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Employment

Spitzer Postdoctoral Fellow, University of California at Santa Barbara, 2008–
CfA Postdoctoral Fellow, Harvard-Smithsonian Center for Astrophysics, 2005–2008

Education

Ph.D. Astrophysics, California Institute of Technology, 2005

Thesis Title:

“The Properties of Star-Forming Galaxies at $z \sim 2$:
Kinematics, Stellar Populations, and Metallicities”

Research Advisor: Professor Charles C. Steidel

B.S. Physics, Summa Cum Laude, University of Washington, 2000

B.S. Astronomy, Summa Cum Laude, University of Washington, 2000

Research Interests

Galaxy formation and evolution

Kinematics, chemical evolution and stellar populations of galaxies at high redshift

Feedback processes in starburst galaxies

Gas ejection and accretion in high redshift galaxies

Evolution of the intergalactic medium at high redshift

Awards and Honors

Spitzer Fellowship, 2008

Center for Astrophysics Fellowship, 2005

Holloway Fellowship, Caltech, 2001

Baer Prize in Astronomy, University of Washington, 2000

Higgs-Osborn Prize in Experimental Physics, University of Washington, 2000

Successful Telescope Proposals and Grants

Principal Investigator:

- Subaru Observatory (MOIRCS)
- NOAO (Subaru MOIRCS)
- Magellan Telescopes (IMACS, PANIC, LDSS3)
- Spitzer Space Telescope (IRAC)

Co-Investigator, proposal author:

- Keck Observatory (NIRSPEC, OSIRIS, DEIMOS)
- Palomar Observatory (WIRC)
- Hubble Space Telescope (archival proposal)

Teaching Experience

Teaching Assistant, Graduate Cosmology, Caltech, 2002

Teaching Assistant, Astronomical Instrumentation, Caltech, 2001–2002

Teaching Assistant, Introduction to Astronomy, University of Washington, 2000

Teaching Assistant, The Solar System, University of Washington, 2000

Service

NSF proposal review panel, 2007, 2008

Hubble Space Telescope proposal review panel, 2006

Peer reviewer, 2004 – present:

