Santa Barbara**

Spitzer Postdoctoral Fellow

[Santa Barbara, CA](#)

2008 – 2010

**Harvard-Smithsonian Center for Astrophysics**

CfA Postdoctoral Fellow

[Cambridge, MA](#)

2005 – 2008

## Education

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**California Institute of Technology**

Ph.D. Astrophysics

[Pasadena, CA](#)

2005

- “The Properties of Star-Forming Galaxies at  $z \sim 2$ : Kinematics, Stellar Populations, and Metallicities” — Research Advisor: Professor Charles C. Steidel

**University of Washington**

B.S. Physics, Summa cum laude

[Seattle, WA](#)

B.S. Astronomy, Summa cum laude

2000

## Grants and Proposals

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**Total extramural funding**

**\$1,675,000**

**National Science Foundation**

The Extreme Galaxy Reference Sample: Low Metallicity Galaxies Across Cosmic Time

**\$381,351**

2019

**UWM Research Growth Initiative**

The Extreme Census of the Local Universe: The Most Highly Ionized Galaxies in the Northern Sky

**\$73,000**

2019

**NASA Keck PI Data Awards**

9 nights (KCWI, LRIS, MOSFIRE, ESI)

**\$100,100 total**

2013 – 2019

## Space Telescope Science Institute

*The Brightest Lens in the Sky: Stellar Populations on ~50 pc Scales at the Peak Epoch of Star Formation*

3 orbits, \$50,972

Hubble Space Telescope Cycle 25 (2017)

## Space Telescope Science Institute

*Lyman-alpha Imaging at ~20 pc Resolution in a Low Mass Lensed Galaxy at  $z=1.85$*

7 orbits, \$62,595

Hubble Space Telescope Cycle 24 (2016)

## Space Telescope Science Institute

*The Evolution of C/O in Low Metallicity Dwarf Galaxies (PI Danielle Berg)*

20 orbits, UWM budget \$113,360

Hubble Space Telescope Cycle 24 (2016)

## Space Telescope Science Institute

*Stellar Populations and Physical Conditions at ~100 pc Resolution in a Lensed Galaxy at  $z\sim 4$  (PI Danielle Berg)*

2 orbits, \$7,625

Hubble Space Telescope Cycle 23 (2015)

## National Science Foundation Early Career Award

*CAREER: The Early Stages of Galaxy Evolution*

\$779,965

2013

## Space Telescope Science Institute

*Gaseous outflows from low mass galaxies: Understanding local laboratories for high redshift star formation (PI Alaina Henry)*

26 orbits, UWM budget \$18,000

Hubble Space Telescope Cycle 20 (2012)

## NASA Herschel Science Center

*The Herschel Proto-cluster Survey: SPIRE Mapping of the Nodes of the Cosmic Web at  $z>2$  (PI Yuichi Matsuda)*

UWM budget \$9,647

OT2 (2012)

## Space Telescope Science Institute

*The Bottom of the Iceberg: Faint  $z\sim 2$  Galaxies and the Enrichment of the IGM*

30 orbits, UWM budget \$93,000

Hubble Space Telescope Cycle 19 (2011)

## Space Telescope Science Institute

*3D-HST: A Spectroscopic Galaxy Evolution Treasury (PI Pieter van Dokkum)*

248 orbits, UWM budget \$42,000

Hubble Space Telescope Cycle 18 (2010)

## UWM Research Growth Initiative

*The Youngest Galaxies in the Young Universe*

\$307,000

2010

## Awards and Honors

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### Kavli Fellow, National Academy of Sciences Kavli Frontiers of Science

2018

### UWM Research Foundation Award

2017

### Spitzer Fellowship

2008

### Center for Astrophysics Fellowship

2005

### Baer Prize in Astronomy

University of Washington, 2000

### Higgs-Osborn Prize in Experimental Physics

University of Washington, 2000

## Outreach

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### Advisor, UWM Astronomy Club

