

# Aaron J. Barth

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## Appointments

University of California, Irvine:	
Professor	2012 – present
Associate Professor	2009 – 2012
Assistant Professor	2004 – 2009
Hubble Fellow, California Institute of Technology	2001 – 2004
CfA Postdoctoral Fellow, Harvard-Smithsonian Center for Astrophysics	1998 – 2001

## Education

Ph.D. in Astronomy, University of California, Berkeley	1998
M.S. in Physics, University of Chicago	1992
B.S. in Physics, <i>summa cum laude</i> , Yale University	1990

## Research Interests

- Supermassive black holes in nearby galaxies
- Active galactic nuclei and quasars
- AGN variability and reverberation mapping
- Intermediate-mass black holes
- Low-luminosity active galactic nuclei
- Astronomical polarimetry
- Structure, morphology, and dynamics of galaxies

## Awards and Honors

NSF Faculty Early Career Development (CAREER) Award	2006–2011
Hubble Fellowship	2001–2004
Dorothea Klumpke-Roberts Prize, UC Berkeley Department of Astronomy	1996
Phi Beta Kappa, Yale University	1990
Eastman Kodak Scholarship, Yale University	1988-1990
American Honda Foundation Scholarship, Yale University	1986-1987

## Professional Society Memberships

- American Astronomical Society
- International Astronomical Union

## Aaron J. Barth: Publications

### Refereed Publications

134. “Stellar Photometric Structures of the Host Galaxies of Nearby Type 1 Active Galactic Nuclei.” M. Kim, L. C. Ho, C. Y. Peng, A. J. Barth, & M. Im. 2017, accepted for publication in *The Astrophysical Journal Supplement Series*.
133. “Reverberation Mapping of PG 0934+013 with the Southern African Large Telescope.” S. Park, J.-H. Woo, E. Romero-Colmenero, S. M. Crawford, D. Park, H. Cho, Y. Jeon, C. Choi, A. J. Barth, L. Pei, R. C. Hickox, H.-I. Sung, M. Im. 2017, accepted for publication in *The Astrophysical Journal*.
132. “Space Telescope and Optical Reverberation Mapping Project. VII. Understanding the Ultraviolet Anomaly in NGC 5548 with X-ray Spectroscopy. S. Mathur *et al.* 2017, *The Astrophysical Journal*, 846:55.
131. “ALMA Observations of Circumnuclear Disks in Early Type Galaxies:  $^{12}\text{CO}(2-1)$  and Continuum Properties.” B. D. Boizelle, A. J. Barth, J. Darling, A. J. Baker, D. A. Buote, L. C. Ho, & J. L. Walsh. 2017, *The Astrophysical Journal*, 845:170.
130. “The Carnegie-Irvine Galaxy Survey. V. Statistical Study of Bars and Buckled Bars.” Z.-Y. Li, L. C. Ho, & A. J. Barth. 2017, *The Astrophysical Journal*, 845:87.
