

Curriculum Vitae for Dr. Bret Lehmer

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Education

- 2007 Ph.D., Astronomy and Astrophysics, Penn State University
 Thesis: *Characterizing the X-ray Properties and Evolution of Distant Galaxies Using Deep Multiwavelength Surveys.*
- 2002 B.S., Physics and Astronomy, University of Iowa

Research Interests

Extragalactic multiwavelength surveys of normal and active galaxies; The formation and evolution of X-ray binary and compact object populations in galaxies; the coevolution of galaxies and their central supermassive black holes.

Research Positions

- 2012–present Research Associate, Johns Hopkins/Goddard, USA
- 2009–2012 Einstein Fellow, Johns Hopkins/Goddard, USA
- 2007–2009 Science and Technology Facilities Council (STFC) Fellow, Durham, UK
- 2004–2007 Research Assistant at Penn State. Advisor: Prof. Niel Brandt
- Summer 2001 REU in Astronomy at Iowa State University. Advisor: Dr. Reed Riddle
- 1999–2002 Lab Assistant in Plasma Physics at University of Iowa. Advisor: Prof. Fred Skiff

Teaching And Mentoring

- 2010–present Primary Advisor for Undergraduate/Graduate Student Research at Goddard: Matthew Berkeley (2013),* Johanna-Laina Fischer (2013), Adrian Lucy (2012),* Kumiko Morihana (2010), Josh Tyler (2014).
- Summer 2013 Co-Advisor for Baltimore Excellence in STEM Teaching (BEST) summer program high school teachers Greg Hrinda and Doug Heeter.
- 2008–2009 Advisor/Co-Advisor for Master’s Student Research Projects at Durham: Nichole Cunningham (2008) and Alice Danielson (2008–2009).*
- 2008–2009 Lecturer and Course Co-Creator for “AGNs and Galaxies” seminar at Durham
- 2007–2008 Physics Undergraduate Laboratory Assistant, Durham University
- Spring 2007 Guest Lecturer for Astro 010 and Astro 130 at Penn State; three lectures
- 2004–2007 Tutor and Mentor for > 30 Individual High School and Undergraduate Students
- 2002–2004 Teaching Assistant for Astro 011 at Penn State

*Research with student published in refereed journal (see “Publications” below).

Service And Outreach

- 2011–present Volunteer at AAS meetings (Chambliss poster judge and session chair)

- 2009–present Regular Contributor to Department Lunch Talks, Group Journal Club, and Outreach Events at Goddard (e.g., Planet Walk and Ask an Astrophysicist; see http://imagine.gsfc.nasa.gov/docs/ask_astro/ask_an_astronomer.html).
- 2007–present Referee for the A&A, ApJ, ApJL, and MNRAS Journals
- 2011, 2013 Time Allocation Committee Reviewer for *Chandra* Cycles 13 and 15
- 2009 White Paper Contributor to Astro2010: National Academies Decadal Survey
- 2007–2009 Organizational Committee for Durham–Edinburgh Extragalactic Workshops: see <http://www.roe.ac.uk/ifa/Meetings/DEX/V/>
- 2002–2007 Regular Volunteer at Penn State Astronomy Outreach Activities
- 2001–2002 President, Society of Physics Students (SPS) at University of Iowa

Grants Awarded

- 2014– PI, *Hubble Space Telescope* Cycle 19 Grant GO-12760, *Unveiling the Black Hole Growth Mechanisms in the Protocluster Environment at $z \sim 3$* , **\$TBD**
- 2014– Co-I, *Chandra* Cycle 15 Grant (proposal 15900132), *The Chandra Deep Field-South: A Peerless Ultradeep Survey for Exploring the Distant X-ray Universe*, **\$11,317**
- 2014– PI, *Chandra* Cycle 15 Grant (proposal 15620805), *Testing the Universality of the Stellar IMF using Chandra*, **\$55,367**
- 2013– PI, NASA Astrophysical Data Analysis Program (ADAP), *A Subgalactic Multiwavelength Perspective on the Formation of X-ray Binary Populations: An In-Depth Study of Nearby Galaxies*, **\$453,551**
- 2012– Co-I, *Chandra* Cycle 14 Grant GO3-14145, *Far-infrared powered Inverse Compton halos around high-redshift radio galaxies*, **\$75,516**
- 2011– PI, *Hubble Space Telescope* Cycle 19 Grant GO-12760, *Direct Chandra Constraints on the Evolution of Field LMXB Populations*, **\$14,178**
- 2011– PI, *Chandra* Cycle 13 Grant GO2-13107A, *Direct Chandra Constraints on the Evolution of Field LMXB Populations*, **\$44,824**
- 2011–2013 PI, *Chandra* Cycle 13 Grant GO2-13138A, *Investigating the Coeval Growth of SMBHs and Galaxies in a $z = 2.23$ Overdense Region*, **\$41,400**
- 2010–2013 Co-I, *Chandra* Cycle 12 Grant GO1-12173X, *Testing Inverse Compton Heating in High- z Galaxies*, **\$16,425**
- 2009–2012 PI, Einstein Fellowship, *Towards an Understanding of the Star Formation and Supermassive Black Hole Growth History of the Universe Using Deep Extragalactic Surveys*, **\$325,453**
- 2007–2009 PI, Science and Technology Facilities Council (STFC) Fellowship (UK), *Studying the X-ray Properties and Evolution of Extragalactic Sources Using Multiwavelength Surveys*, **~\$220,000** (£141,000)

Awards

- 2007 Downsborough Graduate Fellowship Recipient, Penn State
- 2005–2007 NASA Space Grant Recipient, Penn State
- 2003, 2004 Zaccheus Daniel Supplemental Scholarship, Penn State
- 2002–2003 Braddock Fellowship, Penn State
- 2002 Distinguished Service Award, University of Iowa