2010 – present

### Co-founder, UWM Women in Physics group

2017 – present

### Maker Faire Milwaukee: Center for Gravitation, Cosmology & Astrophysics booth

2016, 2017, 2019

### Public lectures

2012 – 2019

- Osher Lifetime Learning Institute
- UWM Science Bag
- Wehr Astronomical Society
- NCRAL 2014: Gazing at the Stars
- James Madison High School, Milwaukee
- Milwaukee Astronomical Society
- Vieau School, Milwaukee

## Service and Appointments

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<b>Gemini Telescope Board of Directors</b>	2017 – 2019
<b>Hubble Space Telescope Users Committee</b>	2015 – 2019
<b>Associate Editor, Publications of the Astronomical Society of Australia</b>	2013 – 2015
<b>NOAO telescope allocation committee</b>	2012 – 2015
<b>Hubble Space Telescope review panel</b>	2006, 2010, 2013, 2016, 2019 (panel chair)
<b>Spitzer Space Telescope review panel</b>	2010, 2011 (panel chair)
<b>NASA Postdoctoral Program review</b>	2011
<b>NSF review panel</b>	2007, 2008, 2010
<b>NRAO proposal review</b>	2007 – 2008
<b>Peer review</b>	2004 – present
<i>Nature, Science, The Astrophysical Journal, The Astrophysical Journal Letters, The Astronomical Journal, Monthly Notices of the Royal Astronomical Society, Astronomy &amp; Astrophysics, Publications of the Astronomical Society of the Pacific</i>	

## Teaching

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<b>Astronomy 103: Survey of Astronomy</b>	Spring 2013, 2014, 2015, 2017, 2018, 2019; Fall 2015, 2017, 2019
<b>Astronomy 320: Astronomy II: Extragalactic Astronomy and Cosmology</b>	Spring 2011
<b>Astronomy 401: Astrophysics II: Extragalactic Astrophysics and Cosmology</b>	Spring 2013
<b>Astronomy 401/Physics 903: Astrophysics II: Extragalactic Astrophysics and Cosmology</b>	Spring 2015, 2017, 2019
<b>Physics 817: Cosmology</b>	Fall 2011, Spring 2014, Spring 2018, Fall 2019

## Invited Conference Presentations

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<b>Mapping the circumgalactic medium with Ly<math>\alpha</math> emission</b>	September 2019
<i>GMT Community Science Meeting, Carlsbad, CA</i>	
<b>Small galaxies, big halos: Ly<math>\alpha</math> emission in the CGM of low-mass galaxies at z~2</b>	July 2019
<i>Small Galaxies, Cosmic Questions, Durham, UK</i>	
<b>Ly<math>\alpha</math> Emission and the Circumgalactic Medium in Low Mass Galaxies</b>	June 2019
<i>What matter(s) between galaxies, Spineto, Italy</i>	
<b>Ly<math>\alpha</math> Emission and the Circumgalactic Medium in Low Mass Galaxies</b>	September 2018
<i>Escape of Lyman radiation from galactic labyrinths, Kolymbari, Crete, Greece</i>	
<b>Ly<math>\alpha</math> Emission in Low Metallicity Galaxies at z~2</b>	March 2018
<i>Tokyo Spring Sakura Cosmic Ly<math>\alpha</math> Workshop, University of Tokyo</i>	
<b>Observing Outflows at High Redshifts</b>	October 2017
<i>Characterizing Galaxies with Spectroscopy with a view for JWST, Lorentz Center, Leiden, Netherlands</i>	
<b>Star Formation and Feedback in Low Metallicity Galaxies at z~2</b>	April 2017
<i>Keynote presentation, MidAmerican Regional Astrophysics Conference, University of Kansas</i>	

