

## A&S CURRICULUM VITAE (Faculty)

### NAME

Michael Sean Brotherton

### ADDRESS

University of Wyoming

### PHONE

work: (307) 766-5402

### EDUCATION

1996 Ph. D., University of Texas, Austin, TX.

1992 M. S., University of Texas, Austin, TX.

1990 B. S., Rice University, Houston, TX.

### ACADEMIC POSITIONS

Years (2002-present) Assistant Professor, Astronomy, Dept. of Physics & Astronomy, University of Wyoming (promotion to Associate Professor July, 2008)

Years (1999-2002) Research Associate, Astronomy, Kitt Peak National Observatory, National Optical Astronomy Observatories, Tucson, AZ

Years (1996-1999) Postdoctoral Fellow, Astronomy, Institute for Geophysics and Planetary Physics, Lawrence Livermore National Laboratory, Livermore, CA

### CURRENT JOB DESCRIPTION

45 % Teaching 45 % Research 5 % Service    % Admin 5 % Advising

### TEACHING

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u>Cr. Hrs.</u>	<u>Enrollment</u>
2002	Fall	1050 - Survey of Astronomy	4	63
2002	Fall	1050 - Survey of Astronomy	4	61
2002	Spring	5460 - Galaxies & Cosmology	4	6

2003	Fall	1050 - Survey of Astronomy	4	121
2003	Fall	4610 - Introduction to Astrophysics	3	6
2004	Spring	1050 - Survey of Astronomy	4	100
2004	Fall	5460 - Galaxies & Cosmology	4	5
2005	Spring	1050 - Survey of Astronomy	4	115
2005	Fall	1050 - Survey of Astronomy	4	125
2006	Spring	1050 - Survey of Astronomy	4	124
2006	Fall	5460 – Galaxies & Cosmology	4	5
2007	Spring	4870 – Science and Science Fiction	3	9
2007	Fall	5460 – Galaxies & Cosmology	4	4
2008	Spring	4870 – Science and Science Fiction	3	6

### **PUBLICATIONS IN PROGRESS**

In Preparation:

Yuan, Q., Brotherton, M. S., Green, R. F., Kriss, G. Outflowing Winds from Narrow-Line Seyfert 1 Galaxies: The Case of Markarian 478, *Astrophysical Journal*, refereed

Brotherton, M.S. Et al. A Catalog of Post-Starburst Quasars, *Astrophysical Journal Supplements*, refereed

Brotherton, M.S. Et al. The Environments of Post-Starburst Quasars, *Astrophysical Journal*, refereed

Under Review:

Berrington, R. C., Brotherton, M. S., Gallagher, S. C., Ganguly, R., Shang, Z., Lacy, M., Gregg, M. D., Hall, P. B., & Laurent-Muehleisen, S. A., The X-ray Spectrum and Spectral Energy Distribution of FIRST J155633.8+351758: A Beamed Radio-Quiet Quasar with a Polar Outflow, *Astrophysical Journal*, refereed

Brotherton, M. S., Hien D. Tran, Tim Weinzirl, Robert H. Becker, Michael D. Gregg, Gabriela Canalizo, Mark Lacy, and Robert L. White, Hubble Space Telescope Trough Imaging of the Broad Absorption Line Quasar FIRST J155633.8+351758, *Astronomical Journal*, refereed

## **PUBLISHED WORKS**

### **Refereed Journal Articles:**

Ganguly, R., & Brotherton, M.S., 2008, On the Intrinsic Fraction of Quasars with Outflows, *ApJ*, 672, 102-107.

Ganguly, Rajib, Brotherton, Michael S., Cales, Sabrina, Scoggins, Brian, Shang, Zhaohui, & Vestergaard, Marianne, 2007, Outflows and the Physical Properties of Quasars, *Astrophysical Journal*, 665, 990-1003.

Shang, Z., Wills, B., Wills, D., & Brotherton, M. S., 2007 Spectral Properties from Ly  $\alpha$  to H  $\alpha$  for an Essentially Complete Sample of Quasars. I. Data, *Astronomical Journal*, 134, 294-393.

Wold, M., Brotherton, M. S., Shang, Z., 2007, The dependence of quasar variability on black hole mass, *MNRAS*, 375, 989-999.

Ganguly, R., Brotherton, M. S., Arav, N., and 41 coauthors, 2007, A STIS Ultraviolet Spectral Snapshot Survey of Bright Active Galactic Nuclei, *Astronomical Journal*, 133, 479-486.

Brotherton, M. S., De Breuck, C., Schaefer, J. J., 2006, Spectropolarimetry of PKS 0040-005 and the orientation of broad absorption line quasars, *MNRAS*, 372L, 58-62.

Canalizo, Gabriela, Stockton, Alan, Brotherton, Michael S., Lacy, Mark, 2006, Star formation in QSO host galaxies, *New Astronomy Reviews*, 50, 650-656.

Georgantopoulos, I., Nandra, K., Brotherton, M., Georgakakis, A., Papadakis, I.E., & O'Neill, P. 2006, *MNRAS*, XMM-Newton and Chandra observations of SHEEP sources, 367, 1727-1734.

