

Daniel Allen Dale
 Department of Physics and Astronomy
 University of Wyoming
 Laramie, WY 82071

Academic Record

1998	Ph.D.	Cornell University	Physics
1996	M.S.	Cornell University	Physics
1993	B.S.	University of Minnesota, Duluth	Physics & Math (honors; summa cum laude)
1989	Diploma	Princeton High School (MN)	

Ph.D. thesis: *Seeking the Local Convergence Depth*

Advisor: Riccardo Giovanelli

My thesis authoritatively addressed one of the recent hot topics in observational cosmology, that of large-scale motions in the local Universe. Using a variety of telescopes in both the U.S. and abroad, I constructed the most accurate distant sample of galaxy cluster motions to date. My thesis work showed that prior claims to large-scale flows in the local Universe are highly unlikely.

Professional Experience

2005–present	Associate Professor	University of Wyoming
2001–2005	Assistant Professor	University of Wyoming
1998–2001	Postdoctoral Scholar	California Institute of Technology

Contemporaneous Professional Experience

2008–present	Department Head	Physics & Astronomy, University of Wyoming
2006–2008	Director	Wyoming Infrared Observatory
2003	Visiting Scientist	California Institute of Technology
1999–2001	Adjunct Faculty	Pomona College
1998	Adjunct Faculty	Corning Community College

Fellowships and Awards

2007	Extraordinary Merit in Research
2006	Ellbogen Meritorious Classroom Teaching Award
2005	Extraordinary Merit in Research
2004	National Science Foundation CAREER Award
1995	Clark Award for Excellence in Teaching
1993	Outstanding Mathematics Senior
1992	Darland All-American Scholarship
1989	University of Minnesota Presidential Scholarship

Professional Associations

American Astronomical Society
 American Association of Physics Teachers
 Wyoming Science Teachers Association

Extramural Research Funding

2009-2012: “Faint Stellar Distributions in Extended HI Disks”

PI: Liese van Zee; 7 co-I’s
NASA *Spitzer* Space Telescope
\$98,000 (69.6 hours)

2009-2012: “Extended Stellar Distributions in M83”

PI: Kate Barnes; 6 co-I’s
NASA *Spitzer* Space Telescope
\$45,000 (30.0 hours)

2008-2011: “MIPS Spectral Energy Distribution Observations of M82”

PI: Chad Engelbracht; 7 co-I’s
NASA *Spitzer* Space Telescope
~\$5,000 (1.6 hours)

2008-2012: “KINGFISH: Key Insights on Nearby Galaxies: A Far-Infrared Survey w/Herschel”

PI: R. Kennicutt; 28 co-I’s
ESA *Herschel* Space Observatory
\$2,223,000 (536.6 hours)

2007-2012: “Upgrading the WIRO 2.3 m Telescope”

PI: Chip Kobulnicky; four co-I’s
NSF PREST: Program for Research and Education with Small Telescopes
\$413,396

2007-2010: “After the Fall: Dust and PAHs in Post-Starburst Galaxies”

PI: J.D. Smith; six co-I’s
NASA *Spitzer* Space Telescope
\$123,275 (27.9 hours)

2007-2010: “The Local Volume Legacy Survey”

PI: R. Kennicutt; 17 co-I’s
NASA *Spitzer* Space Telescope
\$850,620 (280.4 hours)

2007-2010: “GALEX-Spitzer study of resolved galaxies”

PI: B. Madore; nine co-I’s
NASA *Spitzer* Space Telescope
\$139,102

2007-2010: “The 5 mJy Extragalactic Spectroscopic Survey”

PI: G. Helou; 12 co-I’s
NASA *Spitzer* Space Telescope
\$781,370 (200.0 hours)

2007-2010: “Galaxies Across the Octaves: A Chandra Legacy Survey of SINGS Galaxies”

PI: L. Jenkins; 9 co-I’s
NASA *Chandra* X-ray Telescope
\$279,412 (783 ks)

2006-2010: “Enhancing Science Awareness and Learning for 7th/8th Grade Wyoming Students”

PI: Don Roth (Dean of UW Graduate School); four co-I’s
NSF K-12 Education
\$646,898

- 2006-2009: “Unveil the Nature of Post-Starburst Quasars”
PI: Zhaohui Shang; six co-I’s
NASA *Spitzer* Space Telescope
\$67,498 (16.1 hours)
- 2006-2009: “PAH Emission in Low-Luminosity AGN: Ghosts in the Machine”
PI: J.D. Smith; six co-I’s
NASA *Spitzer* Space Telescope
\$158,525 (39.0 hours)
- 2005-2008: “Spectral Energy Distributions of Star-Forming Galaxies, from Low Z to ULIRGs”
PI: Chad Engelbracht; Karl Gordon, Daniel Dale co-I’s
NASA *Spitzer* Space Telescope
\$28,620 (5.2 hours)
- 2005-2008: “The Physical Context of PAH emission in Galaxies”
PI: J.D. Smith; nine co-I’s
NASA *Spitzer* Space Telescope
\$149,387 (47.9 hours)
- 2005-2008: “Quasar Bolometric Luminosity and SEDs from Radio to X-ray”
PI: Zhaohui Shang; Michael Brotherton, Dean Hines, Daniel Dale co-I’s
NASA *Spitzer* Space Telescope
\$40,429 (8.4 hours)
- 2005-2008: “M 51 MIR Spectral Cube: A Rosetta Stone for Galaxy Evolution”
PI: Kartik Sheth; seven co-I’s
NASA *Spitzer* Space Telescope
~\$50,000 (15 hours)
- 2005-2008: “An Ultra-Deep Spitzer Spectral Survey”
PI: George Helou; seven co-I’s
NASA *Spitzer* Space Telescope
\$50,000 (46.3 hours)
- 2005-2008: “Quasar Spectral Energy Distributions: The Next Generation”
PI: Zhaohui Shang; 3 co-I’s, 2 collaborators
NASA Astrophysics Data Program
\$184,855
- 2004-2008: “Acquisition of a Near-Infrared Camera for the Wyoming Infrared Observatory”
PI: Michael Pierce; Daniel Dale, Chip Kobulnicky & Michael Brotherton co-I’s
NSF MRI: Major Research Instrumentation
\$872,898
- 2004-2009: “Wyoming Infrared Observatory’s Summer Undergraduate RA Program”
PI: Ron Canterna; Michael Pierce, Daniel Dale, Chip Kobulnicky & M. Brotherton co-I’s
NSF Research Experience for Undergraduates Program
\$461,715
- 2004-2009: “WySCH: The **Wy**oming **S**urvey for **C**osmological **H** α ”
PI: **Daniel Dale**
NSF Faculty Early Career Development
\$587,455