Publicity

- June 2013 NASA Press Release: “Black Hole Naps Amidst Stellar Chaos.”
at http://www.nasa.gov/mission_pages/nustar/news/nustar20130611.html.
Covered by many world-wide news syndicates including, e.g., BBC.
- May 2012 Commentary on Sky & Telescope: “X-ray Outburst in Spiral Galaxy M83.”
- June 2009 *Chandra* Press Release: “Galaxies Coming of Age in Cosmic Blobs” article
at http://chandra.harvard.edu/press/09_releases/press_062409.html.
Covered by >200 news syndicates including, e.g., The Associated Press, New
York Times, National Geographic, Bad Astronomy Blog.
- May 2008 *Chandra* Website Blog: “Going deep with *Chandra*” article available at
<http://chandra.harvard.edu/blog/node/65>
- April 2008 Astronomy Now Special Report: “More is less when it comes to star formation
in galaxies”

References

Prof. Niel Brandt <i>Graduate Thesis Advisor</i> Dept of Astronomy & Astrophysics Penn State University 525 Davey Lab University Park, PA 16802 United States Tel: +1 814 865-3509 niel@astro.psu.edu	Prof. Dave Alexander <i>Research Collaborator</i> Dept of Physics The University of Durham South Road Durham, DH1 3LE United Kingdom Tel: +44 191 334-3594 d.m.alexander@durham.ac.uk	Dr. Ann Hornschemeier <i>Research Collaborator</i> NASA/Goddard Code 662, ASD Laboratory for X-ray Astrophysics Greenbelt, MD 20771 United States Tel: +1 301 286-7632 Ann.Hornschemeier@nasa.gov
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Articles Published or Submitted to Refereed Journals

Below I have listed only articles that have been published or recently submitted to refereed journals. As of July 2014, the publications below have received a total of 2402 citations (h -index = 25), with 529 of these citations from my first-author publications.

1. Wik, D. R., **Lehmer, B. D.**, Hornschemeier, A. E., Yukita, M., Ptak, A., Antoniou, V., Argo, M. K., Boggs, S., Christensen, F., Craig, W., Hailey, W., Harrison, F., Krivonos, R., Maccarone, T. J., Stern, D., Venters, T., & Zhang, W. 2014, ApJ, submitted, “Spatially Resolving a Starburst Galaxy at Hard X-Ray Energies: *NuSTAR*, *Chandra*, and VLBA Observations of NGC 253”
2. Ptak, A., Hornschemeier, A. E., Zezas, A., **Lehmer, B. D.**, Yukita, M., Wik, D., Antoniou, V., Argo, M. K., Ballo, L., Bechtol, K., Boggs, S., Della Ceca, R., Christensen, F. E., Craig, W. W., Hailey, C. J., Harrison, F. A., Krivonos, R., Maccarone, T. J., Stern, D., Tatum, M., Venters, T., & Zhang, W. W. 2014, ApJ, submitted, “A Focused, Hard X-ray Look at Arp 299”
3. Luangtip, W., Roberts, T. P., Mineo, S., **Lehmer, B. D.**, Alexander, D. M., Jackson, F. E., Goulding, A. D., & Fischer, J.-L., 2014, MNRAS, submitted, “A Deficit of Ultraluminous X-ray Sources in Luminous Infrared Galaxies”
4. Yang, G., Xue, Y. Q., Alexander, D. M., Bauer, F. E., Brandt, W. N., Cui, W., Kong, W., **Lehmer, B. D.**, Luo, B., Wang, J.-X., Wu, X.-B., Yuan, F., Yuan, Y.-F., and Zhou, H. Y. 2014, ApJS, submitted, “Photometric Redshifts in the Hawaii-Hubble Deep Field-North (H-HDF-N)”
5. **Lehmer, B. D.**, Berkeley, M.,* Zezas, A., Alexander, D. M., Basu-Zych, A., Bauer, F. E., Brandt, W. N., Fragos, T., Hornschemeier, A. E., Kalogera, V., Ptak, A., Sivakoff, G. R., Tzanavaris, P. & Yukita, M. 2014, ApJ, 789, 52, “The X-ray Luminosity Functions of Field Low Mass X-ray Binaries in Early-Type Galaxies: Evidence for A Stellar Age Dependence” (*paper with advised student)
6. Maccarone, T. J., **Lehmer, B. D.**, Leyder, J.-C., Antoniou, V., Hornschemeier, A. E., Ptak, A., Wik, D. R., & Zezas, A. 2014, MNRAS, 439, 3064, “A New Candidate Wolf-Rayet X-ray Binary in NGC 253”
7. Peacock, M. B., Zepf, S. E., Maccarone, T. J., Kundu, A., Gonzalez, A. H., **Lehmer, B. D.**, & Maraston, C. 2014, ApJ, 784, 162, “Evidence for a Constant IMF in Early-Type Galaxies Based on their X-ray Binary Populations”
8. Mineo, S., Gilfanov, M., **Lehmer, B. D.**, Morrison, G., & Sunyaev, R. 2014, MNRAS, 437, 1698, “X-ray emission from star-forming galaxies - III. Calibration of the L_X -SFR relation up to redshift $z \approx 1.3$ ”
9. Wang, S. X., Brandt, W. N., Luo, B., Smail, I., Alexander, D. M., Danielson, A. L. R., Hodge, J. A., Karim, A., **Lehmer, B. D.**, Simpson, J. M., Swinbank, A. M., Walter, F., Wardlow, J. L., Xue, Y. Q., Chapman, S. C., Coppin, K. E. K., Dannerbauer, H., De Breuck, C., Menten, K. M., & van der Werf, P. 2013, ApJ, 778, 179, “An ALMA Survey of Submillimeter Galaxies in the Extended Chandra Deep Field-South: The AGN Fraction and X-ray Properties of Submillimeter Galaxies”