129. “Discovery and Follow-Up Observations of the Young Type Ia Supernova 2016coj.” W. Zheng *et al.* 2017, *The Astrophysical Journal*, 841:64.
128. “Reverberation Mapping of Optical Emission Lines in Five Active Galaxies.” M. M. Fausnaugh *et al.* 2017, *The Astrophysical Journal*, 840:97.
127. “Swift Monitoring of NGC 4151: Evidence for a Second X-ray/UV Reprocessing.” R. Edelson *et al.* 2017, *ApJ*, 840:41.
126. “Extending the Calibration of CIV-Based Single-Epoch Black Hole Mass Estimators for Active Galactic Nuclei.” D. Park, A. J. Barth, J.-H. Woo, M. A. Malkan, T. Treu, V. N. Bennert, R. J. Assef, & A. Pancoast. 2017, *The Astrophysical Journal*, 839:93.
125. “Extreme Variability in a Broad Absorption Line Quasar.” D. Stern, M. J. Graham, N. Arav, S. G. Djorgovski, C. Chamberlain, A. J. Barth, C. Donalek, A. J. Drake, E. Glikman, H. D. Jun, A. A. Mahabal, & C. C. Steidel. 2017, *The Astrophysical Journal*, 839:106.
124. “A Spitzer Spectral Atlas of Low-mass Active Galactic Nuclei.” C. E. Hood, A. J. Barth, L. C. Ho, & J. E. Greene. 2017, *The Astrophysical Journal*, 838:26.
123. “Space Telescope and Optical Reverberation Mapping Project. V. Optical Spectroscopic Campaign and Emission-Line Analysis for NGC 5548.” L. Pei, M. M., Fausnaugh, A. J. Barth, *et al.* 2017, *The Astrophysical Journal*, 837:131.
122. “Improved Dynamical Constraints on the Mass of the Central Black Hole in NGC 404.” D. D. Nguyen, A. C. Seth, M. den Brok, N. Neumayer, M. Cappellari, A. J. Barth, N. Caldwell, B. F. Williams, & B. Binder. 2017, *The Astrophysical Journal*, 836:237.
121. “Space Telescope and Optical Reverberation Mapping Project VI: Reverberating Disk Models for NGC 5548.” D. Starkey *et al.* 2017, *The Astrophysical Journal*, 835:65.
120. “Reverberation Mapping of the Broad Line Region: Application to a Hydrodynamical Line-Driven Disk Wind Solution.” T. Waters, A. Kashi, D. Proga, M. Eracleous, A. J. Barth, & J. Greene. 2016, *The Astrophysical Journal*, 827:53.
119. “Space Telescope and Optical Reverberation Mapping Project. IV. Anomalous behavior of the broad ultraviolet emission lines in NGC 5548.” M. R. Goad *et al.* 2016, *The Astrophysical Journal*, 824:11.
118. “Measurement of the Black Hole Mass in NGC 1332 from ALMA Observations at 0.044 Arcsecond Resolution.” A. J. Barth, B. D. Boizelle, J. Darling, A. J. Baker, D. A. Buote, L. C. Ho, J. L. Walsh. 2016, *The Astrophysical Journal Letters*, 822:L28.