2002-2003: “Paschen- α Imaging of a SIRTf-Selected Nearby Galaxy Sample”

NASA *Hubble* Space Telescope

PI: Robert C. Kennicutt, Jr.; 10 co-I's

~\$120,000 (≤ 80 snapshots)

2000-2007: “SINGS: The Spitzer Infrared Nearby Galaxy Survey”

PI: Robert C. Kennicutt, Jr.; 14 co-I's

NASA *Spitzer* Space Telescope

~\$4,600,000

State Research Funding

- 2005: “Research Experience for Teachers at Wyoming Astro Camp”
PI: Daniel Dale; co-I Chip Kobulnicky
Wyoming NASA Space Grant Consortium
\$2,000
- 2002: “Normal Galaxies in the Infrared: Properties and Evolution”
PI: Daniel Dale
Wyoming NASA EPSCoR Seed Grant & Travel Grant Program
\$24,042
- 2002: “Constraining the Dark Matter Distribution in Galaxies”
PI: Daniel Dale
University of Wyoming Basic Research Grant
\$3,000

Refereed Publications ^{*},[†],[‡] denotes undergraduate, graduate, high school teacher

- C. Hao et al. 2009, *Astrophysical Journal*, in preparation
 “Dust-Corrected Star Formation Rates of Galaxies. II. Combinations of Ultraviolet and Infrared Tracers”
- G. Helou et al. 2009, *Astrophysical Journal*, in preparation
 “The 5 mJy Unbiased Spectroscopic Extragalactic Survey: Survey Description and First Results”
- M. Boquien et al. 2009, *Astrophysical Journal*, in preparation
 “Total Infrared Luminosity Estimation of Resolved and Unresolved Galaxies”
- L. Jenkins et al. 2009, *Astrophysical Journal*, in preparation
 “Chandra X-Ray Observations of Nearby Galaxies”
- J. Moustakas et al. 2009, *Astrophysical Journal*, in preparation
 “Optical Spectroscopy and the Nebular Abundance Properties of the Spitzer/SINGS Galaxies”
- A. Marble et al. 2009, *Astrophysical Journal*, in preparation
 “An Aromatic Feature Emission Inventory of the Local Volume”
- C. Ly[†] et al. 2009, *Astrophysical Journal*, in preparation
 “High Redshift Survey for H α : Luminosity Functions and Star Formation Rate Volume Densities at $z \approx 0.8$ ”
- J. Lee et al. 2009, *Astrophysical Journal*, in preparation
 “High Redshift Survey for H α : Survey Description”
- C. Moore[†], **D. Dale**, R. Barlow, S. Cohen, D. Cook, L.C. Johnson, S. Kattner, & S. Staudaher 2008, *Astronomical Journal*, submitted
 “The Wyoming Survey for H α . II. A Multi-Wavelength Look at Extinction by Dust in Galaxies out to $z \sim 0.4$ ”
- D. Calzetti et al. 2009, *Astrophysical Journal*, submitted
 “The Calibration of Monochromatic Far-Infrared Star Formation Rate Indicators”
- S. Falony[†], M. Baes, C. Vlahakis, J. Davies, & **D. Dale** 2009, *Monthly Notices of the Royal Astronomical Society*, submitted
 “The Total Dust Content of Galaxies in the Extended 12 Micron Galaxy Sample”
- C. Bot et al. 2009, *Astrophysical Journal*, submitted
 “Diagnostic Value of Mid-Infrared Fine Structure Lines in Galaxies”
- Z. Shang, M. Brotherton, D. Hines & **D. Dale** 2009, *Astrophysical Journal Letters*, submitted
 “Connections Between Ultraviolet-Optical and Mid-Infrared Spectral Properties in Quasars – Effects of Dust”
79. M. Boquien et al. 2009, *Astrophysical Journal*, **706**, 553
 “Star-Forming or Starbursting: The Ultraviolet Conundrum”
78. J. Lee et al. 2009, *Astrophysical Journal*, **706**, 599
 “Comparison of H α and UV Star Formation Rates in the Local Volume: Systematic Discrepancies for Dwarf Galaxies”
77. B. Bertincourt[†] et al. 2009, *Astrophysical Journal*, **705**, 68
 “A Spitzer Unbiased, Ultradeep Spectroscopic Survey”