10. Kubo, M., Uchimoto, Y. K., Yamada, T., Kajisawa, M., Ichikawa, T., Matsuda, Y., Akiyama, M., Hayashino, T., Konishi, M., Nishimura, T., Omata, K., Suzuki, R., Tanaka, I., Yoshikawa, T., Alexander, D. M., Fazio, G. G., Huang, J.-S., & **Lehmer, B. D.** 2013, ApJ, 778, 170, “The Formation of the Massive Galaxies in the SSA22 $z = 3.1$ Protocluster.”
11. Fragos, T., **Lehmer, B. D.**, Naoz, S., Basu-Zych, A., & Zezas, A. 2013, ApJL, 776, 31, “Energy Feedback from X-ray Binaries in the Early Universe.”
12. Tzanavaris, P., Fragos, T., Tremmel, M., Jenkins, L., Zezas, A., **Lehmer, B. D.**, Hornschemeier, A., Kalogera, V., Ptak, A., Basu-Zych, A. R. 2013 ApJ, 774, 136, “Modeling X-ray Binary Evolution in Normal Galaxies: Insights from SINGS”
13. Basu-Zych, A. R., **Lehmer, B. D.**, Hornschemeier, A. E., Goncalves, T. S., Fragos, T., Heckman, T., Overzier, R., & Ptak, A. 2013, ApJ, 774, 152, “Evidence for Elevated X-ray Emission in Local Lyman Break Galaxy Analogs.”
14. **Lehmer, B. D.**, Wik, D. R., Hornschemeier, A. E., Ptak, A., Antoniou, V., Bechtol, K., Boggs, S., Christensen, F. E., Craig, W. W., Hailey, C. J., Harrison, F. A., Krivonos, R., Leyder, J.-C., Maccarone, T. J., Stern, D., Venters, T., Zezas, A., & Zhang, W. W. 2013, ApJ, 771, 134, “*NuSTAR* and *Chandra* Insight into the Nature of the 3–40 keV Nuclear Emission in NGC 253” (**3 citation**)
15. Tremmel, M., Fragos, T., **Lehmer, B. D.**, Tzanavaris, P., Belczynski, K., Kalogera, V., Basu-Zych, A. R., Farr, W., Hornschemeier, A., Jenkins, L., Ptak, A., & Zezas, A. 2013, ApJ, 766, 19, “Simulating the Redshift Evolution of Normal Galaxy X-ray Luminosity Functions.”
16. **Lehmer, B. D.**, Lucy, A. B.*, Alexander, D. M., Best, P. N., Geach, J. E., Harrison, C. M., Hornschemeier, A. E., Matsuda, Y., Mullaney, J. R., Smail, Ian, Sobral, D., & Swinbank, A. M. 2013, ApJ, 762, 87, “Concurrent Supermassive Black Hole and Galaxy Growth: Linking Environment and Nuclear Activity in $z = 2.23$ H α Emitters” (**1 citation; *paper with advised student**)
17. Fragos, T., **Lehmer, B. D.**, Tremmel, M., Tzanavaris, P., Basu-Zych, A., Belczynski, K., Hornschemeier, A. Jenkins, L. Kalogera, V., Ptak, A. & Zezas, A. 2013, ApJ, 764, 41, “X-ray Binary Evolution Across Cosmic Time.”
18. Vito, F., Vignali, C., Gilli, R., Comastri, A., Iwasawa, K., Brandt, W. N., Alexander, D., Brusa, M., **Lehmer, B. D.**, Bauer, F. E., Schneider, D. P., Xue, Y. Q., & Luo, B. 2013, MNRAS, 428, 354, “The High-Redshift ($z > 3$) Active Galactic Nucleus Population in the 4 Ms *Chandra* Deep Field-South.”
19. Basu-Zych, A., **Lehmer, B. D.**, Hornschemeier, A. E., Bouwens, R. J., Fragos, T., Oesch, P. A., Belczynski, K., Brandt, W. N., Kalogera, V., Luo, B., Miller, N., Mullaney, J. R., Tzanavaris, P., Xue, Y. Q., & Zezas, A. 2013, ApJ, 762, 45, “The X-ray Star Formation Story as Told by Lyman Break Galaxies in the 4 Ms CDF-S”
20. Smail, I., Blundel, K. M., **Lehmer, B. D.**, & Alexander, D. M. 2012, ApJ, 760, 132, “Inverse Compton X-ray Halos Around High- z Galaxies: A Feedback Mechanism Powered By Far-Infrared Starbursts Or The CMB?”