Schaefer, J., Shang, Z., Brotherton, M. S., Laurent-Muehleisen, S. A., Becker, R. H., Gregg, M. D., & White, R. L., 2006, XMM-Newton Observations of the FR II Broad Absorption Line Quasar FIRST J1016+5209, *Astronomical Journal*, 132, 1464-1467.

Scott, J.E., and 12 colleagues, 2005. Intrinsic Absorption in the Spectrum of NGC 7469: Simultaneous Chandra, FUSE, and STIS Observations. *Astrophysical Journal*, 634, 193-209.

Gallagher, S.C., Schmidt, G.D., Smith, P.S., Brandt, W.N., Chartas, G., Hylton, S.,

- Hines, D.C., Brotherton, M.S. 2005. Variation in the Scattering Shroud Surrounding Markarian 231. *Astrophysical Journal* 633, 71-85.
- Brotherton, M.S., Laurent-Muehleisen, S.A., Becker, R.H., Gregg, M.D., Telis, G., White, R.L., Shang, Z. 2005. Chandra X-Ray Observations of Radio-Loud Broad Absorption Line Quasars. *Astronomical Journal* 130, 2006-2011.
- Shang, Z., Brotherton, M. S., and 11 colleagues 2005. Quasars and the Big Blue Bump. *Astrophysical Journal* 619, 41-59.
- Nandra, K., Georgantopoulos, I., Brotherton, M. S., & Papadakis, 2004, I., X-ray and Optical Counterparts of Hard X-ray Selected Sources from the SHEEP Survey: First Results, *Monthly Notices of the Royal Astronomical Society*, 347, 41
- Scott, J.E., Kriss, G.A., Brotherton, M., Green, R.~F., Hutchings, J., Shull, J.M., Zheng, W. 2004. A Composite Extreme-Ultraviolet QSO Spectrum from FUSE. *Astrophysical Journal* 615, 135-149.
- Scott, J.E., and 14 colleagues 2004. Intrinsic Absorption in the Spectrum of Markarian 279: Simultaneous Chandra, FUSE, and STIS Observations. *Astrophysical Journal Supplement Series* 152, 1-27.
- Georgantopoulos, I., Nandra, K., Brotherton, M. S., Ptak, A., Zezas, A., & Papadakis, I. 2003, The SHEEP Survey: Observing the Hardest of the Hard, *Astronomische Nachrichten*, Vol. 324, No. 1-2, P. 32-35
- Shields, G. A., Gebhardt, K., Salvander, S., Wills, B. J., Xie, B., Brotherton, M. S., Yuan, J., & Dietrich, M., 2003, The Black Hole-Bulge Relationship in QSOs , *The Astrophysical Journal*, 583, 124-133
- Brotherton, M. S., Ly, C., Wills, B. J., Laurent-Muehleisen, S. A., van Breugel, W., & Antonucci, R. R. J., 2002, Multiband VLA Observations of the Faint Radio Core of 3CR 68.1, *The Astronomical Journal*, 124, 1943- 1947
- Yuan, Q., Green, R. F., Brotherton, M., Tripp, T. M., Kaiser, M. E., & Kriss, G. A., 2002, Associated Absorption Lines in the Radio-loud Quasar 3C 351: Far-Ultraviolet Echelle Spectroscopy from the Hubble Space Telescope, *Astrophysical Journal*, 575, 687-696
- Brotherton, M. S., Grabelsky, M., Canalizo, G., van Breugel, W., Filippenko, A. V., Croom, S., Boyle, B., & Shanks, T., 2002, *Hubble Space*

Telescope Imaging of the Poststarburst Quasar UN J1025-0040: Evidence for Recent Star Formation, *Publications of the Astronomical Society of the Pacific*, 114, 593-601

Brotherton, M. S., van Breugel, W., Smith, R. J., Boyle, B. J., Shanks, T., Croom, S. M., Miller, L., & Becker, R. H., 2002, Erratum: "Discovery of Radio-Loud Broad Absorption Line Quasars Using Ultraviolet Excess and Deep Radio Selection", *Astrophysical Journal*, 571, L191-L191

Brotherton, M. S., Green, R. F., Kriss, G. A., Oegerle, W., Kaiser, M. E., Zheng, W., & Hutchings, J. B., 2002, Far Ultraviolet Spectroscopic Explorer Observations of the Seyfert 1.5 Galaxy NGC 5548 in a Low State, *Astrophysical Journal*, 565, 800-807

Gregg, M. D., Lacy, M., White, R. L., Glikman, E., Helfand, D., Becker, R. H., & Brotherton, M. S., 2002, The Reddest Quasars, *Astrophysical Journal*, 564, 133-142

Brotherton, M. S., Croom, S. M., de Breuck, C., Becker, R. H., & Gregg, M. D., 2002, The twice-overlooked, second Fanaroff-Riley II broad absorption line quasar LBQS 1138-0126., *Astron. J.*, 124, 2575-2580