76. J.C. Muñoz-Mateos[†] et al. 2009, *Astrophysical Journal*, **703**, 1569
“Radial Distribution of Stars, Gas, and Dust in SINGS Galaxies. I. Surface Photometry and Morphology”
75. R. Kennicutt et al. 2009, *Astrophysical Journal*, **703**, 1672
“Extinction-Corrected Star Formation Rates of Galaxies. I. Combinations of H α and Infrared Tracers”
74. **D. Dale** et al. 2009, *Astrophysical Journal*, **703**, 517
“The *Spitzer* Local Volume Legacy: Survey Description and Infrared Photometry”
73. J.C. Muñoz-Mateos[†] et al. 2009, *Astrophysical Journal*, **701**, 1965
“Radial Distribution of Stars, Gas, and Dust in SINGS Galaxies. II. Derived Dust Properties”
72. **D. Dale** et al. 2009, *Astrophysical Journal*, **693**, 1821
“The *Spitzer* Infrared Nearby Galaxies Survey: A High-Resolution Spectroscopy Anthology”
71. G. Bendo et al. 2008, *Monthly Notices of the Royal Astronomical Society*, **389**, 629
“The Relation Between 8, 24, and 160 μ m Dust Emission Within Nearby Spiral Galaxies”
70. J. Brauher, **D. Dale**, & G. Helou 2008, *Astrophysical Journal Supplements*, **178**, 280
“A Compendium of Far-Infrared Line and Continuum Emission for 227 Galaxies Observed by the Infrared Space Observatory”
69. **D. Dale**, R. Barlow, S. Cohen, L.C. Johnson, S. Kattner, C. Lamanna, C. Moore[†], M. Schuster*, & J. Thatcher* 2008, *Astronomical Journal*, **135**, 1412
“The Wyoming Survey for H α . I. Initial Results at $z \sim 0.16$ and 0.24”
68. G. Brunner[†], K. Sheth, L. Armus et al. 2008, *Astrophysical Journal*, **675**, 316
“Warm Molecular Gas in M51: Mapping the Excitation Temperature and Mass of H $_2$ with the *Spitzer* Infrared Spectrograph”
67. D. Thilker et al. 2007, *Astrophysical Journal Supplement Series*, **173**, 572
“Ultraviolet and Infrared Diagnostics of Star Formation and Dust in NGC 7331”
66. R. Kennicutt et al. 2007, *Astrophysical Journal*, **671**, 333
“Star Formation in NGC5194 (M51a). II. The Spatially-Resolved Star Formation Law”
65. S. Courteau, A. Dutton, F. van den Bosch, A. Dekel, L. MacArthur, D. McIntosh, H.-W. Rix, & **D. Dale** 2007, *Astrophysical Journal*, **671**, 203
“Scaling Relations of Spiral Galaxies”
64. J.D. Smith, L. Armus, **D. Dale** et al. 2007, *Publications of the Astronomical Society of the Pacific*, **119**, 1133
“Spectral Mapping Reconstruction of Extended Sources”
63. H. Roussel et al. 2007, *Astrophysical Journal*, **669**, 959
“Warm Molecular Hydrogen in the *Spitzer* SINGS Galaxy Sample”
62. M. Prescott[†] et al. 2007, *Astrophysical Journal*, **668**, 182
“The Incidence of Highly-Obscured Star-Forming Regions in SINGS Galaxies”
61. G. Bendo et al. 2007, *Monthly Notices of the Royal Astronomical Society*, **380**, 1313
“Variations in the 24 μ m Morphologies Among Galaxies in SINGS: New Insights into the Hubble Sequence”

60. B. Holwerda et al. 2007, *Astronomical Journal*, **134**, 1655
“Gaps in the Cloud Cover? Comparing Extinction Measures in Spiral Disks”
59. D. Calzetti et al. 2007, *Astrophysical Journal*, **666**, 870
“The Calibration of Mid-Infrared Star Formation Rate Indicators”
58. B. Draine, **D. Dale**, G. Bendo et al. 2007, *Astrophysical Journal*, **663**, 866
“Dust Masses, PAH Abundances, and Starlight Intensities in the SINGS Galaxy Sample”
57. F. Walter et al. 2007, *Astrophysical Journal*, **661**, 102
“Dust and Atomic Gas in Dwarf Irregular Galaxies of the M 81 Group: The SINGS and THINGS View”
56. J.D. Smith, B. Draine, **D. Dale** et al. 2007, **656**, 770
“The Mid-Infrared Spectrum of Star-Forming Galaxies: Global Properties of PAH Emission”
55. **D. Dale**, A. Gil de Paz, K. Gordon, H. Hanson* et al. 2007, *Astrophysical Journal*, **655**, 863
“An Ultraviolet-to-Radio Broadband Spectral Atlas of Nearby Galaxies”
54. J. Cannon et al. 2006, *Astrophysical Journal*, **652**, 1170
“The Nature of Infrared Emission in the Local Group Dwarf Galaxy NGC 6822 As Revealed by *Spitzer*”
53. M. Regan et al. 2006, *Astrophysical Journal*, **652**, 1112
“The Radial Distribution of the ISM in Disk Galaxies: Evidence for Secular Evolution”
52. G. Bendo, **D. Dale**, B. Draine et al. 2006, *Astrophysical Journal*, **652**, 283
“The Spectral Energy Distribution of Dust Emission in the Edge-On Spiral Galaxy NGC 4631 as Seen with *Spitzer* and JCMT”
51. E. Murphy[†] et al. 2006, *Astrophysical Journal Letters*, **651**, L111
“The Effect of Star Formation Activity on the Far-Infrared-Radio Correlation Within Nearby Galaxies”
50. P. Pérez-González et al. 2006, *Astrophysical Journal*, **648**, 987
“Ultraviolet through Far-Infrared Spatially Resolved Analysis of the Recent Star Formation in M 81 (NGC 3031)”
49. H. Roussel et al. 2006, *Astrophysical Journal*, **646**, 841
“The Opaque Nascent Starburst in NGC 1377: *Spitzer* SINGS Observations”
48. **D. Dale**, J.D. Smith et al. 2006, *Astrophysical Journal*, **646**, 161
“Mid-Infrared Spectral Diagnostics of Nuclear and Extra-Nuclear Regions in Nearby Galaxies”
47. G. Bendo, B. Buckalew, **D. Dale**, B. Draine et al. 2006, *Astrophysical Journal*, **645**, 134
“*Spitzer* and JCMT Observations of the Active Galactic Nucleus in the Sombrero Galaxy (NGC 4594)”
46. J. Cannon, J.D. Smith, F. Walter, G. Bendo, D. Calzetti, **D. Dale** et al. 2006, *Astrophysical Journal*, **647**, 293
“Warm Dust and Variable PAH Emission in the Dwarf Starburst Galaxy NGC 1705”
45. C. Engelbracht et al. 2006, *Astrophysical Journal Letters*, **642**, L127
“Extended Mid-Infrared Aromatic Feature Emission in M 82”