The Astrophysical Journal

The Astrophysical Journal Letters

The Astronomical Journal

Monthly Notices of the Royal Astronomical Society

Publications of the Astronomical Society of the Pacific

Professional Affiliations

Member, American Astronomical Society, 2000 –

Refereed Publications

1. “The SINS Survey: Broad H α Emission in High-Redshift Star-Forming Galaxies”, K. L. Shapiro, R. Genzel, E. Quataert, N. M. Förster Schreiber, R. Davies, L. Tacconi, L. Armus, N. Bouché, P. Buschkamp, A. Cimatti, G. Cresci, E. Daddi, F. Eisenhauer, **D. K. Erb**, S. Genel, E. K. S. Hicks, S. J. Lilly, D. Lutz, A. Renzini, A. Shapley, C. C. Steidel, and A. Sternberg, 2009, *The Astrophysical Journal*, submitted, arXiv:0902.4704
2. “The SINS survey: modeling the dynamics of $z \sim 2$ galaxies and the high- z Tully-Fisher relation”, G. Cresci, E. K. S. Hicks, R. Genzel, N. M. Foerster Schreiber, R. Davies, N. Bouché, P. Buschkamp, S. Genel, K. Shapiro, L. Tacconi, J. Sommer-Larsen, A. Burkert, F. Eisenhauer, O. Gerhard, D. Lutz, T. Naab, A. Sternberg, A. Cimatti, E. Daddi, **D. K. Erb**, J. Kurk, S. L. Lilly, A. Renzini, A. Shapley, C. C. Steidel, and K. Caputi, 2009, *The Astrophysical Journal*, submitted, arXiv:0902.4701
3. “The Kiloparsec-Scale Kinematics of High-Redshift Star-Forming Galaxies”, D. R. Law, C. C. Steidel, **D. K. Erb**, J. E. Larkin, M. Pettini, A. E. Shapley, and S. A. Wright, 2009, *The Astrophysical Journal*, submitted, arXiv:0901.2930
4. “From Rings to Bulges: Evidence for Rapid Secular Galaxy Evolution at $z \sim 2$ from Integral Field Spectroscopy in the SINS Survey”, R. Genzel, A. Burkert, N. Bouché, G. Cresci, N. M. Förster Schreiber, A. Shapley, K. Shapiro, L. J. Tacconi, P. Buschkamp, A. Cimatti, E. Daddi, R. Davies, F. Eisenhauer, **D. K. Erb**, S. Genel, O. Gerhard, E. Hicks, D. Lutz, T. Naab, T. Ott, S. Rabien, A. Renzini, C. C. Steidel, A. Sternberg, and S. J. Lilly, 2008, *The Astrophysical Journal*, 687, 59
5. “Dynamics of Galactic Disks and Mergers at $z \sim 1.6$: Spatially Resolved Spectroscopy with Keck Laser Guide Star Adaptive Optics”, S. A. Wright, J. E. Larkin, D. R. Law, C. C. Steidel, A. E. Shapley, and **D. K. Erb**, 2008, *The Astrophysical Journal*, submitted, arXiv:0810.5599
6. “Kinemetry of SINS High-Redshift Star-Forming Galaxies: Distinguishing Rotating Disks from Major Mergers”, K. L. Shapiro, R. Genzel, N. M. Förster Schreiber, L. J. Tacconi, N. Bouché, G. Cresci, R. Davies, F. Eisenhauer, P. H. Johansson, D. Krajnović, D. Lutz, T. Naab, N. Arimoto, S. Arribas, A. Cimatti, L. Colina, E. Daddi, O. Daigle, **D.K. Erb**, O. Hernandez, X. Kong, M. Mignoli, M. Onodera, A. Renzini, A. Shapley, and C. Steidel, 2008, *The Astrophysical Journal*, 682, 231
7. “A Model for Star Formation, Gas Flows and Chemical Evolution in Galaxies at High Redshifts” **D. K. Erb**. 2008, *The Astrophysical Journal*, 674, 151
8. “Submillimeter Galaxies at $z \sim 2$: Evidence for Major Mergers and Constraints on Lifetimes, IMF, and CO-H₂ Conversion Factor” L. J. Tacconi, R. Genzel, I. Smail, R. Neri, S. C. Chapman, R. J. Ivison, A. Blain, P. Cox, A. Omont, F. Bertoldi, T. Greve, N. M. Förster Schreiber, S. Genel, D. Lutz, A. M. Swinbank, A. E. Shapley, **D. K. Erb**, A. Cimatti, E. Daddi, A. J. Baker. 2008, *The Astrophysical Journal*, 680, 246
9. “Multi-Wavelength Constraints on the Cosmic Star Formation History from Spectroscopy: the Rest-Frame UV, H α , and Infrared Luminosity Functions at Redshifts $1.9 < z < 3.4$ ” N. A.