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- D. J., Lacy, M., Courbin, F., & Proctor, D. D., 2001, The FIRST Bright Quasar Survey. III. The South Galactic Cap, *Astrophysical Journal Supplement Series*, 135, 227-262
- Leonard, D. C., Filippenko, A. V., Ardila, D. R., & Brotherton, M. S., 2001, Is It Round? Spectropolarimetry of the Type II-p Supernova 1999EM, *Astrophysical Journal*, 553, 861-885
- Brotherton, M. S., Arav, N., Becker, R. H., Tran, H. D., Gregg, M. D., White, R. L., Laurent-Muehleisen, S. A., & Hack, W., 2001, QSO 2359-1241: A Bright, Highly Polarized, Radio-moderate, Reddened, Low-Ionization Broad Absorption Line Quasar, *Astrophysical Journal*, 546, 134-139
- Arav, N., Brotherton, M. S., Becker, R. H., Gregg, M. D., White, R. L., Price, T., & Hack, W., 2001, The Intrinsic Absorber in QSO 2359-1241: Keck and HUBBLE SPACE TELESCOPE Observations, *Astrophysical Journal*, 546, 140-149
- Brotherton, M. S., Tran, H. D., Becker, R. H., Gregg, M. D., Laurent-Muehleisen, S. A., & White, R. L., 2001, Composite Spectra from the FIRST Bright Quasar Survey, *Astrophysical Journal*, 546, 775-781
- Najita, J., Dey, A., & Brotherton, M., 2000, Red Quasars and Quasar Evolution: The Case of BAL QSO FIRST J155633.8+351758, *The Astronomical Journal*, 120, 2859-2867
- Gregg, M. D., Becker, R. H., Brotherton, M. S., Laurent-Muehleisen, S. A., Lacy, M., & White, R. L., 2000, Discovery of a Classic FR II Broad Absorption Line Quasar from the FIRST Survey, *Astrophysical Journal*, 544, 142-149
- Kriss, G. A., Green, R. F., Brotherton, M., Oegerle, W., Sembach, K. R., Davidsen, A. F., Friedman, S. D., Kaiser, M. E., Zheng, W., Woodgate, B., Hutchings, J., Shull, J. M., & York, D. G., 2000, Far Ultraviolet Spectroscopic Explorer Observations of Intrinsic Absorption in the Seyfert 1 Galaxy Markarian 509, *Astrophysical Journal*, 538, L17-L21
- Becker, R. H., White, R. L., Gregg, M. D., Brotherton, M. S., Laurent-Muehleisen, S. A., & Arav, N., 2000, Properties of Radio-selected Broad Absorption Line Quasars from the First Bright Quasar Survey, *Astrophysical Journal*, 538, 72-82

Gregg, M. D., Wisotzki, L., Becker, R. H., Maza, J. ;. P. L., White, R. L., Brotherton, M. S., & Winn, J. N., 2000, A Close-Separation Double Quasar Lensed by a Gas-rich Galaxy, *The Astronomical Journal*, 119, 2535-2539

Brinkmann, W., Laurent-Muehleisen, S. A., Voges, W., Siebert, J., Becker, R. H., Brotherton, M. S., White, R. L., & Gregg, M. D., 2000, Radio and X-ray bright AGN: the ROSAT - FIRST correlation, *Astronomy and Astrophysics*, 356, 445-462

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White, R. L., Becker, R. H., Gregg, M. D., Laurent-Muehleisen, S. A., Brotherton, M. S., Impey, C. D., Petry, C. E., Foltz, C. B., Chaffee, F. H., Richards, G. T., Oegerle, W. R., Helfand, D. J., McMahon, R. G., & Cabanella, J. E., 2000, The FIRST Bright Quasar Survey. II. 60 Nights and 1200 Spectra Later, *Astrophysical Journal Supplement Series*, 126, 133-207

Canalizo, G., Stockton, A., Brotherton, M. S., & van Breugel, W., 2000, A Companion Galaxy to the Poststarburst Quasar UN J1025-0040, *The Astronomical Journal*, 119, 59-62

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Brotherton, M. S., van Breugel, W., Stanford, S. A., Smith, R. J., Boyle, B. J., Miller, L., Shanks, T., Croom, S. M., & Filippenko, A. V., 1999, A Spectacular Poststarburst Quasar, *Astrophysical Journal*, 520, L87-L90

Tran, H. D., Brotherton, M. S., Stanford, S. A., van Breugel, W., Dey, A.,

Stern, D., & Antonucci, R., 1999, A Polarimetric Search for Hidden Quasars in Three Radio-selected Ultraluminous Infrared Galaxies, *Astrophysical Journal*, 516, 85-96

Wills, B. J., Laor, A., Brotherton, M. S., Wills, D., Wilkes, B. J., Ferland, G. J., & Shang, Z., 1999, The PG X-Ray QSO Sample: Links between the Ultraviolet-X-Ray Continuum and Emission Lines, *Astrophysical Journal*, 515, L53-L56