44. E. Cypriano[†], L. Sodre, L. Campusano, **D. Dale** & E. Hardy 2006, *Astronomical Journal*, **131**, 2417
“Shrinking of Cluster Ellipticals: A Tidal Stripping Explanation and Implications for the Intracluster Light”
43. E. Murphy[†] et al. 2006, *Astrophysical Journal*, **638**, 157
“An Initial Look at the Far-Infrared-Radio Correlation within Nearby Star-Forming Galaxies Using Spitzer”
42. D. Calzetti, R. Kennicutt, L. Bianchi, D. Thilker, **D. Dale** et al. 2005, *Astrophysical Journal*, **633**, 871
“Star Formation in NGC 5194 (M51a): The Panchromatic View from GALEX to Spitzer”
41. **D. Dale**, G. Bendo, C. Engelbracht, K. Gordon, M. Regan et al. 2005, *Astrophysical Journal*, **633**, 857
“Infrared Spectral Energy Distributions of Nearby Galaxies”
40. J. Cannon, F. Walter, G. Bendo, D. Calzetti, **D. Dale** et al. 2005, *Astrophysical Journal Letters*, **630**, 37
“Spitzer Observations of the Supergiant Shell Region in IC 2574”
39. C. Engelbracht, K. Gordon, G. Rieke, M. Werner, **D. Dale** & W. Latter 2005, *Astrophysical Journal Letters*, **628**, 29
“Metallicity Effects on Infrared Colors and the 8 μm PAH Emission in Galaxies”
38. **D. Dale**, K. Sheth, G. Helou, M.W. Regan, & S. Hüttemeister 2005, *Astronomical Journal*, **129**, 2197
“Warm and Cold Molecular Gas in Galaxies”
37. S.P. Willner et al. 2004, *Astrophysical Journal Supplements*, **154**, 222
“IRAC Observations of M 81”
36. K. Gordon et al. 2004, *Astrophysical Journal Supplements*, **154**, 215
“Spatially-Resolved Ultraviolet, H α , Infrared, and Radio Star Formation in M 81”
35. M. Regan, M. Thornley, G. Bendo, B. Draine, A. Li, **D. Dale** et al. 2004, *Astrophysical Journal Supplements*, **154**, 204
“SINGS Imaging of NGC 7331: A Panchromatic View of a Ringed Galaxy”
34. J.D.T. Smith, **D. Dale**, L. Armus, B.T. Draine, D.J. Hollenbach et al. 2004, *Astrophysical Journal Supplements*, **154**, 199
“Mid-Infrared IRS Spectroscopy of NGC 7331: A First Look at the SINGS Legacy”
33. **D. Dale**, G. Helou, J. Brauher, R. Cutri, S. Malhotra & C. Beichman 2004, *Astrophysical Journal*, **604**, 565
“[O I] 63 μm Emission from High and Low Luminosity AGN Galaxies”
32. **D. Dale**, H. Roussel, A. Contursi, G. Helou, H. Dinerstein, D. Hunter, D. Hollenbach, E. Egami, K. Matthews, T. Murphy[†], C. Lafon[†], & R. Rubin 2004, *Astrophysical Journal*, **601**, 813
“Near-Infrared Integral Field Spectroscopy of Normal Star-Forming Galaxies”
31. S. Bloom, **D. Dale**, R. Cool*, K. Dupczak*, C. Miller[‡], A. Haugsjaa*, C. Peters*, M. Tornikoski, P. Wallace & M. Pierce 2004, *Astronomical Journal*, **128**, 56
“An Optical Survey of the Position Error Contours of Unidentified High Energy Gamma-ray Sources at Galactic Latitude $|b| > 20^\circ$ ”