<b>The Rest-Frame UV Spectra of Low Mass Galaxies at <math>z \sim 2</math></b>	July 2016
<i>32nd Institut d'Astrophysique de Paris Colloquium, Cosmic dawn of galaxy formation: linking observations and theory with new-generation spectral models. Paris</i>	
<b><math>\text{Ly}\alpha</math> Profiles and Lyman Continuum Emission in Star-Forming Galaxies</b>	April 2016
<i>Escape of Lyman radiation from galactic labyrinths, Kolymbari, Crete, Greece</i>	
<b>The physical conditions in young, low metallicity galaxies at high redshift</b>	July 2015
<i>Understanding Nebular Emission in High Redshift Galaxies, Pasadena, CA</i>	
<b>Galactic Outflows and Galactic Structure at <math>z \sim 2</math></b>	July 2014
<i>Good Sense and Dominant Ideology in Galaxy Formation and Evolution, Ascona, Switzerland</i>	
<b>Gas Flows and Galaxy Formation</b>	January 2013
<i>Plenary talk, 221st Meeting of the American Astronomical Society, Long Beach, CA</i>	
<b>Rising Star Formation Histories and the Evolution of the Mass-Metallicity Relation</b>	July 2012
<i>Galaxies: Insight Out, Leiden, the Netherlands</i>	
<b>Rising Star Formation Histories and the Evolution of the Mass-Metallicity Relation</b>	June 2012
<i>Metals in Tuscany, Spineto, Italy</i>	
<b>Chemical Abundances in Star-Forming Galaxies at High Redshift</b>	August 2009
<i>International Astronomical Union Symposium 265, Rio de Janeiro</i>	
<b>Star Formation and Chemical Enrichment in the Youngest Galaxies</b>	July 2009
<i>SFR@50, Spineto, Italy</i>	
<b>The Mass-Dependent Spectral Properties of High Redshift Galaxies</b>	February 2009
<i>Napa Valley Galaxy Evolution Workshop, Napa, CA</i>	
<b>Galaxy Metallicity in the Redshift Desert</b>	July 2009
<i>Harvesting the Desert: The Universe Between Redshifts 1 and 3, Marseille</i>	
<b>Observing Distant Galaxies with the GMT</b>	March 2008
<i>Science with the Giant Magellan Telescope, Australian National University, Canberra, Australia</i>	
<b>Gas Masses and Gas Fractions: Applications of the Kennicutt-Schmidt Law at High Redshift</b>	December 2006
<i>University of California San Diego Kennicutt-Schmidt Workshop</i>	
<b>Galactic Winds, Galaxy Masses and Metallicities at <math>1 &lt; z &lt; 3</math>: An observational perspective</b>	July 2006
<i>Chemodynamics: From First Stars to Local Galaxies, Lyon, France</i>	

## Colloquia and Seminars

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<b>New York University</b>	March 2019
<b>University of Oslo</b>	December 2018
<b>University of Geneva</b>	November 2018
<b>University of Copenhagen</b>	November 2018
<b>Stockholm University</b>	September 2018
<b>University of Kansas</b>	April 2017
<b>University of Toronto</b>	December 2016
<b>University of Wisconsin Madison</b>	September 2016
<b>University of Arizona</b>	March 2016
<b>University of Washington</b>	March 2016
<b>Ohio State University</b>	March 2016

Arizona State University	September 2015
Northwestern University	April 2015
Space Telescope Science Institute	March 2014
University of Virginia/NRAO	September 2013
University of Minnesota	April 2013
University of Texas Austin	March 2013
University of Wisconsin Madison	February 2013
Cornell University	November 2012
University of Notre Dame	March 2012
Indiana University	November 2011
Northwestern University	April 2010
University of Wisconsin Madison	April 2010
University of Chicago	October 2009
Texas A&M University	September 2009
University of Wisconsin Milwaukee	March 2009
Princeton University	February 2009
University of Massachusetts Amherst	October 2008
Carnegie Observatories	March 2008
Harvard University	March 2008
Ohio State University	February 2008
University of Utah	January 2008
University of Michigan	January 2008
University of California San Diego	January 2008
Harvard University	February 2007
Space Telescope Science Institute	February 2007
University of California Los Angeles	February 2007
University of Central Lancashire, Preston, UK	July 2006
University of California Santa Cruz	May 2006
University of Toronto	February 2006