21. Xue, Y. Q., Wang, S. X., Brandt, W. N., Luo, B., Alexander, D. M., Bauer, F. E., Comastri, A., Fabian, A. C., Gilli, R., **Lehmer, B. D.**, Schneider, D. P., Vignali, C., & Young, M. 2012, *ApJ*, 758, 129, “Tracking Down the Source Population Responsible for the Unresolved Cosmic 6–8 keV Background”
22. **Lehmer, B. D.**, Xue, Y. Q., Alexander, D. M., Bauer, F. E., Brandt, W. N., Brusa, M., Comastri, A., Gilli, R., Hornschemeier, A. E., Luo, B., Paolillo, M., Ptak, A., Shemmer, O., Schneider, D. P., Tozzi, P., & Vignali, C., 2012, *ApJ*, 752, 46, “The 4 Ms *Chandra* Deep Field-South Number Counts Apportioned by Source Class: Pervasive Active Galactic Nuclei and the Ascent of Normal Galaxies” (**44 citations**)
23. Danielson, A. L. R.*, **Lehmer, B. D.**, Alexander, D. M., Brandt, W. N., Luo, B., Miller, N., Xue, Y. Q. 2012, *MNRAS*, 422, 494, “The Cosmic History of Hot Gas Cooling and Radio AGN Activity in Massive Early-Type Galaxies” (***paper with advised student**)
24. Young, M., Brandt, W. N., Xue, Y. Q., Paolillo, M., Alexander, D. M., Bauer, F. E., **Lehmer, B. D.**, Luo, B., Shemmer, O., Schneider, D. P., Vignali, C. 2012, *ApJ*, 748, 124, “Variability Selected Low-Luminosity Active Galactic Nuclei in the 4 Ms *Chandra* Deep Field-South”
25. Rafferty, D. A., Brandt, W. N., Alexander, D. M., Xue, Y. Q., Bauer, F. E., **Lehmer, B. D.**, Luo, B., & Papovich, C. 2011, *ApJ*, 742, 3, “Supermassive Black Hole Growth in Starburst Galaxies Over Cosmic Time: Constraints from the Deepest *Chandra* Fields”
26. Luo, B., Brandt, W. N., Xue, Y. Q., Alexander, D. M., Brusa, M., Bauer, F. E., Comastri, A., Fabian, A. C., Gilli, R., **Lehmer, B. D.**, Rafferty, D. A., Schneider, D. P., & Vignali, C. 2011, *ApJ*, 740, 37, “Revealing a Population of Heavily Obscured Active Galactic Nuclei at $z \approx 0.5$ –1 in the *Chandra* Deep Field-South”
27. Basu-Zych, A. R., Hornschemeier, A., Hoversten, E., **Lehmer, B. D.**, & Gronwall, C. 2011, *ApJ*, 739, 98, “A Search for Lyman Break Galaxies in the *Chandra* Deep Field-South using *Swift* UVOT”
28. Alexander, D. M., Bauer, F. E., Brandt, W. N., Daddi, E., Hickox, R. C., **Lehmer, B. D.**, Luo, B., Xue, Y. Q., Comastri, A., Fabian, A. C., Gilli, R., Goulding, A. D., Mainieri, V., Mullaney, J. R., Paolillo, M., Rafferty, D. A., Schneider, D. P., Shemmer, O., & Vignali, C. 2011, *ApJ*, 738, 44, “X-ray Spectral Constraints of $z \approx 2$ Infrared-Bright Galaxies: Searching for Compton-Thick Active Galactic Nuclei”
29. Xue, Y. Q., Brandt, W. N., Bauer, F. E., **Lehmer, B. D.**, Broos, P. S., Schneider, D. P., Alexander, D. M., Brusa, M., Comastri, A., Fabian, A. C., Gilli, R., Hasinger, G., Hornschemeier, A. E., Koekemoer, A., Mainieri, V., Paolillo, M., Rafferty, D. A., Rosati, P., Shemmer, O., Silverman, J. D., Smail, I., Liu, T., Tozzi, P., & Vignali, C. 2011, *ApJS*, 195, 10, “The *Chandra* Deep Field-South Survey: 4 Ms Source Catalogs”
30. Tamura, Y., Iono, D., Wilner, D. J., Kajisawa, M., Alexander, D. M., Chung, A., Ezawa, H., Hatsukade, B., Hayashino, T., Hughes, D. H., Ichikawa, T., Ikarashi, S., Kawabe, R., Kohno, K., **Lehmer, B. D.**, Matsuda, Y., Nakanishi, K., Takata, T., Uchimoto, Y. K., Wilson, G. W., Yamada, T., Yun, M. S. 2010, *ApJ*, 724, 1270, “Submillimeter Array Identification of the Millimeter-Selected Galaxy SSA22-AzTEC1: A Proto-Quasar in a Protocluster?”