30. **D. Dale** & B. Bailey 2003, *The Physics Teacher*, **41**, 82
“Physics in the Art Museum”
29. R. Kennicutt, L. Armus, G. Bendo, D. Calzetti, **D. Dale**, B. Draine, C. Engelbracht, K. Gordon, A. Grauer, G. Helou, D. Hollenbach, T. Jarrett, L. Kewley, C. Leitherer, A. Li, S. Malhotra, M. Regan, G. Rieke, M. Rieke, H. Roussel, J.D. Smith, M. Thornley & F. Walter 2003, *Publications of the Astronomical Society of the Pacific*, **115**, 928
“SINGS: the SIRTf Nearby Galaxies Survey”
28. **D. Dale** & J. Uson 2003, *Astronomical Journal*, **126**, 675
“Signatures of Galaxy-Cluster Interactions: Tully-Fisher Observations at $z \sim 0.1$ ”
27. S. Chapman, G. Helou, G. Lewis & **D. Dale** 2003, *Astrophysical Journal*, **588**, 186
“The Bi-Variate Luminosity-Color Distribution of IRAS Galaxies, and Implications for the High Redshift Universe”
26. N. Lu, G. Helou, M. Werner, H. Dinerstein, **D. Dale**, N. Silbermann, S. Malhotra, C. Beichman & T. Jarrett 2003, *Astrophysical Journal*, **588**, 199
“Infrared Emission of Normal Galaxies from 2.5 to $12\mu\text{m}$: Spectra, Near-Infrared Continuum and Mid-Infrared Emission Features”
25. **D. Dale** & G. Helou 2002, *Astrophysical Journal*, **159**, 576
“The Infrared Spectral Energy Distribution of Normal Star-Forming Galaxies: Calibration at Far-Infrared and Submillimeter Wavelengths”
24. S. Chapman, I. Smail, R. Ivison, G. Helou, **D. Dale** & G. Lagache 2002, *Astrophysical Journal*, **573**, 66
“Optically faint counterparts to the ISO-FIRBACK $170\mu\text{m}$ population: the discovery of cold, luminous galaxies at high redshift”
23. A. Contursi, M. Kaufman, G. Helou, D. Hollenbach, J. Brahuer, G. Stacey, **D. Dale**, S. Malhotra, M. Rubio, R. Rubin & S. Lord 2002, *Astronomical Journal*, **124**, 751
“ISO-LWS observations of the two nearby spiral galaxies: NGC 6946 and NGC 1313”
22. S. Malhotra, M. Kaufman, D. Hollenbach et al. 2001, *Astrophysical Journal*, **561**, 766
“Far-Infrared Spectroscopy of Normal Galaxies: Physical Conditions in the Interstellar Medium”
21. **D. Dale**, G. Helou, G. Neugebauer, B.T. Soifer, D. Frayer & J. Condon 2001, *Astronomical Journal*, **122**, 1736
“Multiwavelength Observations of the Low Metallicity Blue Compact Dwarf Galaxy SBS 0335-052”
20. **D. Dale**, R. Giovanelli, M. Haynes, E. Hardy & L. Campusano 2001, *Astronomical Journal*, **121**, 1886
“Signatures of Galaxy-Cluster Interactions: Spiral Galaxy Rotation Curve Asymmetry, Shape, and Extent”
19. E. Cypriano[†], L. Sodre, L. Campusano, J.P. Kneib, R. Giovanelli, M. Haynes, **D. Dale** & E. Hardy 2001, *Astronomical Journal*, **121**, 10
“Gravitational Lensing by Nearby Clusters of Galaxies”
18. G. Helou, S. Malhotra, D. Hollenbach, **D. Dale** & A. Contursi 2001, *Astrophysical Journal Letters*, **548**, L73
“Evidence for the Heating of Atomic Interstellar Gas by Polycyclic Aromatic Hydrocarbons”

17. D. Hunter, M. Kaufman, D. Hollenbach, R. Rubin, S. Malhotra, **D. Dale**, J. Brauher, N. Silbermann, G. Helou, A. Contursi & S. Lord 2001, *Astrophysical Journal*, **553**, 121
“The Interstellar Medium of Irregular Galaxies: The View with ISO”
16. **D. Dale**, G. Helou, A. Contursi, N. Silbermann & S. Kolhatkar 2001, *Astrophysical Journal*, **549**, 215
“The Infrared Spectral Energy Distribution of Normal Star-Forming Galaxies”
15. **D. Dale** & J. Uson 2000, *Astronomical Journal*, **120**, 552
“Signatures of Interstellar-Intracluster Medium Interactions: Spiral Galaxy Rotation Curves in Abell 2029”
14. **D. Dale**, N. Silbermann, G. Helou et al. 2000, *Astronomical Journal*, **120**, 583
“ISO Mid-Infrared Observations of Normal Star-Forming Galaxies: The Key Project Sample”
13. S. Malhotra, D. Hollenbach, G. Helou, N. Silbermann, E. Valjavec, **D. Dale**, D. Hunter, N. Lu, S. Lord, H. Dinerstein & H. Thronson 2000, *Astrophysical Journal*, **543**, 634
“Probing the Interstellar Medium in Early Type Galaxies with ISO Observations”
12. E. Egami, G. Neugebauer, B.T. Soifer, K. Mathews, M. Ressler, E. Becklin, T. Murphy[†] & **D. Dale** 2000, *Astrophysical Journal*, **535**, 561
“APM 08279+5255: Keck Near & Mid-infrared High Resolution Imaging”
11. **D. Dale**, G. Helou, N. Silbermann, A. Contursi, S. Malhotra & R. Rubin 1999, *Astronomical Journal*, **118**, 2055
“Towards an Understanding of the Mid-Infrared Surface Brightness in Normal Galaxies”
10. **D. Dale**, R. Giovanelli, M. Haynes, L. Campusano & E. Hardy 1999, *Astronomical Journal*, **118**, 1468
“Seeking the Local Convergence Depth. V. Tully-Fisher Peculiar Velocities for 52 Abell Clusters”
9. **D. Dale**, R. Giovanelli, M. Haynes, E. Hardy & L. Campusano 1999, *Astronomical Journal*, **118**, 1489
“Seeking the Local Convergence Depth. IV. Tully-Fisher Observations of 35 Abell Clusters”
8. **D. Dale**, R. Giovanelli, M. Haynes, L. Campusano & E. Hardy 1999, *Astrophysical Journal Letters*, **510**, L11
“Seeking the Local Convergence Depth. The Abell Cluster Dipole Flow to 200 Mpc”
7. R. Giovanelli, **D. Dale**, M. Haynes, E. Hardy & L. Campusano 1999, *Astrophysical Journal*, **525**, 25
“No Hubble Bubble in the Local Universe”
6. **D. Dale**[†], R. Giovanelli, M. Haynes, M. Scodreggio[†], E. Hardy & L. Campusano 1998, *Astronomical Journal*, **115**, 418
“Seeking the Local Convergence Depth. II. Tully-Fisher Observations of the Clusters A114, A119, A194, A2295, A2457, A2806, A3193, A3381 and A3744”
5. **D. Dale**[†], R. Giovanelli, M. Haynes, M. Scodreggio[†], E. Hardy & L. Campusano 1997, *Astronomical Journal*, **114**, 455
“Seeking the Local Convergence Depth. I. Tully-Fisher Observations of the Clusters A168, A397, A569, A1139, A1228 and A1983”
4. M. Sydor, J. Engholm*, **D. Dale*** & T. Fergestad* 1994, *Physical Review B*, **49**, 11
“Surface and Bulk Modulation in Photoreflectance from Undoped GaAs”