## Refereed Publications

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<b>Total citations</b>	<b>13,081</b>
<b>Total first author citations</b>	<b>2,450</b>

76. "Subkiloparsec Imaging of Ly $\alpha$  Emission in a Low-mass, Highly Ionized, Gravitationally Lensed Galaxy at  $z=1.84$ ." **Erb, D. K.**, Berg, D. A., Auger, M. W., Kaplan, D. L., Brammer, G., & Pettini, M. 2019, *Astrophysical Journal*, 884, 7
75. "Intense C IV and He II Emission in  $z\sim 0$  Galaxies: Probing High-energy Ionizing Photons." Berg, D. A., Chisholm, J., **Erb, D. K.**, Pogge, R., Henry, A., & Olivier, G. M. 2019, *Astrophysical Journal Letters*, 878, L3
74. "The Chemical Evolution of Carbon, Nitrogen, and Oxygen in Metal-poor Dwarf Galaxies." Berg, D. A., **Erb, D. K.**, Henry, R. B. C., Skillman, E. D., & McQuinn, K. B. W. 2019, *Astrophysical Journal*, 874, 93
73. "The Kinematics of Extended Ly $\alpha$  Emission in a Low-mass, Low-metallicity Galaxy at  $z=2.3$ ." **Erb, D. K.**, Steidel, C. C., & Chen, Y. 2018, *Astrophysical Journal Letters*, 862, L10
72. "A Window on the Earliest Star Formation: Extreme Photoionization Conditions of a High-ionization, Low-metallicity Lensed Galaxy at  $z\sim 2$ ." Berg, D. A., **Erb, D. K.**, Auger, M. W., Pettini, M., & Brammer, G. B. 2018, *Astrophysical Journal*, 859, 164
71. "The Redshift Evolution of Rest-UV Spectroscopic Properties in Lyman-break Galaxies at  $z\sim 2-4$ ." Du, X., Shapley, A. E., Reddy, N.