31. Silverman, J. D., Mainieri, V., Bergeron, J., Capak, P., Szokoly, G., Finoguenov, A., Hasinger, G., Salvato, M., Gilli, R., Rosati, P., Tozzi, P., Vignali, C., Alexander, D. M., Brandt, W. N., **Lehmer, B. D.**, Luo, B., Rafferty, D., Xue, Y. Q., Balestra, I., Bauer, F. E., Brusa, M., Comastri, A., Kartaltepe, J., Koekemoer, A. M., Miyaji, T., Schneider, D. P., Treister, E., Wisotski, L., Schramm, M. 2010, ApJS, 191, 124, “The Extended *Chandra* Deep Field-South Survey: Optical Spectroscopy of Faint X-ray Sources with the VLT and Keck”
32. **Lehmer, B. D.**, Alexander, D. M., Bauer, F. E., Brandt, W. N., Goulding, A. D., Jenkins, L. P., Ptak, A., Roberts, T. P. 2010, ApJ, 724, 559, “A *Chandra* Perspective on Galaxy-Wide X-ray Binary Emission and its Correlation with Star Formation Rate and Stellar Mass: New Results from Luminous Infrared Galaxies” (**76 citations**)
33. Xue, Y. Q., Brandt, W. N., Luo, B., Rafferty, D. A., Alexander, D. M., Bauer, F. E., **Lehmer, B. D.**, Schneider, D. P., & Silverman, J. D. 2010, ApJ, 720, 368, “Color-Magnitude Relations of Active and Non-Active Galaxies in the *Chandra* Deep Fields: High-Redshift Constraints and Stellar-Mass Selection Effects”
34. Goulding, A. D., Alexander, D. M., **Lehmer, B. D.**, Mullaney, J. R. 2010, MNRAS, 406, 597, “Towards a Complete Census of AGN Activity in the Local Universe: The Incidence of Growing Black Holes”
35. Luo, B., Brandt, W. N., Xue, Y. Q., Brusa, M., Alexander, D. M., Bauer, F. E., Comastri, A., Koekemoer, A., **Lehmer, B. D.**, Mainieri, V., Rafferty, D. A., Schneider, D. P., Silverman, J. D., Vignali, C. V. 2010, ApJS, 187, 560, “Identifications and Photometric Redshifts of the 2 Ms *Chandra* Deep Field-South Sources”
36. **Lehmer, B. D.**, Alexander, D. M., Chapman, S. C., Smail, Ian, Bauer, F. E., Brandt, W. N., Geach, J. E., Matsuda, Y., Mullaney, J. R., Swinbank, A. M. 2009, MNRAS, 400, 299, “The *Chandra* Deep Protocluster Survey: Point-Source Catalogs for a 400 ks Observation of the $z = 3.09$ Protocluster in SSA22” (**10 citations**)
37. Smail, Ian, **Lehmer, B. D.**, Ivison, R. J., Alexander, D. M., Bower, R. G., Stevens, J. A., Geach, J. E., Scharf, C. A., Coppin, K. E. K., van Breugel, W. J. M. 2009, ApJ, 702, 114, “A 100 kpc Inverse Compton X-Ray Halo Around 4C 60.07 at $z = 3.79$ ”
38. Geach, J. E., Alexander, D. M., **Lehmer, B. D.**, Smail, Ian, Matsuda, Y., Chapman, S. C., Scharf, C. A., Ivison, R. J., Volonteri, M., Yamada, T., Blain, A. W., Bower, R. G., Bauer, F. E., & Basu-Zych, A. 2009, ApJ, 700, 1, “The *Chandra* Deep Protocluster Survey: Ly α Blobs are powered by heating, not cooling”
39. Coppin, K. E. K., Smail, Ian, Alexander, D. M., Weiss, A., Walter, F., Swinbank, A. M., Greve, T. R., Kovacs, A., De Breuck, C., Dickinson, M., Ibar, E., Ivison, R. J., Reddy, N., Spinrad, H., Stern, D., Brandt, W. N., Chapman, S. C., Dannerbauer, H., van Dokkum, P., Dunlop, J. S., Frayer, D., Gawiser, E., Geach, J. E., Huynh, M., Knudsen, K. K., Koekemoer, A. M., **Lehmer, B. D.**, Menten, K., Papovich, C., Rix, H.-W., Schinnerer, E., Wardlow, J. L., van der Werf, P. P. 2009, MNRAS, 395, 1905, “A Submillimetre Galaxy at $z = 4.76$ in the LABOCA survey of the Extended *Chandra* Deep Field South”
40. Tozzi, P., Mainieri, V., Rosati, P., Padovani, P., Kellermann, K., Fomalont, E., Miller, N., Shaver, P., Bergeron, J., Brandt, W. N., Brusa, M., Giacconi, R., Hasinger, G., **Lehmer,**

- B. D.**, Nonino, M., Norman, C., & Silverman, J. 2009, ApJ, 698, 740, “The VLA Survey of the *Chandra* Deep Field South III: X-ray Spectral Properties of Radio Sources”
41. Luo, B., Brandt, W. N., Silverman, J. D., Strateva, I. V., Bauer, F. E., Capak, P., Kartaltepe, J., **Lehmer, B. D.**, Mainieri, V., Salvato, M., Schneider, D. P., Szokoly, G., & Vignali, C. 2009 ApJ, 179, 19, “Discovery of the Most Distant Double-Peaked Emitter At $z = 1.369$ ”
 42. **Lehmer, B. D.**, Alexander, D. M., Geach, J. E., Smail, Ian, Basu-Zych, A., Bauer, F. E., Chapman, S. C., Matsuda, Y., Scharf, C. A., Volonteri, M., & Yamada, T. 2009 ApJ, 691, 687, “The *Chandra* Deep Protocluster Survey: Evidence for an Enhancement of AGN Activity in the SSA22 Protocluster at $z = 3.09$ ” (**29 citations**)
 43. Luo, B., Bauer, F. E., Brandt, W. N., Alexander, D. M., **Lehmer, B. D.**, Schneider, D. P., Brusa, M., Comastri, A., Fabian, A. C., Finoguenov, A., Gilli, R., Hasinger, G., Hornschemeier, A. E., Koekemoer, A., Mainieri, V., Paolillo, M., Rosati, P., Shemmer, O., Silverman, J. D., Smail, I., Steffen, A. T., & Vignali, C. 2008, ApJS, 179, 19, “The *Chandra* Deep Field-South Survey: 2 Ms Source Catalogs”
 44. **Lehmer, B. D.**, Brandt, W. N., Alexander, D. M., Bell, E. F., Hornschemeier, A. E., McIntosh, D. M., Bauer, F. E., Gilli, R., Mainieri, V., Schneider, D. P., Silverman, J. D., Steffen, A. T., Tozzi, P., & Wolf, C. 2008, ApJ, 681, 1163, “Tracing the Mass-Dependent Star Formation History of Late-Type Galaxies Using X-ray Emission: Results from the *Chandra* Deep Fields” (**55 citations**)
 45. Saez, C., Chartas, G., Brandt, W. N., **Lehmer, B. D.**, Bauer, F. E., Dai, X., & Garmire, G. P. 2008, AJ, 135, 1505, “A Study of AGN X-ray Spectral Evolution”
 46. Silverman, J. D., Mainieri, V., **Lehmer, B. D.**, Alexander, D. M., Bauer, F. E., Bergeron, J., Brandt, W. N., Gilli, R., Hasinger, G., Tozzi, P., Vignali, C., Koekemoer, A. M., Miyaji, T., Rosati, P., Schneider, D. P., & Szokoly, G. 2008, ApJ, 675, 1025, “The Evolution of AGN Host Galaxies: From Blue to Red and Acceleration in Large-Scale Structures”
 47. Steffen, A. T., Brandt, W. N., Alexander, D. M., Gallagher, S. C., & **Lehmer, B. D.** 2007, ApJL, 667, 25, “*Chandra* Stacking Constraints on the Contribution of 24 micron *Spitzer* Sources to the Unresolved Cosmic X-ray Background”
 48. Grownwall, C., Ciardullo, R. B., Hickey, T., Gawaiser, E., Feldmeier, J. J., van Dokkum, P. G., Urry, C. M., Herrera, D., **Lehmer, B. D.**, Infante, L., Orsi, A., Marchesini, D., Blanc, G. A., Francke, H., Lira, P., & Treister, E. 2007, ApJ, 667, 79, “Ly α Emission-Line Galaxies at $z = 3.1$ in the Extended *Chandra* Deep Field-South”
 49. **Lehmer, B. D.**, Brandt, W. N., Alexander, D. M., Bell, E. F., McIntosh, D. H., Bauer, F. E., Hasinger, G., Mainieri, V., Miyaji, T., Schneider, D. P., & Steffen, A. T. 2007, ApJ, 657, 681. “The X-ray Evolution of Early-Type Galaxies in the Extended *Chandra* Deep Field-South” (**41 citations**)
 50. Worsley, M. A., Fabian, A. C., Bauer, F. E., Alexander, D. M., Brandt, W. N., & **Lehmer, B. D.** 2006, MNRAS, 368, 1735. “Can the unresolved X-ray background be explained by the emission from the optically-detected faint galaxies of the GOODS project?”