Brotherton, M. S., Gregg, M. D., Becker, R. H., Laurent-Muehleisen, S. A., White, R. L., & Stanford, S. A., 1999, Discovery of a Radio-loud/Radio-quiet Binary Quasar, *Astrophysical Journal*, 514, L61-L64

Brotherton, M. S., van Breugel, W., Smith, R. J., Boyle, B. J., Shanks, T., Croom, S. M., Miller, L., & Becker, R. H., 1998, Discovery of Radio-Loud Broad Absorption Line Quasars Using Ultraviolet Excess and Deep Radio Selection, *Astrophysical Journal*, 505, L7-L10

Brotherton, M. S., Wills, B. J., Dey, A., van Breugel, W., & Antonucci, R., 1998, Spectropolarimetry of 3CR 68.1: A Highly Inclined Quasar, *Astrophysical Journal*, 501, 110-118

De Breuck, C., Brotherton, M. S., Tran, H. D., van Breugel, W., & Rottgering, H. J. A., 1998, Discovery of an Ultra-Steep-Spectrum, Highly Polarized Red Quasar at  $Z = 1.462$ , *The Astronomical Journal*, 116, 13-19

Brotherton, M. S., Tran, H. D., van Breugel, W., Dey, A., & Antonucci, R., 1997, Spectropolarimetry of FIRST Broad Absorption Line Quasars, *Astrophysical Journal*, 487, L113-L116

Clocchiatti, A., Wheeler, J. C., Brotherton, M. S., Cochran, A. L., Wills, D., Barker, E. S., & Turatto, M., 1996, SN 1994I: Disentangling He I Lines in Type IC Supernovae, *Astrophysical Journal*, 462, 462

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Brotherton, M. S., 1996, The Profiles of H beta and [O III] lambda 5007 in Radio-loud Quasars, *Astrophysical Journal Supplement Series*, 102, 1-30

Wills, B. J. & Brotherton, M. S., 1995, An Improved Measure of Quasar Orientation, *Astrophysical Journal*, 448, L81-L84

Netzer, H., Brotherton, M. S., Wills, B. J., Han, M., Wills, D., Baldwin, J. A., Ferland, G. J., & Browne, I. W. A., 1995, The Hubble Space Telescope Sample of Radio-loud Quasars: The Ly alpha /H beta Ratio, *Astrophysical Journal*, 448, 27

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Brotherton, M. S., Wills, B. J., Francis, P. J., & Steidel, C. C., 1994, The intermediate line region of QSOs, *Astrophysical Journal*, 430, 495-504

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J., Winge, C., & Younger, P. F., 1994, Steps toward determination of the size and structure of the broad-line region in active nuclei. 7: Variability of the optical spectrum of NGC 5548 over years, *Astrophysical Journal*, 425, 622-634

Brotherton, M. S., Wills, B. J., Steidel, C. C., & Sargent, W. L. W., 1994, Statistics of QSO broad emission-line profiles. 2: The C IV  $\lambda$  1549, C III]  $\lambda$  1909, and Mg II  $\lambda$  2798 lines, *Astrophysical Journal*, 423, 131-142

Shrader, C. R., Webb, J. R., Balonek, T. J., Brotherton, M. S., Wills, B. J., Wills, D., Godlin, S. D., Smith, A. G., & McCollum, B., 1994, Optical and ultraviolet observations of 3C 279 during outburst, *Astronomical Journal*, 107, 904-909

Brotherton, M. S. & Wills, B. J., 1993, A New Interpretation of Broad Emission Line Widths in High Luminosity AGNs, *Revista Mexicana de Astronomia y Astrofisica*, vol. 27, 27, 223

Wills, B. J., Netzer, H., Brotherton, M. S., Han, M., Wills, D., Baldwin, J. A., Ferland, G. J., & Browne, I. W. A., 1993, McDonald Observatory - Hubble Space Telescope spectroscopy of the narrow line region of high luminosity active galactic nuclei., *Revista Mexicana de Astronomia y Astrofisica*, 27, 225-226

Wills, B. J., Brotherton, M. S., Fang, D., Steidel, C. C., & Sargent, W. L. W., 1993, Statistics of QSO Broad Emission-Line Profiles. I. The C IV  $\lambda$  1549 Line and the  $\lambda$  1400 Feature, *Astrophysical Journal*, 415, 563

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#### **Non-Refereed Proceedings/Transactions:**

Shang, Z., Brotherton, M., Dale, D.A., & Hines, D. 2007, UV to Mid-IR SEDs of Low-redshift Quasars, *Astronomical Society of the Pacific Conference Series*, 373, 604

Yuan, Q., Brotherton, M.S., Green, R.F., Ganguly, R., Shang, Z., & Kriss, G.A. 2007, Evidence for an Accelerating Wind in Markarian 478, *Astronomical Society of the Pacific Conference Series*, 373, 329

Brotherton, M. S., 2007, Busting Myths about BAL Quasars, *Astronomical Society of the Pacific Conference Series*, 373, 315

Yuan, Q., Brotherton, M., Green, R. F., Kriss, G.A. 2004. Outflowing Components in the Prototype Narrow-Line Seyfert 1 Galaxy Markarian 478. *IAU Symposium* 217, 364.