- A., Jones, T., Stark, D. P., Steidel, C. C., Strom, A. L., Rudie, G. C., **Erb, D. K.**, Ellis, R. S., & Pettini, M. 2018, *Astrophysical Journal*, 860, 75
70. “A Close Relationship between Ly $\alpha$  and Mg II in Green Pea Galaxies.” Henry, A., Berg, D. A., Scarlata, C., Verhamme, A., & **Erb, D.** 2018, *Astrophysical Journal*, 855, 96
69. “A High Fraction of Ly $\alpha$  Emitters among Galaxies with Extreme Emission Line Ratios at  $z \sim 2$ .” **Erb, D. K.**, Pettini, M., Steidel, C. C., Strom, A. L., Rudie, G. C., Trainor, R. F., Shapley, A. E., & Reddy, N. A. 2016, *Astrophysical Journal*, 830, 52
68. “Carbon and Oxygen Abundances in Low Metallicity Dwarf Galaxies.” Berg, D. A., Skillman, E. D., Henry, R. B. C., **Erb, D. K.**, & Carigi, L. 2016, *Astrophysical Journal*, 827, 126
67. “Herschel protocluster survey: a search for dusty star-forming galaxies in protoclusters at  $z=2-3$ .” Kato, Y., Matsuda, Y., Smail, I., Swinbank, A. M., Hatsukade, B., Umehata, H., Tanaka, I., Saito, T., Iono, D., Tamura, Y., Kohno, K., **Erb, D. K.**, Lehmer, B. D., Geach, J. E., Steidel, C. C., Alexander, D. M., Yamada, T., & Hayashino, T. 2016, *Monthly Notices of the Royal Astronomical Society*, 460, 3861
66. “Ly $\alpha$  Emission from Green Peas: The Role of Circumgalactic Gas Density, Covering, and Kinematics.” Henry, A., Scarlata, C., Martin, C. L., & **Erb, D.** 2015, *Astrophysical Journal*, 809, 19
65. “Feedback in low-mass galaxies in the early Universe.” **Erb, D. K.** 2015, *Nature*, 523, 169
64. “Strong Nebular Line Ratios in the Spectra of  $z=2-3$  Star Forming Galaxies: First Results from KBSS-MOSFIRE.” Steidel, C. C., Rudie, G. C., Strom, A. L., Pettini, M., Reddy, N. A., Shapley, A. E., Trainor, R. F., **Erb, D. K.**, Turner, M. L., Konidaris, N. P., Kulas, K. R., Mace, G., Matthews, K., & McLean, I. S. 2014, *Astrophysical Journal*, 795, 165
63. “The Ly $\alpha$  Properties of Faint Galaxies at  $z=2-3$  with Systemic Redshifts and Velocity Dispersions from Keck-MOSFIRE.” **Erb, D. K.**, Steidel, C. C., Trainor, R. F., Bogosavljević, M., Shapley, A. E., Nestor, D. B., Kulas, K. R., Law, D. R., Strom, A. L., Rudie, G. C., Reddy, N. A., Pettini, M., Konidaris, N. P., Mace, G., Matthews, K., & McLean, I. S. 2014, *Astrophysical Journal*, 795, 33
62. “Large-scale Star-formation-driven Outflows at  $1 < z < 2$  in the 3D-HST Survey.” Lundgren, B. F., Brammer, G., van Dokkum, P., Bezanson, R., Franx, M., Fumagalli, M., Momcheva, I., Nelson, E., Skelton, R. E., Wake, D., Whitaker, K., da Cunha, E., **Erb, D. K.**, Fan, X., Kriek, M., Labbé, I., Marchesini, D., Patel, S., Rix, H. W., Schmidt, K., & van der Wel, A. 2012, *Astrophysical Journal*, 760, 49
61. “Stellar Populations of Ultraviolet-selected Active Galactic Nuclei Host Galaxies at  $z=2-3$ .” Hainline, K. N., Shapley, A. E., Greene, J. E., Steidel, C. C., Reddy, N. A., & **Erb, D. K.** 2012, *Astrophysical Journal*, 760, 74