51. Steffen, A. T., Strateva, I., Brandt, W. N., Alexander, D. M., Koekemoer, A. M., **Lehmer, B. D.**, Schneider, D. P., & Vignali, C. 2006, AJ, 131, 2826. “The X-ray-to-Optical Properties of Optically Selected Active Galaxies over Wide Luminosity and Redshift Ranges”
52. **Lehmer, B. D.**, Brandt, W. N., Hornschemeier, A. E., Alexander, D. M., Bauer, F. E., Koekemoer, A. M., Schneider, D. P., & Steffen, A. T. 2006, AJ, 131, 2394. “The Properties and Redshift Evolution of Intermediate-Luminosity Off-Nuclear X-ray Sources in the *Chandra* Deep Fields” (**22 citations**)
53. **Lehmer, B. D.**, Brandt, W. N., Alexander, D. M., Bauer, F. E., Schneider, D. P., Tozzi, P., Bergeron, J., Garmire, G. P., Giacconi, R., Gilli, R., Hasinger, G., Hornschemeier, A. E., Koekemoer, A. M., Mainieri, V., Miyaji, T., Nonino, M., Rosati, P., Silverman, J. D., Szokoly, G., & Vignali, C. 2005, ApJS, 161, 21. “The Extended *Chandra* Deep Field-South Survey: *Chandra* Point-Source Catalogs” (**190 citations**)
54. Daddi, E., Dickinson, M., Chary, R., Pope, A., Morrison, G., Alexander, D. M., Bauer, F. E., Brandt, W. N., Giavalisco, M., Ferguson, H., Lee, K.-S., **Lehmer, B. D.**, Papovich, C., & Renzini, A. 2005, ApJL, 631, L13. “The Population of *BzK*-selected ULIRGs at $z \sim 2$ ”
55. **Lehmer, B. D.**, Brandt, W. N., Alexander, D. M., Bauer, F. E., Conselice, C. J., Dickinson, M. E., Giavalisco, M., Grogin, N. A., Koekemoer, A. M., Lee, K.-S., Moustakas, L. A., & Schneider, D. P. 2005, AJ, 129, 1. “X-ray Properties of Lyman Break Galaxies in the Great Observatories Origins Deep Survey” (**58 citations**)
56. Bauer, F. E., Brandt, W. N., & **Lehmer, B.** 2003, AJ, 126, 2797. “The X-ray Properties of the Nearby Star-Forming Galaxy IC 342: The XMM-Newton View”

Contributed Papers

1. Tzanavaris, P., Fragos, T., Tremmel, M., Jenkins, L., Zezas, A., **Lehmer, B. D.**, Hornschemeier, A., Kalogera, V., Ptak, A., & Basu-Zych, A. R. 2013, “XSINGS: probing X-ray binaries in galaxies . *Chandra* observations and supercomputer simulations,” *X-ray Astronomy - Towards the Next 50 Years*, Milan, Italy.
2. Vito, F., Vignali, C., Gilli, R., Comastri, A., Iwasawa, K., Brandt, W. N., Alexander, D. M., Brusa, M., **Lehmer, B.**, Bauer, F. E., Schneider, D. P., Xue, Y. Q., & Luo, B. 2013, “The $z > 3$ AGN population in the 4 Ms CDFS,” *X-ray Astronomy - Towards the Next 50 Years*, Milan, Italy.
3. Basu-Zych, Antara, Hornschemeier, Ann, **Lehmer, Bret**, Ptak, Andy, Jenkins, Leigh, Overzier, Roderik, & Heckman, Tim 2011, “X-ray Properties of Local Lyman Break Galaxy Analogs,” *The X-ray Universe 2011*, Berlin, Germany.
4. Xue, Y. Q., Brandt, W. N., Luo, B., Rafferty, D. A., Alexander, D. M., Bauer, F. E., **Lehmer, B. D.**, Silverman, J. D. 2011, “Color-Magnitude Relations of Active and Non-Active Galaxies in the *Chandra* Deep Fields: Stellar-Mass Selection Effects and High-Redshift Constraints,” *The Galactic Center: A Window to the Nuclear Environment of Disk Galaxies*, Shanghai, China.
5. **Lehmer, Bret**, & the *Chandra* Deep Field Collaboration 2010, “Studying the Evolution of Normal Galaxy Populations in X-rays: Results from the Deepest *Chandra* Surveys,” *X-ray Astronomy 2009*, Bologna, Italy.