Scott, J., Kriss, G., Brotherton, M., Green, R., Hutchings, J., Shull, J.M., Zheng, W. 2004. A Composite EUV AGN Spectrum and the AGN Contribution to the Low Redshift UV Background. *Multiwavelength AGN Surveys* 291.

Schaefer, J., Brotherton, M., Gregg, M., Becker, R., Laurent-Muehleisen, S., Lacy, M., White, R. 2004. XMM-Newton Observations of the FR II Radio-Loud BAL Quasar FIRST J1016+5209. *ASP Conf.Ser.311: AGN Physics with the Sloan Digital Sky Survey* 311, 329.

Brotherton, M., Diamond-Stanic, A., vanden Berk, D., Burton, R., Croom, S. 2004. Post-starburst Quasars in the 2dF and SDSS. *ASP Conf.Ser.311: AGN Physics with the Sloan Digital Sky Survey* 311, 285.

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Scott, J., Kriss, G., Brotherton, M., Green, R., Hutchings, J., Shull, J., Zheng, W. 2004. A Composite Extreme Ultraviolet QSO Spectrum from FUSE. *ASP Conf. Ser.311: AGN Physics with the Sloan Digital Sky Survey* 311, 31.

Shields, G., Gebhardt, K., Salviander, S., Wills, B., Xie, B., Brotherton, M., Yuan, J., Dietrich, M. 2003. The Black Hole-Bulge Relationship in QSOs. *Revista Mexicana de Astronomia y Astrofisica Conference Series* 17, 242-242.

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Tokyo, July 2 - 5, 2002, Edited by S. Ikeuchi, J. Hearnshaw, and T. Hanawa, the  
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Brotherton, M. S., 2002, Far Ultraviolet Spectroscopic Explorer  
Observations of NGC 5548 in a Low State, In: Mass Outflow in Active  
Galactic Nuclei: New Perspectives, ASP Conference Proceedings, Vol. 255.  
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the Pacific (San Francisco), 127

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In: Mass Outflow in Active Galactic Nuclei: New Perspectives, ASP  
Conference Proceedings, Vol. 255. Edited by D. M. Crenshaw, S. B. Kraemer,  
and I. M. George. San Francisco: Astronomical Society of the Pacific, 2002., 157

Wills, B. J., Brotherton, M., Laor, A., Wills, D., Wilkes, B. J., Ferland,  
G. J., & Shang, Z., 1999, The PG X-Ray QSO sample: Links between the  
UV-X-Ray Continuum and Emission Lines, In: Quasars and Cosmology, ASP  
Conference Series 162, Edited by Gary Ferland and Jack Baldwin.  
Astronomical Society of the Pacific (San Francisco), 373

Brotherton, M. S. & Francis, P. J., 1999, The Intermediate Line Region  
and the Baldwin Effect, In: Quasars and Cosmology, ASP Conference Series  
162, Edited by Gary Ferland and Jack Baldwin. Astronomical Society of the  
Pacific (San Francisco), 395

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Shang, Z. Brotherton, M. S., 2006, Applications Of Spectral Principle Component Analysis In AGN Research: Sample Selection and Beyond, American Astronomical Society Meeting Abstracts, 209

Stoll, R., Brotherton, M., Paul, C., Shang, Z., Cales, S. 2005. The Environments of Post-Starburst Quasars. American Astronomical Society Meeting Abstracts, 207

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Paul, C., Brotherton, M.S., Diamond-Stanic, A., Vanden Berk, D., Canalizo, G. 2004. The Post-Starburst Quasar Population. American Astronomical Society Meeting Abstracts, 205

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Weinzirl, T., Brotherton, M.S., Nandra, K., Georgantopoulos, I., Papadakis, I. 2004. Counting All the SHEEP. American Astronomical Society Meeting Abstracts, 205

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Astronomical Society Meeting Abstracts, 204

Schaefer, J.J., Brotherton, M.S. 2004. FR II BALQSOs in DR2 of the SDSS. American Astronomical Society Meeting Abstracts, 204

Scoggins, B., Brotherton, M.S., Becker, R.H., Tran, H.D., Gregg, M.D., White, R.L., Laurent-Muehleisen, S. 2004. A Spectropolarimetric Survey of Radio-Selected Broad Absorption Line Quasars. American Astronomical Society Meeting Abstracts, 204

Diamond-Stanic, A.M., Brotherton, M.S. 2003. Poststarburst Quasars in the Sloan Digital Sky Survey. American Astronomical Society Meeting Abstracts, 203

Scott, J.E., Kriss, G.A., Brotherton, M.S., Green, R.F., Hutchings, J., Shull, J.M., Zheng, W. 2003. The AGN Contribution to the Low Redshift Ultraviolet Background. American Astronomical Society Meeting Abstracts 203