117. “Toward Precision Black Hole Masses with ALMA: NGC 1332 as a Case Study in Molecular Disk Dynamics.” A. J. Barth, J. Darling, A. J. Baker, B. D. Boizelle, D. A. Buote, L. C. Ho, & J. L. Walsh. 2016, *The Astrophysical Journal*, 823:51.
116. “No Evidence for [O III] Variability in Mrk 142.” A. J. Barth & M. C. Bentz. 2016, *Monthly Notices of the Royal Astronomical Society Letters*, 458, L109.
115. “The Carnegie-Irvine Galaxy Survey. IV. A Method to Determine the Average Mass Ratio of Mergers That Built Massive Elliptical Galaxies.” S. Huang, L. C. Ho, C. Y. Peng, Z.-Y. Li, & A. J. Barth. 2016, *The Astrophysical Journal*, 821:114.
114. “Space Telescope and Optical Reverberation Mapping Project. III. Optical Continuum Emission and Broad-Band Time Delays in NGC 5548.” M. M. Fausnaugh *et al.* (98 authors). 2016, *The Astrophysical Journal*, 821:56.
113. “Robotic Reverberation Mapping of Arp 151.” S. Valenti, D. J. Sand, A. J. Barth, K. Horne, T. Treu, L. Raganit, T. Boroson, S. Crawford, A. Pancoast, L. Pei, E. Romero-Colmenero, C. Villforth, & H. Winkler. 2015, *The Astrophysical Journal Letters*, 813:L36.
112. “Dissecting the Power Sources of Low-Luminosity Emission-Line Galaxy Nuclei via Comparison of *HST*-STIS and Ground-Based Spectroscopy.” A. Constantin, J. C. Shields, L. C. Ho, A. J. Barth, A. V. Filippenko, & C. A. Castillo. 2015, *The Astrophysical Journal*, 814:149.
111. “Constraints on the broad line region from regularized linear inversion: Velocity-delay maps for five nearby active galactic nuclei.” A. Skielboe, A. Pancoast, T. Treu, D. Park, A. J. Barth, & M. C. Bentz. 2015, *Monthly Notices of the Royal Astronomical Society*, 454, 144–160.
110. “Measuring the mass of the central black hole in the bulgeless galaxy NGC 4395 from gas dynamical modeling.” M. den Brok, A. C. Seth, A. J. Barth, D. J. Carson, N. Neumayer, M. Cappellari, V. P. Debattista, L. C. Ho, C. E. Hood, & R. M. McDermid. 2015, *The Astrophysical Journal*, 809:101.
109. “Space Telescope and Optical Reverberation Mapping Project. II. Swift and HST Reverberation Mapping of the Accretion Disk of NGC 5548.” R. Edelson *et al.* 2015, *The Astrophysical Journal*, 806:129.
108. “Space Telescope and Optical Reverberation Mapping Project. I. Ultraviolet Observations of the Seyfert 1 Galaxy NGC 5548 with the Cosmic Origins Spectrograph on Hubble Space Telescope.” G. De Rosa *et al.* 2015, *The Astrophysical Journal*, 806:128.
107. “The Lick AGN Monitoring Project 2011: Spectroscopic Campaign and Emission-Line Light Curves.” A. J. Barth *et al.* (29 authors). 2015, *The Astrophysical Journal Supplement Series*, 217:26.
106. “The Structure of Nuclear Star Clusters in Nearby Late-type Spiral Galaxies from Hubble Space Telescope Wide Field Camera 3 Imaging.” D. J. Carson, A. J. Barth, A. C. Seth, M. den Brok, M. Cappellari, J. E. Greene, L. C. Ho, & N. Neumayer. 2015, *The Astronomical Journal*, 149:170.
105. “Reverberation Mapping of the *Kepler*-Field AGN KA1858+4850.” L. Pei, A. J. Barth, *et al.* (43 authors). 2014, *The Astrophysical Journal*, 795:38.
104. “Modeling reverberation mapping data II: dynamical modeling of the Lick AGN Monitoring Project 2008 dataset.” A. Pancoast, B. J. Brewer, T. Treu, D. Park, A. J. Barth, M. C. Bentz, & J.-H. Woo. 2014, *Monthly Notices of the Royal Astronomical Society*, 445, 3073–3091.
103. “On the Performance of Quasar Reverberation Mapping in the Era of Time-Domain Photometric Surveys.” D. Chelouche, O. Shemmer, G. I. Cotlier, A. J. Barth, & S. E. Rafter. 2014, *The Astrophysical Journal*, 785:140.
102. “Prospects for Measuring Supermassive Black Hole Masses with Future Extremely Large Telescopes.” T. Do., S. A. Wright, A. J. Barth, E. J. Barton, L. Simard, J. E. Larkin, A. M. Moore, L. Wang, & B. Ellerbroek. 2014, *The Astronomical Journal*, 147:93.
101. “A Tentative Size-Luminosity Relation for the Iron Emission-Line Region in Quasars.” D. Chelouche, S. E. Rafter, G. I. Cotlier, S. Kaspi, & A. J. Barth. 2014, *The Astrophysical Journal Letters*, 783:L34.
100. “A Search for Optical Variability of Type 2 Quasars in SDSS Stripe 82.” A. J. Barth, A. Voevodkin, P. Woźniak, & D. J. Carson. 2013, *The Astronomical Journal*, 147, 12.