6. Zezas, Andreas, Hornschemeier, Ann, Fabbiano, Guisepina, Brissenden, Roger, Elvis, Martin, Gallagher, Jay, Jenkins, Leigh, Kalogera, Vicky, **Lehmer, Bret**, Ptak, Andy, Strickland, David, Ward, Martin 2009, “Accreting Binary Populations and ISM Evolution in Galaxies,” *Astro2010: The Astronomy and Astrophysics Decadal Survey*, Science White Papers, no. 331.
7. **Lehmer, Bret**, Brandt, Niel, Alexander, Dave, Brissenden, Roger, Elvis, Martin, Hornschemeier, Ann, Schwartz, Dan 2009, “The Formation and Growth of the First Black Holes,” *Astro2010: The Astronomy and Astrophysics Decadal Survey*, Science White Papers, no. 179.
8. Rafferty, D. A., Brandt, W. N., Alexander, D. M., Xue, Y. Q., Bauer, F. E., **Lehmer, B. D.**, Luo, B., & Papovich, C. 2009, “Supermassive Black Hole Growth in Starburst Galaxies: Constraints from the Deepest *Chandra* Fields,” *The Monster’s Fiery Breath: Feedback in Galaxies, Groups, and Clusters*, Madison, Wisconsin.
9. Alexander, David M., **Lehmer, Bret**, Geach, Jim, Bauer, Franz, Chapman, Scott, Matsuda, Yuichi, Smail, Ian, & Yamada, Toru 2008, “Robust identification of distant Compton-thick AGNs,” *The X-ray Universe 2008*, Granada, Spain.
10. Chartas, George, Saez, Cristian, Dai, Xinyu, Brandt, Niel, **Lehmer, Bret**, Bauer, Franz, & Garmire, Gordon 2007, “*Chandra* Deep Field Surveys Reveal AGN Spectral Evolution,” *X-ray Surveys, Evolution of Accretion, Star-Formation and the Large Scale Structure*, Rodos Island, Greece.
11. Strateva, I., Steffen, A., Brandt, W., Alexander, D., Koekemoer, A., **Lehmer, B.**, Schneider, D., & Vignali, C. 2006, “The UV-to-X-ray Emission Ratio in AGN: Luminosity Dependence and No Redshift Evolution,” *Proceedings of the The X-ray Universe 2005*, Madrid, Spain.
12. Worsley, M. A., Fabian, A. C., Alexander, D. M., Bauer, F. E., Brandt, W. N., Hasinger, G., & **Lehmer, B. D.** 2005, “Resolving the X-ray Background,” *Astrophysical Sources of High-Energy Particles and Radiation*, Torun, Poland.
13. Brandt, W. N., Vignali, C., **Lehmer, B. D.**, Lopez, L. A., Schneider, D. P., & Strateva, I. V. 2005, “X-rays from the First Massive Black Holes” *Proceedings from Growing black holes: accretion in a cosmological context*, Garching, Germany.

Invited Talks and Colloquia

1. “From Cosmic Dawn to Today: A History of the Concurrent Evolution of Galaxies and their X-ray Binary Populations” *United States Naval Observatory (USNO)*, Washington, DC (colloquium)
2. “X-ray Binaries Through Cosmic Time: A New Window into Galaxy Evolution” *University of Crete*, Heraklion, Greece (seminar)
3. “The History of Compact Object Formation in Galaxies: Clues from X-ray Binary Population Studies” *The Catholic University of America*, Washington, DC, 2014 (colloquium)
4. “New Territory with NuSTAR: A First Focused View of Hard X-rays From Starburst/Normal Galaxies” *Goddard/JHU Interaction Meeting*, Baltimore, MD, 2013 (invited talk)
5. “The Co-evolution of Galaxies and X-ray Binaries Across the Vast Expanse of Cosmic History” *University of North Texas Colloquium*, Denton, TX, 2013 (colloquium)

6. “The Co-evolution of Galaxies and X-ray Binaries Across the Vast Expanse of Cosmic History” *Munich Joint Astronomy Colloquium*, Garching, Germany, 2012 (JAC colloquium)
7. “The Formation and Evolution of X-ray Binaries: Insight from X-ray and Multiwavelength Observations of Galaxies Both Near and Far” *University of Science and Technology of China (USTC)*, Hefei, China, 2012 (colloquium)
8. “X-ray Emission as a SFR Indicator: The Status of Calibrations using Nearby and Cosmologically Distant Galaxies” *The International Astronomical Union XXVIII General Assembly: SpS8*, Beijing, China, 2012 (invited talk)
9. “The 4 Ms CDF-S Number Counts: Pervasive Active Galactic Nuclei and the Ascent of Normal Galaxies” *The 220th Meeting of the American Astronomical Society*, Anchorage, AK, 2012 (invited talk)
10. “The Formation and Evolution of X-ray Binaries: Insight from X-ray and Multiwavelength Observations of Galaxies Both Near and Far” *George Washington University*, Washington, DC, 2012 (colloquium)
11. “X-ray Number Counts in the 4 Ms *Chandra* Deep Field South (CDF-S): Characterizing New X-ray Source Populations” *Future of Astronomy: Fellows at the Frontiers of Science*, Evanston, IL, 2011 (invited talk)
12. “X-ray Emission from High-Redshift Star-Forming Galaxies: Results from the 4 Ms *Chandra* Deep Field South (CDF-S) Survey” *The 218th Meeting of the American Astronomical Society*, Boston, MA, 2011 (invited talk)
13. “Constraining Accreting Binary Populations in Normal Galaxies” *The 217th Meeting of the American Astronomical Society*, Seattle, WA, 2011 (special invited talk)
14. “New Results From the *Chandra* Deep Protocluster Survey” *University of Maryland*, College Park, MD, 2009 (colloquium)
15. “New Results From the *Chandra* Deep Protocluster Survey” *University of North Carolina*, Chapel Hill, NC, 2009 (colloquium)