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Brotherton, M. S., Green, R. F., Kriss, G. A., Alexander, T., Kim, J., Zheng, W., Kaiser, M. E., Oegerle, W., & Hutchings, J., 2001, Big Blue Bumps in AGN, American Astronomical Society Meeting 199, #138.01

Yuan, Q., Green, R. F., Brotherton, M., Kriss, G. A., Tripp, T. M., & Kaiser, M. E., 2001, Associated Absorption Lines in the STIS Spectrum of

the Radio-Loud Quasar 3C351, American Astronomical Society Meeting 199, #99.06

Grabelsky, M. A., Brotherton, M. S., Canalizo, G., Breugel, W., Croom, S. M., Filippenko, A. V., Stockton, A., Smith, R. J., Boyle, B. J., Miller, L., & Shanks, T., 2001, Hubble Space Telescope Imaging of the Post-starburst Quasar UN J1025-0040: ``Post"-starburst No More?, American Astronomical Society Meeting 199, #43.03

Kaiser, M. E., Calvani, H., Kriss, G. A., Sembach, K. R., Friedman, S. D., Zheng, W., Green, R. F., Brotherton, M., Oegerle, W. R., Woodgate, B., Hutchings, J. B., Shull, J. M., & York, D. G., 2001, Intrinsic Ultraviolet Absorption in Mrk 290, American Astronomical Society Meeting 199, #50.04

Brotherton, M. S., Green, R. F., Kriss, G. A., Zheng, W., Kaiser, M. E., Hutchings, J., & Oegerle, W., 2001, FUSE Observations of NGC 5548 in a Low State, American Astronomical Society Meeting 198, #72.04

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Laurent-Muehleisen, S. A., Becker, R. H., Gregg, M. D., Brotherton, M. S., White, R. L., & Helfand, D. J., 1998, The FBQS BL Lac Sample, American Astronomical Society, 193rd AAS Meeting, #27.01; Bulletin of the American Astronomical Society, Vol. 30, p.1286

Brotherton, M. S., van Breugel, W., Stanford, S. A., Smith, R. J., Boyle, B. J., Shanks, T., Croom, S. M., Miller, L., & Filippenko, A. V., 1998, A Spectacular Post-Starburst Quasar, American Astronomical Society, 193rd AAS Meeting, #20.06; Bulletin of the American Astronomical Society, Vol. 30, p.1280

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Wills, B. J., Brotherton, M. S., Wills, D., Thompson, K. L., Netzer, H., Baldwin, J. A., Ferland, G. J., Carswell, R. F., & Han, M., 1994, HST -- Ground-based Spectrophotometry of a Quasar Sample: Emission Line Profiles, Radio Emission, and Orientation?, American Astronomical Society, 185th AAS Meeting, #19.01; Bulletin of the American Astronomical Society, Vol. 26, p.1340

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Wills, B. J., Baldwin, J. A., Brotherton, M. S., Netzer, H., Ferland, G. J., Wills, D., Browne, I. W. A., Carswell, R. F., & Han, M., 1994, HST and Ground-Based Spectroscopy of High Luminosity AGNs, American Astronomical Society, 184th AAS Meeting, #11.10; Bulletin of the American Astronomical Society, Vol. 26, p.875

Brotherton, M. S. & Wills, B. J., 1994, The Intermediate Line Region of QSOs, American Astronomical Society, 184th AAS Meeting, #60.03; Bulletin of the American Astronomical Society, Vol. 26, p.959

Clocchiatti, A., Brotherton, M., Harkness, R. P., Wheeler, J. C., Mikuz, H., & Corwin, H., 1994, Supernova 1994I in NGC 5194, IAU Circ., 5972, 2. Edited by Green, D. W. E.

Han, M., Wills, B. J., Brotherton, M. S., Wills, D., Baldwin, J. A., Netzer, H., Ferland, G. J., & Browne, I. W. A., 1993, The Broad Line

Region of Radio-loud Quasars: New Hubble Space Telescope & Ground-based Spectroscopy, American Astronomical Society, 182nd AAS Meeting, #04.18; Bulletin of the American Astronomical Society, Vol. 25, p.792

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## **CONTRACTS & GRANTS**

### **Funded Projects as PI**

- |                   |  |
|-------------------|--|
| Years (2006-2010) | Fast Forward Science Workshop for Writers, NASA E/PO proposal supplemental to LTSA, \$60k  |
| Years (2005-2010) | Understanding the Post-Starburst Quasar Population, NASA, \$629K   |
| Years (2005-2008) | Quasar Superunification and the Man Behind the Curtain, NSF, \$240K  |
| Years (2006-2007) | A Deep Look at the (Relatively) X-ray Bright Broad Absorption Line Quasar FIRST J1556+3517, Chandra X-ray Observatory, \$43K                                       |
| Years (2005-2007) | The Host Galaxies of Post-Starburst Quasars, Space Telescope Science Institute (NASA), \$55K   |
| Years (2005-2006) | X-rays from Extreme Broad Absorption Line Quasars, Brotherton is Budget PI, Paul Nandra (Imperial College, London) CoPI, Goddard Space Flight Center (NASA), \$35k |
| Years (2004-2005) | A Deep Look at the (Relatively) X-ray Bright Broad Absorption Line Quasar FIRST J1556+3517, Goddard Space Flight Center (NASA), \$44K                              |
| Years (2003-2004) | A Decade of AGN Spectral Energy Distributions, Space Telescope Science Institute (NASA), \$55K   |