3. M. Sydor, A. Badakhshan, **D. Dale***, K. Alavi & R. Pathak 1993, *Applied Physics Letters*, **63**, 4
“Differential Electroreflectance-Photorefectance Technique for Studies of Built-in Electric Field in Layered Materials”
2. A. Badakhshan, C. Durbin, R. Glosser, K. Alavi, **D. Dale***, S. Nicholas[†] & K. Capuder 1992, *SPIE*, **1678**, 194
“Correlation Between Electric Field, Temperature and Carrier Concentration with Respect to Photorefectance Lineshape at the E1 Transition of GaAs”
1. M. Sydor, A. Badakhshan, J. Engholm* & **D. Dale*** 1991, *Applied Physics Letters*, **58**, 9
“Differential Photorefectance from Modulation-Doped Heterojunctions”

- Selected Conference Proceedings** *,[†],[‡] denotes undergraduate, graduate, school teacher
- D. Dale** 2009, *SED fitting of Galaxies*, Lorentz Workshop, ApSS, Volume XX, p. XX (Leiden, Netherlands)
“The Spitzer Local Volume Legacy Survey: Infrared Imaging and Photometry for 258 Nearby Galaxies”
- D. Dale** 2008, *Legacy of Multi-Wavelength Surveys*, International Workshop in Xining, Volume XX, p. XX (Xining, China)
“An Ultraviolet-to-Radio Broadband Spectral Atlas of Nearby Galaxies”
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“A Multi-wavelength Look at Dust Evolution: Preliminary Results”
- D. Dale** 2006, *The Spitzer Space Telescope: New Views of the Cosmos*, ASP Conference Series Volume 357, p. 184 (Pasadena, California)
“Spectral Energy Distributions within Galaxies”
- L. Carpenter* 2006, *Bulletin of the American Astronomical Society*, **209**, 08.15
“An Optical Survey of Potential Gamma-Ray Sources”
- D. Dale** 2005, *The Spectral Energy Distribution of Gas Rich Galaxies: Confronting Models with Data*, AIP Conference Proceedings Volume 761, p. 380 (Heidelberg, Germany)
“Infrared SEDs and the Local Environment within Star-Forming Galaxies”
- D. Dale** et al. 2005, *Bulletin of the American Astronomical Society*, **206**, 10.04
“Infrared Spectral Energy Distribution of Nearby Galaxies”
- D. Dale** 2005, *The Second Annual Spitzer Science Center Conference: Infrared Diagnostics of Galaxy Evolution*, ASP Conference Series Volume 381, p. 95 (Pasadena, California)
“Mid-Infrared Spectral Diagnostics of Nearby Galaxies”
- R. Harbison* & **D. Dale** 2004, *Bulletin of the American Astronomical Society*, **205**, 28.12
“Rotation Curve Fitting of Cluster and Field Galaxies Using a Dark Matter Model”
- K. Dupczak*, S. Bloom, **D. Dale**, & H. Hanson* 2004, *Bulletin of the American Astronomical Society*, **205**, 110.08
“The Search for Optical Counterparts to Gamma Ray Sources”

- C. Lamanna, T. Laurance[†], & **D. Dale** 2004, *Bulletin of the American Astronomical Society*, **205**, 94.15
“The Wyoming Survey for Cosmological H α ”
- D. Dale** & G. Helou 2004, *Bulletin of the American Astronomical Society*, **204**, 44.11
“[O I] 63 μ m Emission from High and Low Luminosity AGN Galaxies”
- D. Dale** 2004, *Astrophysics of Dust*, A. Witt, G. Clayton, & B.T. Draine, eds, Astronomical Society of the Pacific Conference Series, San Francisco, vol. 309, p. 179 (Estes Park, Colorado)
“Infrared/Submillimeter Continuum Emission of Dust in Galaxies”
- A. Haugsjaa*, S. Bloom, **D. Dale**, R. Cool*, C. Miller[‡], K. Dupczak* 2003, *Bulletin of the American Astronomical Society*, **203**, 7906
“An Optical Survey of Unidentified High Energy Gamma-ray Sources”
- D. Dale** 2003, *The IGM/Galaxy Connection—The Distribution of Baryons at $z = 0$* , J.L. Rosenberg & M.E. Putnam, eds, Kluwer Academic Publishers, Dordrecht, p. 311 (Boulder, Colorado)
“Signatures of Galaxy-Cluster Interactions: Spiral Galaxy Rotation Curve Asymmetry, Shape, and Extent”
- D. Dale**, H. Roussel, A. Contursi & G. Helou 2002, *Bulletin of the American Astronomical Society*, **201**, 1412
“Near-Infrared Integral Field Spectroscopy of Normal Star-Forming Galaxies”
- M. Eftimova* & **D. Dale** 2002, *Bulletin of the American Astronomical Society*, **201**, 1302
“Modeling the Dark Matter Halo Properties of Cluster Galaxies”
- D. Dale** & G. Helou 2002, *Bulletin of the American Astronomical Society*, **200**, 43.05
“The Infrared Spectral Energy Distribution of Normal Galaxies: Calibration at Far-Infrared and Submillimeter Wavelengths”
- D. Dale** & G. Helou 2002, *NASA Origins Conference* (Jackson, Wyoming)
“Galaxy Spectral Energy Distributions from the Near-Infrared through Radio”
- D. Dale** et al. 2001, *Bulletin of the American Astronomical Society*, **198**, 81.01
“The Extremely Low Metallicity Blue Compact Dwarf Galaxy SBS 0335-02: Paradigm of a Young Galaxy?”
- D. Dale** 2001, *The Evolution of Galaxies. I – Observational Clues*, Astrophysics & Space Science, **277**, 63 (Granada, Spain)
“The Infrared Spectral Energy Distribution of Normal Star-Forming Galaxies”
- D. Dale**, G. Helou et al. 1999, *Bulletin of the American Astronomical Society*, **195**, 31.06
“The Infrared Spectral Energy Distribution of Normal Galaxies”
- D. Dale** & R. Giovanelli 1999, *Cosmic Flows*, S. Courteau, M. Strauss & J. Willick, eds., The Astronomical Society of the Pacific (Victoria, Canada)
“The Convergence Depth of the Local Peculiar Velocity Field”
- D. Dale**, G. Helou et al. 1998, *Bulletin of the American Astronomical Society*, **193**, 08.13
“The Mid-Infrared Color of NGC 1313, NGC 6946 and IC 10”
- D. Dale**[†], R. Giovanelli, M. Haynes, L. Campusano & E. Hardy 1998, *Bulletin of the American Astronomical Society*, **191**, 87.08
“Seeking the Local Convergence Depth”