- Reddy, C. C. Steidel, M. Pettini, K. L. Adelberger, A. E. Shapley, **D. K. Erb**, M. Dickinson. 2008, *The Astrophysical Journal*, 175, 48
10. “Integral Field Spectroscopy of High-Redshift Star Forming Galaxies with Laser Guided Adaptive Optics: Evidence for Dispersion-Dominated Kinematics” D. R. Law, C. C. Steidel, **D. K. Erb**, J. E. Larkin, M. Pettini, A. E. Shapley, S. A. Wright. 2007, *The Astrophysical Journal*, 669, 929
 11. “The Sightline to Q2343-BX415: Clues to Galaxy Formation in a Quasar Environment” S. A. Rix, M. Pettini, C. C. Steidel, N. A. Reddy, K. L. Adelberger, **D. K. Erb**, A. E. Shapley. 2007, *The Astrophysical Journal*, 670, 15
 12. “Morphologies of Galaxies in and around a Protocluster at $z = 2.300$ ” A. H. G. Peter, A. E. Shapley, D. R. Law, C. C. Steidel, **D. K. Erb**, N. A. Reddy, M. Pettini. 2007, *The Astrophysical Journal*, 668, 23
 13. “Dynamical Properties of $z \sim 2$ Star Forming Galaxies and a Universal Star Formation Relation” N. Bouche, G. Cresci, R. Davies, F. Eisenhauer, N. M. Forster Schreiber, R. Genzel, S. Gillessen, M. Lehnert, D. Lutz, N. Nesvadba, K. L. Shapiro, A. Sternberg, L. J. Tacconi, A. Verma, A. Cimatti, E. Daddi, A. Renzini, **D. K. Erb**, A. Shapley, C. C. Steidel. 2007, *The Astrophysical Journal*, in press, arXiv:0706.2656
 14. “Lost and Found: A New Position and Infrared Counterpart for the X-Ray Binary Scutum X-1” D. L. Kaplan, A. M. Levine, D. Chakrabarty, E. H. Morgan, **D. K. Erb**, B. M. Gaensler, D.-S. Moon, P. B. Cameron. 2007, *The Astrophysical Journal*, 661, 437
 15. “Integral Field Spectroscopy of a Candidate Disk Galaxy at $z \sim 1.5$ using Laser Guide Star Adaptive Optics” S. A. Wright, J. E. Larkin, M. Barczys, **D. K. Erb**, C. Iserlohe, A. Krabbe, D. R. Law, M. W. McElwain, A. Quirrenbach, C. C. Steidel, J. Weiss. 2007, *The Astrophysical Journal*, 658, 78
 16. “The Physical Nature of Rest-UV Galaxy Morphology During the Peak Epoch of Galaxy Formation” D. R. Law, C. C. Steidel, **D. K. Erb**, M. Pettini, N. A. Reddy, A. E. Shapley, K. L. Adelberger, D. J. Simenc. 2007, *The Astrophysical Journal*, 656, 1
 17. “A Spectroscopic Survey of Redshift $1.4 < z < 3.0$ Galaxies in the Goods-North Field: Survey Description, Catalogs, and Properties” N. A. Reddy, C. C. Steidel, **D. K. Erb**, A. E. Shapley, M. Pettini. 2006, *The Astrophysical Journal*, 653, 1004
 18. “The Direct Detection of Lyman-Continuum Emission from Star-forming Galaxies at $z \sim 3$ ” A. E. Shapley, C. C. Steidel, M. Pettini, K. L. Adelberger, **D. K. Erb**. 2006, *The Astrophysical Journal*, 651, 688
 19. “The Stellar, Gas and Dynamical Masses of Star-Forming Galaxies at $z \sim 2$ ” **D. K. Erb**, C. C. Steidel, A. E. Shapley, M. Pettini, N. A. Reddy, K. L. Adelberger. 2006, *The Astrophysical Journal*, 647, 128
 20. “ $H\alpha$ Observations of a Large Sample of Galaxies at $z \sim 2$: Implications for Star Formation in High Redshift Galaxies” **D. K. Erb**, C. C. Steidel, A. E. Shapley, M. Pettini, N. A. Reddy, K. L. Adelberger. 2006, *The Astrophysical Journal*, 644, 813