- Years (2003-2004) X-rays from Extreme Broad Absorption Line Quasars, Patrick Hall CoPI, Goddard Space Flight Center (NASA), \$38K
- Years (2002-2003) X-rays from Extreme Broad Absorption Line Quasars, Patrick Hall CoPI, Chandra X-ray Observatory (NASA), \$35K
- Years (2002-2003) The Natural Occulting Disk and Host Galaxy of the Red BAL Quasar FIRST J1556+3517, Space Telescope Science Institute (NASA), \$26K.
- Years (2001-2002) A Spectacular Post-Starburst Quasar and the AGN--Starburst Connection, Space Telescope Science Institute (NASA), \$26K.

### **Funded Projects as CoPI**

- Years (2008-2009) The Ultraviolet Properties of Post-Starburst Quasars, Rajib Ganguly PI (NASA's GALEX program), \$35k
- Years (2007-2011) Upgrading the WIRO 2.3 m Telescope, Henry Kobulnicky PI, (NSF's PREST program), About \$253k
- Years (2006-2008) The Infrared Properties of Post-Starburst Quasars, Zhaohui Shang PI, (NASA Spitzer Space Telescope program, via Caltech), About \$63k
- Years (2005-2008) The Next Generation of Quasar Spectral Energy Distributions, Zhaohui Shang PI, (NASA ADP Program), \$180k
- Years (2005-2007) Quasar Spectral Energy Distributions, Zhaohui Shang PI, Spitzer Space Telescope and Hubble Space Telescope (STScI, JPL, via NASA), about \$50k
- Years (2004-2007) Development of a Wide-Field, Near-Infrared Camera for the Wyoming Infrared Observatory, Michael Pierce PI, \$855k
- Years (2002-2004) STIS/UV snapshot survey of bright AGN, PI is Nahum Arav (Colorado), Space Telescope Science Institute (NASA), my subcontract is \$43K.

### **Pending Projects as PI**

N/A

### **Proposals not accepted as PI**

- Years (2005-2010) CAREER: Quasars -- Fact, Fiction, and Future, NSF, \$600k
- Years (2005-2010) Fast Forward Science Workshop for Writers, NASA E/PO proposal supplemental to LTSA, \$75k (won in 2006)
- Years (2004-2005) A Web-Based Lab for Estimation of Black Hole Masses in Quasars, E/PO Space Telescope Science Institute (NASA), \$20k
- Years (2002) Quasar Host Galaxies and Mutual Quasar/Galaxy Evolution, Research Corporation, \$35K.

### **PROFESSIONAL AFFILIATIONS AND ACTIVITIES**

1993-present, American Astronomical Society

2008-present, Editorial Board of the peer-reviewed journal, Advances in Astronomy

1998, National Science Foundation Review Panel

2001, Chandra X-Ray Observatory Cycle 3 Review Panel

2003, Hubble Space Telescope Cycle 12 Review Panel

2004, National Science Foundation Review Panel

2004 to 2005, NASA Infrared Telescope Facility Time Allocation Committee

2005, Spitzer Space Telescope Review Panel

2005, National Science Foundation Review Panel

2007, Chandra X-Ray Observatory Review Panel

1997-2007, Referee for various astronomical journals, including the Astronomical Journal, Astrophysical Journal, Astronomy and Astrophysics, Monthly Notices of the Royal Astronomical Society, etc., usually 2-5 per year

**PAPERS PRESENTED/SYMPOSIA/INVITED LECTURES/PROFESSIONAL MEETINGS/WORKSHOPS**

2007, Participant with two presentations at University of Wyoming interdisciplinary seminar, Re-Visioning the (W)hole

2007, Organized and ran the inaugural “Launchpad Astronomy Workshop for Writers” in Laramie, WY (associated with my NASA E/PO grant)

2007, Seminar and colloquium, Departamento de Astronomia, Instituto de Fisica, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brasil

2007, 210<sup>th</sup> American Astronomical Society Meeting, AAS, Honolulu, HI

2006, Official Visitor, European Southern Observatory, Garching, Germany, 2 talks

2006, International Meeting on “The Central Engines of Active Galactic Nuclei,” Xi’an, China

2005, Workshop on Quasar Superunification, Elba Island, Italy

2005, 205th American Astronomical Meeting, AAS, San Diego, CA

2005, Invited Colloquium, Feb., University of Northern Colorado, Greeley, CO

2004, 204th American Astronomical Meeting, AAS, Denver, CO

2003, Invited Colloquium, Sep. 5, Montana State University, Bozeman, MT

2003, Paper presented, Aug. 1, AGN Physics with the SDSS Conference, Princeton, NJ