Approved Observing/Archival Programs

1. 2014: **PI**, *HST* Cycle 22, “Unveiling the Black Hole Growth Mechanisms in the Protocluster Environment at $z \sim 3$ ”
2. 2014: **Co-I**, ALMA Cycle 2, “The Assembly Line of Normal Galaxies: the Direct Detection of the Dusty Phase of Star Formation at $z \sim 3$ ”
3. 2014: **Co-I**, ALMA Cycle 2, “Confusion-free Mapping of the Node within the Cosmic Web at $z=3.1$ ”
4. 2013: **Co-I**, NASA IRAD, “STAR-X: Survey and Time-domain Astronomical Research Explorer”
5. 2013: **PI**, *Chandra* Cycle 15, “Testing the Universality of the Stellar IMF Using *Chandra*”

6. 2013: **Co-I**, *Chandra* Cycle 15, “0.5–30 keV Imaging of Starbursts with Chandra and NuSTAR”
7. 2013: **Co-I**, *Chandra* Cycle 15, “The Chandra Deep Field-South: A Peerless Ultradeep Chandra Survey”
8. 2013: **PI**, NASA ADAP, “A Subgalactic Multiwavelength Perspective on the Formation of X-ray Binary Populations: An In-Depth Study of Nearby Galaxies”
9. 2013: **NuSTAR Starburst Team Member**, *NuSTAR* Year 1–2 Priority A, “A NuSTAR Survey of Star-Forming Galaxies M82, M83, NGC 3310, NGC 3256, and Arp 299”
10. 2012: **NuSTAR Starburst Team Member**, *NuSTAR* Year 1 Priority A, “Simultaneous NuSTAR, Chandra, and VLBA Monitoring of Nearby Galaxy NGC 253”
11. 2012: **Co-I**, *Chandra* Cycle 14, “Far-infrared powered Inverse Compton halos around high-redshift radio galaxies”
12. 2012: **Co-I**, *Chandra* Cycle 14, “Harnessing the full power of the widest Chandra field: X-ray stacking of AGN & galaxies in the Sloan Digital Sky Survey”
13. 2012: **Co-I**, *Chandra* Cycle 14, “Improved Source Catalogs for the Chandra Deep Field-North and the Extended Chandra Deep Field-South”
14. 2012: **Co-I**, VLT VIMOS Period 89A, “VIMOS Spectroscopy of the $z = 3.09$ Protocluster in SSA22: Identifying the Sites of Black-Hole and Galaxy Growth”
15. 2011: **Co-I**, *Herschel* OT2, “The *Herschel* Proto-cluster Survey: SPIRE Mapping of the Nodes of the Cosmic Web at $z > 2$ ”
16. 2011: **PI**, *Chandra* Cycle 13, “Investigating the Coeval Growth of SMBHs and Galaxies in a $z = 2.23$ Overdense Region”
17. 2011: **PI**, *Chandra* Cycle 13 (jointly with *HST* observations), “Direct *Chandra* Constraints on the Evolution of Field LMXB Populations”
18. 2011: **PI**, *HST* Cycle 19, “Direct *Chandra* Constraints on the Evolution of Field LMXB Populations”
19. 2011: **Co-I**, VLT SINFONI Period 87A, “Extending Searches for Energetic Large-Scale Outflows in a $z = 3.09$ Protocluster”
20. 2010: **Co-I**, *Chandra* Cycle 12, “*Chandra* Observations of Local Lyman Break Galaxy Analogs”
21. 2010: **Co-I**, *Chandra* Cycle 12, “Testing Inverse Compton Heating in High- z Galaxies”
22. 2010: **Co-I**, *HST* Cycle 18, “WFC3/IR Spectroscopy of the Highest Redshift Black Hole Candidates”
23. 2010: **Co-I**, SCUBA-2, “A SCUBA-2 Survey of a QSO Overdensity”
24. 2009: **Co-I**, VLT VIMOS Period 85A, “VIMOS Spectroscopy of the $z = 3.09$ Protocluster in SSA22: Identifying the Sites of Black-Hole and Galaxy Growth”

25. 2009: **Co-I**, VLT SINFONI Period 85A, “Searching for Evidence of Energetic Large-Scale Outflows in a $z = 3.09$ Protocluster”
26. 2009: **Co-I**, NASA ADAP, “Accreting Binary Populations from Billions of Years Ago to the Year 2035”
27. 2009: **Co-I**, *Chandra* Cycle 11, “An Archival Study of the X-ray Spectral Evolution of AGNs”
28. 2008: **Co-I**, *Chandra* Cycle 10, “A Complete Census of AGN Activity in Luminous Infrared Galaxies”
29. 2008: **Co-I**, LABOCA, “LABOCA Observations of $z = 3.1$ Protocluster SSA22”