- D. Dale**[†], R. Giovanelli, M. Haynes, M. Scodreggio[†], L. Campusano & E. Hardy 1996, *Galaxy Scaling Relations: Origins, Evolution and Applications*, L. da Costa and A. Renzini, eds., Springer-Verlag, p.341
“The I-Band Tully-Fisher Relation at Intermediate Redshifts”
- M. Schwartz* & **D. Dale**[†] 1996, *Bulletin of the American Astronomical Society*, **189**, 05.17
“A Video Tour Through the Pisces-Perseus Supercluster”
- D. Dale**[†], J. Gardner* & R. Giovanelli 1995, *Bulletin of the American Astronomical Society*, **187**, 54.07
“The Peculiar Velocity Field in the Pisces-Perseus Supercluster”

Graduate Students

2009–present	Dave Cook	U. Minnesota	2008 B.S.
2005–present	Carolynn Moore	Concordia College	2004 B.A.
2004–2005	Travis Laurance	U. Tennessee	2003 B.S.
2003	Mark Reiser	U. Wisconsin-Stevens Point	2002 B.S.

Postdocs/Postbacs

2004-2005	Christine Lamanna	Haverford College	2004 B.A.
2005	Brent Buckalew	Rice University	2003 Ph.D.
2005-2007	Rebecca Barlow	Mt. Holyoke College	2005 B.A.
2006-2007	Shianne Kattner	U. Wyoming	2006 B.S.
2007-2008	Seth Cohen	Wesleyan U.	2007 B.S.
2007-2008	Cliff Johnson	Colby College	2007 B.S.
2008	Micah Schuster	U. Wyoming	2007 B.S.
2008-2009	Dave Cook	U. Minnesota	2008 B.S.
2008-2010	Shawn Staudaher	R.I.T.	2008 B.S.

Undergraduate/Teacher Mentoring Experience

- 2009: Guided **Jyoti Pandey** (U. Wyoming) in Local Volume Legacy photometry and **Sujan Khandal** (U. Wyoming) in WySH simulations.
- 2008: Guided **Anna Fahlsing** (U. Wyoming) in extracting standard star photometry for *WySH*. Guided **Jake Thatcher** (U. Wyoming) in refining galaxy catalogs for a WIRO-based survey of star-forming galaxies. Guided **Kimberly Aller** (U. California, Berkeley) in quantifying the statistics of buried star formation in the local universe. Guided **Everett Schlawin** (Oberlin College) in empirically and theoretically studying photo-dissociation regions within nearby galaxies.
- 2007: Guided **Micah Schuster** (U. Wyoming) and **Everett Schlawin** (Oberlin College) in parametrizing $H\alpha$ luminosity functions at different redshifts. Guided **Jake Thatcher** (U. Wyoming) in refining galaxy catalogs for a *Spitzer Space Telescope* spectral survey.
- 2006-2007: In collaboration with Chip Kobulnicky, guided **Megan Bagley** (U. Wyoming) and **Emily May** (U. Wyoming) in deriving metal abundances for galaxies jointly appearing in surveys of *Spitzer Space Telescope* and *Sloan Digital Sky Survey*.
- 2006: Guided **Lisa Carpenter** (U. Michigan) and **Marcus Herman** (U. Wyoming) in search for optical counterparts to high energy gamma-ray sources. Lisa and Marcus are using the *Red Buttes Observatory* 0.6 m telescope. Guided **Jake Thatcher** (U. Wyoming) and **Michelle Miller** (Science Zone, Casper Science Museum) in a WIRO-based observing project to track the evolution in the cosmic star formation rate density.
- 2005-2006: Guided **Heather Hanson** (U. Wyoming) in processing and analyzing infrared data of nearby galaxies from the *Spitzer Space Telescope*.
- 2005: Guided **Erick Smith** (U. Tennessee) in quantifying and characterizing the presence of background galaxies in the infrared images of the *Spitzer Infrared Nearby Galaxies Survey*.
- 2005: Guided **Chad Sharpe** (Kelly Walsh High School, Casper, WY) in observing and analyzing nearby star-forming galaxies. Chad developed curriculum based on this research for his high school physics class.