2003, 201st American Astronomical Meeting, AAS, Seattle, WA

2002, FUSE Science Workshop, Johns Hopkins University, Baltimore, MD

2002, 199th American Astronomical Society Meeting, AAS, Washington, DC

2001, Mass Outflow in Active Galactic Nuclei: New Perspectives, Catholic University, Washington, DC

2001, 198th American Astronomical Society Meeting, AAS, Pasadena, CA

1999, 193rd American Astronomical Society Meeting, AAS, Austin, TX

1998, Sixth Synthesis Imaging Summer School, NRAO, Socorro, NM

1998, Quasars as Standard Candles for Cosmology Workshop, CTIO, La Serena, Chile

1997, Mass Ejection from AGN Workshop, Carnegie Observatories in Pasadena, CA

1996, IAU Colloquium 159, Emission Lines in Active Galaxies: New Methods and Techniques, International Astronomical Union, Shanghai, China

1996, 187th American Astronomical Society Meeting, AAS, San Antonio, TX

1995, 185th American Astronomical Society Meeting, AAS, Tucson, AZ

1994, The Analysis of Emission Lines, Space Telescope Science Institute, Baltimore, MD

1994, 184th American Astronomical Society Meeting, AAS, Minneapolis, MN

1993, 182nd American Astronomical Society Meeting, AAS, Berkeley, CA

1993, 3rd Texas-Mexico Conference, University of Texas at Austin, TX

1991, 2nd Texas-Mexico Conference, Rice University, Houston, TX

## **COMMITTEES**

Self-Designed Major Committee (College of A&S), 2006-present

Director of Graduate Studies, 2006-present

Faculty Senate, 2005-2006

Department of Physics & Astronomy, Graduate Admissions, 2003-present (chair 2003-2005)

Department of Physics & Astronomy, Undergraduate Curriculum Committee, 2002-2004

Department of Physics & Astronomy, Graduate Curriculum Committee, 2002-present, Currently Chair (2005-present)

Department of Physics & Astronomy, Qualifying Exam Committee, 2002- present

Department of Physics & Astronomy, Faculty Search Committees, 2004-2006

## **STUDENT ADVISING/GRADUATE SUPERVISION**

### **UNDERGRADUATE STUDENTS:**

#### Current Official Advisees:

Bhattacharjee, Anirban  
Cales, Sabrina Lyn  
Fawcett, Stephanie Mae  
Giguere, Matthew J.  
Law, Clint  
Mankowski, Trent S.  
Schuster, Micah David  
Smith, Mark D.

#### 2 Current Undergraduate Students (research)

Brian Scoggins -- 2002 to present  
Ben Kelly -- 2005 to present (graduated Dec. 2007)

#### 11 Previous Undergraduate Students (research)

Jessie Runnoe -- Summer 2007  
Shianne Kattner -- 2005 to 2006  
Rebecca Stoll -- Summer 2005  
Tim Wienzel -- Summer 2004  
Justin Schaefer -- 2003-2004  
Aleks Diamond-Stanic -- Summer 2003, 2004  
Josh Spinler -- 2002-2003  
Chun Ly -- 2000-2002



Gisela Telis -- Summer 2002  
Matthew Grabelsky -- Summer 2001  
Tony Barletta -- 2000  
Anthony de la Cerda -- Summer 1998

**GRADUATE STUDENTS:**

2 Current Graduate Student Advisees (research)  
Sabrina Cales -- 2005 to present  
Anirban Bhattacharjee -- 2006 to present

**POST-DOCTORAL FELLOWS:**

Rajib Ganguly -- 2005-present  
Robert C. Berrington -- 2007  
Zhaohui Shang -- 2003-2006

**RESEARCH ASSISTANTS (Post-Undergrad level):**

Shianne Kattner -- 2006-2007  
Rebecca Stoll -- 2006-2006  
Justin Schaefer -- 2004

**OTHER ACTIVITIES/ACCOMPLISHMENTS**

2007, Initiated annual Launchpad Astronomy Workshop for Writers

2006, Extraordinary Merit In Research Award, College of Arts & Sciences

2003, Summer, Sponsored High School Teacher Jerome Taylor to visit WY

2003, Sponsored Dr. Pat Hall (Princeton) to visit WY for Oct. 2003

2004, Sponsored Dr. Qirong Yuan to visit WY from Nanjing, China in Jan. 2004

2005, Sponsored Dr. Qirong Yuan to visit WY from Nanjing, China in October 2005

Science Fiction Novel: *Star Dragon*, from Tor Books (October 2003)

Science Fiction Novel: *Spider Star*, from Tor Books (March 2008)

Astronomy presentations at science fiction conventions:

MilehiCon, Denver, CO (2003-2005, 2007), Worldcon (2003-2004, 2006), CoSine, Colorado Springs, CO (2005, 2007), Archon, St. Louis, MO (2005, 2007)

2007, August, Speaker to amateur astronomy Wyoming Weekend Under the Stars,

2005, Developed "Astronomy through Science Fiction" activities for University of Wyoming Astro Camp