60. “A HST/WFC3-IR Morphological Survey of Galaxies at  $z=1.5-3.6$ . II. The Relation between Morphology and Gas-phase Kinematics.” Law, D. R., Steidel, C. C., Shapley, A. E., Nagy, S. R., Reddy, N. A., & **Erb, D. K.** 2012, *Astrophysical Journal*, 759, 29
59. “Galactic Outflows in Absorption and Emission: Near-ultraviolet Spectroscopy of Galaxies at  $1 < z < 2$ .” **Erb, D. K.**, Quider, A. M., Henry, A. L., & Martin, C. L. 2012, *Astrophysical Journal*, 759, 26
58. “3D-HST Grism Spectroscopy of a Gravitationally Lensed, Low-metallicity Starburst Galaxy at  $z=1.847$ .” Brammer, G. B., Sánchez-Janssen, R., Labbé, I., da Cunha, E., **Erb, D. K.**, Franx, M., Fumagalli, M., Lundgren, B., Marchesini, D., Momcheva, I., Nelson, E., Patel, S., Quadri, R., Rix, H.-W., Skelton, R. E., Schmidt, K. B., van der Wel, A., van Dokkum, P. G., Wake, D. A., & Whitaker, K. E. 2012, *Astrophysical Journal Letters*, 758, L17
57. “A Census of Oxygen in Star-forming Galaxies: An Empirical Model Linking Metallicities, Star Formation Rates, and Outflows.” Zahid, H. J., Dima, G. I., Kewley, L. J., **Erb, D. K.**, & Davé, R. 2012, *Astrophysical Journal*, 757, 54
56. “High velocity dispersion in a rare grand-design spiral galaxy at redshift  $z=2.18$ .” Law, D. R., Shapley, A. E., Steidel, C. C., Reddy, N. A., Christensen, C. R., & **Erb, D. K.** 2012, *Nature*, 487, 338
55. “The Characteristic Star Formation Histories of Galaxies at Redshifts  $z=2-7$ .” Reddy, N. A., Pettini, M., Steidel, C. C., Shapley, A. E., **Erb, D. K.**, & Law, D. R. 2012, *Astrophysical Journal*, 754, 25
54. “3D-HST: A Wide-field Grism Spectroscopic Survey with the Hubble Space Telescope.” Brammer, G. B., van Dokkum, P. G., Franx, M., Fumagalli, M., Patel, S., Rix, H.-W., Skelton, R. E., Kriek, M., Nelson, E., Schmidt, K. B., Bezanson, R., da Cunha, E., **Erb, D. K.**, Fan, X., Förster Schreiber, N., Illingworth, G. D., Labbé, I., Leja, J., Lundgren, B., Magee, D., Marchesini, D., McCarthy, P., Momcheva, I., Muzzin, A., Quadri, R., Steidel, C. C., Tal, T., Wake, D., Whitaker, K. E., & Williams, A. 2012, *Astrophysical Journals*, 200, 13
53. “The Gaseous Environment of High- $z$  Galaxies: Precision Measurements of Neutral Hydrogen in the Circumgalactic Medium of  $z=2-3$  Galaxies in the Keck Baryonic Structure Survey.” Rudie, G. C., Steidel, C. C., Trainor, R. F., Rakic, O., Bogosavljević, M., Pettini, M., Reddy, N., Shapley, A. E., **Erb, D. K.**, & Law, D. R. 2012, *Astrophysical Journal*, 750, 67
52. “An HST/WFC3-IR Morphological Survey of Galaxies at  $z=1.5-3.6$ . I. Survey Description and Morphological Properties of Star-forming Galaxies.” Law, D. R., Steidel, C. C., Shapley, A. E., Nagy, S. R., Reddy, N. A., & **Erb, D. K.** 2012, *Astrophysical Journal*, 745, 85
51. “First Results from the 3D-HST Survey: The Striking Diversity of Massive Galaxies at  $z > 1$ .” van Dokkum, P. G., Brammer, G.,