21. “The Mass-Metallicity Relation at $z \gtrsim 2$ ” **D. K. Erb**, A. E. Shapley, M. Pettini, C. C. Steidel, N. A. Reddy, K. L. Adelberger. 2006, *The Astrophysical Journal*, 644, 813
22. “SINFONI Integral Field Spectroscopy of $z \sim 2$ UV-selected Galaxies: Rotation Curves and Dynamical Evolution” N. M. Förster Schreiber, R. Genzel, M.D. Lehnert, N. Bouché, A. Verma, **D. K. Erb**, A. E. Shapley et al. 2006, *The Astrophysical Journal*, 645, 1062
23. “Star Formation and Extinction in Redshift $z \sim 2$ Galaxies: Inferences from *Spitzer* MIPS Observations” N. A. Reddy, C. C. Steidel, D. Fadda, L. Yan, M. Pettini, A. E. Shapley, **D. K. Erb**, K. L. Adelberger. 2006, *The Astrophysical Journal*, 644, 792
24. “Predictions and Strategies for Integral-Field Spectroscopy of High-Redshift Galaxies” D. R. Law, C. C. Steidel, **D. K. Erb**. 2006, *The Astronomical Journal*, 131, 70
25. “A Census of Optical and Near-Infrared Selected Star-forming and Passively Evolving Galaxies at Redshift $z \sim 2$ ” N. A. Reddy, **D. K. Erb**, C. C. Steidel, A. E. Shapley, K. L. Adelberger, M. Pettini. 2005, *The Astrophysical Journal*, 633, 748
26. “The Connection between Galaxies and Intergalactic Absorption Lines at Redshift $2 \lesssim z \lesssim 3$ ” K. L. Adelberger, A. E. Shapley, C. C. Steidel, M. Pettini, **D. K. Erb**, N. A. Reddy. 2005, *The Astrophysical Journal*, 629, 636
27. “Ultraviolet to Mid-Infrared Observations of Star-Forming Galaxies at $z \sim 2$: Stellar Masses and Stellar Populations” A. E. Shapley, C. C. Steidel, **D. K. Erb**, N. A. Reddy, M. Pettini, K. L. Adelberger, P. Barmby, J. Huang. 2005, *The Astrophysical Journal*, 626, 698
28. “Spectroscopic Identification of a Protocluster at $z = 2.300$: Environmental Dependence of Galaxy Properties at High Redshift” C. C. Steidel, K. L. Adelberger, A. E. Shapley, **D. K. Erb**, N. A. Reddy, M. Pettini. 2005, *The Astrophysical Journal*, 626, 44
29. “Strong Spatial Clustering of UV-Selected Galaxies with Magnitude $K_s < 20.5$ and Redshift $z \sim 2$ ” K. L. Adelberger, **D. K. Erb**, C. C. Steidel, A. E. Shapley, M. Pettini, N. A. Reddy. 2005, *The Astrophysical Journal*, 620, 75
30. “The Spatial Clustering of Star-Forming Galaxies at Redshifts $1.4 \lesssim z \lesssim 3.5$ ” K. L. Adelberger, C. C. Steidel, M. Pettini, A. E. Shapley, N. A. Reddy, **D. K. Erb**. 2005, *The Astrophysical Journal*, 619, 697
31. “Deep Mid-Infrared Observations of Lyman Break Galaxies” P. Barmby, J.-S. Huang, G. G. Fazio, J. A. Surace, R. G. Arendt, J. L. Hora, M. A. Pahre, K. L. Adelberger, P. Eisenhardt, **D. K. Erb**, M. Pettini, W. T. Reach, N. A. Reddy, A. E. Shapley, C. C. Steidel, D. Stern, Z. Wang, S. P. Willner. 2004, *The Astrophysical Journal Supplement* 154, 97
32. “The Kinematics of Morphologically Selected $z \sim 2$ Galaxies in the GOODS-North Field” **D. K. Erb**, C. C. Steidel, A. E. Shapley, M. Pettini, K. L. Adelberger. 2004, *The Astrophysical Journal*, 612, 122
33. “Evidence for Solar Metallicities in Massive Star-forming Galaxies at $z \gtrsim 2$ ” A. E. Shapley, **D. K. Erb**, M. Pettini, C. C. Steidel, K. L. Adelberger. 2004, *The Astrophysical Journal*, 612, 108

34. “Optical Selection of Star-forming Galaxies at Redshifts $1 < z < 3$ ” K. L. Adelberger, C. C. Steidel, A. E. Shapley, M. P. Hunt, **D. K. Erb**, N. A. Reddy, M. Pettini. 2004, *The Astrophysical Journal*, 607, 226
35. “A Survey of Star-forming Galaxies in the $1.4 \lesssim z \lesssim 2.5$ Redshift Desert: Overview” C. C. Steidel, A. E. Shapley, M. Pettini, K. L. Adelberger, **D. K. Erb**, N. A. Reddy, M. P. Hunt. 2004, *The Astrophysical Journal*, 604, 534.
36. “H α Spectroscopy of Galaxies at $z > 2$: Kinematics and Star Formation” **D. K. Erb**, A. E. Shapley, C. C. Steidel, M. Pettini, K. L. Adelberger, M. P. Hunt, A. F. M. Moorwood, J.-G. Cuby. 2003, *The Astrophysical Journal*, 591, 101
37. “X-Ray/Optical Studies of Two Outbursts of the Intermediate Polar YY (DO) Draconis” P. Szkody, K. Nishikida, **D. K. Erb**, K. Mukai, C. Hellier, M. Uemura, T. Kato, E. Pavlenko, N. Katysheva, S. Shugarov, L. Cook. 2002, *The Astronomical Journal*, 123, 413
38. “The Intriguing New Cataclysmic Variable KUV 03580+0614” P. Szkody, B. Gänsicke, R. E. Fried, U. Heber, **D. K. Erb**. 2001, *Publications of the Astronomical Society of the Pacific*, 113, 1215.