- 2004-2005: Guided **Heather Hanson** (U. Wyoming) in search for optical counterparts to high energy gamma-ray sources. Heather is using the *Red Buttes Observatory* 0.6 m and *Wyoming Infrared Observatory* 2.3 m telescopes.
- 2004: Guided **Rebecca Harbison** (U. Nebraska) in modeling the dark matter profiles of galaxies via optical ($H\alpha$) rotation curves obtained from the *Palomar* 5 m. Guided **Kim Dupczak** (U. Wyoming) and **Charles Miller** (Princeton High School, MN) in search for optical counterparts to high energy gamma-ray sources. Charles is using the *Red Buttes Observatory* 0.6 m and *Wyoming Infrared Observatory* 2.3 m telescopes.
- 2003-2004: Guided **Kim Dupczak** (U. Wyoming) in search for optical counterparts to high energy gamma-ray sources. Kim is using the *Red Buttes Observatory* 0.6 m and *Wyoming Infrared Observatory* 2.3 m telescopes. Guided **Keisuke Fukutani** (U. Wyoming) in modeling the properties of eclipsing binaries.
- 2003: Guided **Anna Haugsjaa** (U. Montana) in search for optical counterparts to high energy gamma-ray sources. Anna used the *Red Buttes Observatory* 0.6 m and *Wyoming Infrared Observatory* 2.3 m telescopes.
- 2002-2003: Guided **Richard Cool** (U. Wyoming) in honor's thesis project. Richard is using archival X-ray data on a sample of 52 galaxy clusters to study the influences of the intracluster medium on Tully-Fisher (luminosity-rotational speed) data. Guided **Kim Dupczak** (U. Wyoming) in search for optical counterparts to high energy gamma-ray sources. Kim is using the *Red Buttes Observatory* 0.6 m and *Wyoming Infrared Observatory* 2.3 m telescopes.
- 2002: Guided **Charles Miller** (Princeton High School, MN) in search for optical counterparts to high energy gamma-ray sources. Charles used the *Red Buttes Observatory* 0.6 m and *Wyoming Infrared Observatory* 2.3 m telescopes. Charles developed curriculum based on this research for his high school physics class. Guided **Magdalena Eftimova** (De Paul U.) in modeling near-infrared integral field spectroscopic data obtained from the *Palomar* 5 m. Maggie constrained the dark matter profiles from optical ($H\alpha$) rotation curves.
- 2001-2: Guided **Richard Cool** (U. Wyoming) in search for optical counterparts to high energy gamma-ray sources. Richard used the *Red Buttes Observatory* 0.6 m and *Wyoming Infrared Observatory* 2.3 m telescopes. Guided **Sarah Stokes** (U. Wyoming) in a study of several galaxies exhibiting severely asymmetric kinematical profiles. Sarah led the observational (*Palomar* 5 m) and data reduction efforts.
- 2001: Guided **Eric Murphy** (Tufts U.) in developing preparatory material and commanding sequences for upcoming *SIRTF* Legacy observations.
- 2000: Guided **Yuki Takahashi** (Caltech) in developing Monte Carlo simulations to estimate the accuracy of photometric redshifts of galaxies using space-based infrared data (i.e. *SIRTF*).
- 1999: Helped guide **Katie Whitman** (Cornell U.) in galaxy cluster environment studies.
- 1997: Guided **William Schomaker** (U. Georgia) in studies of the Tully-Fisher redshift-independent galaxy distance indicator.
- 1996: Guided **Stuart Norton** (Wesleyan U.) and **Elise Furlan** (U. Innsbruck) in characterizing the spatial and redshift extent of the Virgo and Hercules galaxy clusters, respectively. Also led **Matthew Schwartz** (U. Penn) in designing video 3-D fly through of Pisces-Perseus supercluster for the *Arecibo Observatory Visitor Center*.
- 1995: Guided **Michael Dunnigan** (U. Wisconsin) in developing statistical measures of the Tully-Fisher redshift-independent galaxy distance indicator.

- 1992: Guided **Michael Johnson** (U. Minnesota) in learning table-top experimental techniques and studying the photorefectance properties of thin film semiconductors.

Teaching Experience

Professor, University of Wyoming, 2001-present

Lecturer for calculus-based Physics I and Physics II

Lecturer for junior/senior level course on observational astrophysics

Lecturer for graduate level course on the interstellar medium

Lecturer for junior/senior level course on computational physics

Lecturer, Pomona College, 1999-2001

Lecturer for two junior/senior level courses: *The Physics of the Interstellar Medium*, and *Observational Astrophysics*. Also senior lab instructor for introductory physics and astronomy courses for non-majors.

Lecturer, Corning Community College, 1998

Taught *Introduction to Astronomy*

Graduate Teaching Assistant, Cornell University, 1993-1996

TA for calculus-based Physics I and Physics II

Astronomy: TA for science writing for non-majors course

Undergraduate Teaching Assistant, University of Minnesota, Duluth, 1993

Led weekly laboratories and graded exams for introductory physics class.

Pedagogy

Co-leader for physics (and chemistry) TA training workshops 1995-1997, 2002–present

Led and participated in numerous workshops at the Ellbogen Center for Teaching & Learning, 2001–present

Published article on using impressionist art in the physics classroom, *The Physics Teacher* 2003 (the painting appeared on the front cover!)

Teaching College Physics — presented reviews of recent topics in physics education journals concerning modern pedagogy methods, 1997.

Teaching in the Writing Majors — discussed effective strategies for teaching non-science majors in a science writing course, 1995.

Outreach

Astro Camp, an outreach venture for at-risk and gifted/talented youth, 2003–present

Physics Magic Show for Wyoming 6th-12th graders, 2003–present

Hands-on experiments and planetarium shows for local schools, 2003–present

Mentoring high school science teachers through research experience opportunities at the University of Wyoming, 2002–present

Lecturer for astronomy clubs and elementary/high schools, 1993–present

Wyoming Science Fair judge, 2003–present

Co-designed and produced 3-D realization video of a “fly-through” of the Pisces-Perseus cluster of galaxies for the *Arecibo Observatory Visitor Center*, 1996

Designed *Weirdos in the Universe*, a hands-on eight week class for 6th graders, 1996

Led outreach program *Focus for Teens*, 1996–1997