- Fumagalli, M., Nelson, E., Franx, M., Rix, H.-W., Kriek, M., Skelton, R. E., Patel, S., Schmidt, K. B., Bezanson, R., Bian, F., da Cunha, E., **Erb, D. K.**, Fan, X., Förster Schreiber, N., Illingworth, G. D., Labbé, I., Lundgren, B., Magee, D., Marchesini, D., McCarthy, P., Muzzin, A., Quadri, R., Steidel, C. C., Tal, T., Wake, D., Whitaker, K. E., & Williams, A. 2011, *Astrophysical Journal Letters*, 743, L15
50. “Filamentary Large-scale Structure Traced by Six Ly $\alpha$  Blobs at  $z=2.3$ .” **Erb, D. K.**, Bogosavljević, M., & Steidel, C. C. 2011, *Astrophysical Journal Letters*, 740, L31
  49. “Constraints on the Assembly and Dynamics of Galaxies. II. Properties of Kiloparsec-scale Clumps in Rest-frame Optical Emission of  $z\sim 2$  Star-forming Galaxies.” Förster Schreiber, N. M., Shapley, A. E., Genzel, R., Bouché, N., Cresci, G., Davies, R., **Erb, D. K.**, Genel, S., Lutz, D., Newman, S., Shapiro, K. L., Steidel, C. C., Sternberg, A., & Tacconi, L. J. 2011, *Astrophysical Journal*, 739, 45
  48. “Diffuse Ly $\alpha$  Emitting Halos: A Generic Property of High-redshift Star-forming Galaxies.” Steidel, C. C., Bogosavljević, M., Shapley, A. E., Kollmeier, J. A., Reddy, N. A., **Erb, D. K.**, & Pettini, M. 2011, *Astrophysical Journal*, 736, 160
  47. “Constraints on the Assembly and Dynamics of Galaxies. I. Detailed Rest-frame Optical Morphologies on Kiloparsec Scale of  $z\sim 2$  Star-forming Galaxies.” Förster Schreiber, N. M., Shapley, A. E., **Erb, D. K.**, Genzel, R., Steidel, C. C., Bouché, N., Cresci, G., & Davies, R. 2011, *Astrophysical Journal*, 731, 65
  46. “Excess AGN activity in the  $z=2.30$  Protocluster in HS 1700+64.” Digby-North, J. A., Nandra, K., Laird, E. S., Steidel, C. C., Georgakakis, A., Bogosavljević, M., **Erb, D. K.**, Shapley, A. E., Reddy, N. A., & Aird, J. 2010, *Monthly Notices of the Royal Astronomical Society*, 407, 846
  45. “Physical Conditions in a Young, Unreddened, Low-metallicity Galaxy at High Redshift.” **Erb, D. K.**, Pettini, M., Shapley, A. E., Steidel, C. C., Law, D. R., & Reddy, N. A. 2010, *Astrophysical Journal*, 719, 1168
  44. “The Structure and Kinematics of the Circumgalactic Medium from Far-ultraviolet Spectra of  $z\sim 2-3$  Galaxies.” Steidel, C. C., **Erb, D. K.**, Shapley, A. E., Pettini, M., Reddy, N., Bogosavljević, M., Rudie, G. C., & Rakic, O. 2010, *Astrophysical Journal*, 717, 289
  43. “Dust Obscuration and Metallicity at High Redshift: New Inferences from UV, H $\alpha$ , and 8  $\mu$ m Observations of  $z\sim 2$  Star-forming Galaxies.” Reddy, N. A., **Erb, D. K.**, Pettini, M., Steidel, C. C., & Shapley, A. E. 2010, *Astrophysical Journal*, 712, 1070
  42. “The Relationship between Stellar Populations and Ly $\alpha$  Emission in Lyman Break Galaxies.” Kornei, K. A., Shapley, A. E., **Erb, D. K.**, Steidel, C. C., Reddy, N. A., Pettini, M., & Bogosavljević, M. 2010, *Astrophysical Journal*, 711, 693
  41. “The SINS Survey: SINFONI Integral Field Spectroscopy of  $z\sim 2$  Star-forming Galaxies.” Förster Schreiber, N. M., Genzel, R., Bouché, N., Cresci, G., Davies, R., Buschkamp, P., Shapiro, K., Tacconi, L. J., Hicks, E. K. S., Genel, S., Shapley, A. E., **Erb, D. K.**, Steidel, C. C., Lutz, D., Eisenhauer, F., Gillissen, S., Sternberg, A., Renzini, A., Cimatti, A., Daddi, E., Kurk, J., Lilly, S., Kong, X., Lehnert, M. D., Nesvadba, N., Verma, A., McCracken, H., Arimoto, N., Mignoli, M., & Onodera, M. 2009, *Astrophysical Journal*, 706, 1364
  40. “The SINS Survey: Broad Emission Lines in High-Redshift Star-Forming Galaxies.” Shapiro, K. L., Genzel, R., Quataert, E., Förster Schreiber, N. M., Davies, R., Tacconi, L., Armus, L., Bouché, N., Buschkamp, P., Cimatti, A., Cresci, G., Daddi, E., Eisenhauer, F., **Erb, D. K.**, Genel, S., Hicks, E. K. S., Lilly, S. J., Lutz, D., Renzini, A., Shapley, A., Steidel, C. C., & Sternberg, A. 2009, *Astrophysical Journal*, 701, 955
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