99. “On the Virialization of Disk Winds: Implications for the Black Hole Mass Estimates in AGN.” A. Kashi, D. Proga, K. Nagamine, J. Greene, & A. J. Barth. 2013, *The Astrophysical Journal*, 778:50.
98. “The M87 Black Hole Mass from Gas-dynamical Models of Space Telescope Imaging Spectrograph Observations.” J. L. Walsh, A. J. Barth, L. C. Ho, & M. Sarzi. 2013, *The Astrophysical Journal*, 770:86.
97. “The Lick AGN Monitoring Project 2011: Fe II Reverberation from the Outer Broad-Line Region.” A. J. Barth, A. Pancoast, V. N. Bennert, B. J. Brewer, G. Canalizo, A. V. Filippenko, E. L. Gates, J. E. Greene, W. Li, M. A. Malkan, D. J. Sand, D. Stern, T. Treu, J.-H. Woo, & 15 co-authors. 2013, *The Astrophysical Journal*, 769:128.
96. “Fossil Evidence for the Two-phase Formation of Elliptical Galaxies.” S. Huang, L. C. Ho, C. Y. Peng, Z.-Y. Li, & A. J. Barth. 2013, *The Astrophysical Journal Letters*, 768:L28.
95. “The Low-Luminosity End of the Radius-Luminosity Relationship for Active Galactic Nuclei.” M. C. Bentz, K. D. Denney, C. J. Grier, A. J. Barth, B. M. Peterson, M. Vestergaard, V. N. Bennert, G. Canalizo, G. De Rosa, A. V. Filippenko, E. L. Gates, J. E. Greene, W. Li, M. A. Malkan, R. W. Pogge, D. Stern, T. Treu, & J.-H. Woo. 2013, *The Astrophysical Journal*, 767:149.
94. “The Carnegie-Irvine Galaxy Survey. III. The Three-Component Structure of Nearby Elliptical Galaxies.” S. Huang, L. C. Ho, C. Y. Peng, Z.-Y. Li, & A. J. Barth. 2013, *The Astrophysical Journal*, 766:47.
93. “Berkeley Supernova Ia Program I: Observations, Data Reduction, and Spectroscopic Sample of 582 Low-Redshift Type Ia Supernovae.” J. M. Silverman & 40 co-authors. 2012, *Monthly Notices of the Royal Astronomical Society*, 425, 1789–1818.
92. “The Very Young Type Ia Supernova 2012cg: Discovery and Early-Time Follow-Up Observations.” J. M. Silverman, M. Ganeshalingam, S. B. Cenko, A. V. Filippenko, W. Li, A. J. Barth, D. J. Carson, M. Childress, K. I. Clubb, A. Cucchiara, M. L. Graham, G. H. Marion, M. L. Nguyen, L. Pei, B. E. Tucker, J. Vinko, J. C. Wheeler, & G. Worseck. 2012, *The Astrophysical Journal Letters*, 756:L7.
91. “Physical Properties of the Narrow-Line Region of Low-Mass Active Galaxies.” R. R. Ludwig, J. E. Greene, A. J. Barth, & L. C. Ho. 2012, *The Astrophysical Journal*, 756:51.
90. “The Lick AGN Monitoring Project 2011: Dynamical Modeling of the Broad Line Region in Mrk 50.” A. Pancoast, B. J. Brewer, T. Treu, A. J. Barth, V. N. Bennert, *et al.* 2012, *The Astrophysical Journal*, 754:49.
89. “A Stellar Dynamical Mass Measurement of the Black Hole in NGC 3998 from Keck Adaptive Optics Observations.” J. L. Walsh, R. C. E. van den Bosch, A. J. Barth, & M. Sarzi. 2012, *The Astrophysical Journal*, 753:79.
88. “The Lick AGN Monitoring Project: Recalibrating Single-Epoch Virial Black Hole Mass Estimates.” D. Park, J.-H. Woo, T. Treu, A. J. Barth, M. C. Bentz, V. N. Bennert, G. Canalizo, A. V. Filippenko, E. Gates, J. E. Greene, M. A. Malkan, & J. L. Walsh. 2012, *The Astrophysical Journal*, 747:30.
87. “The Lick AGN Monitoring Project 2011: Reverberation Mapping of Markarian 50.” A. J. Barth, A. Pancoast, S. J. Thorman, V. N. Bennert, D. J. Sand, W. Li, G. Canalizo, A. V. Filippenko, E. L. Gates, J. E. Greene, M. A. Malkan, D. Stern, T. Treu, J.-H. Woo, *et al.* 2011, *The Astrophysical Journal Letters*, 743:L4.
86. “The Carnegie-Irvine Galaxy Survey. II. Isophotal Analysis.” Z.-Y. Li, L. C. Ho, A. J. Barth, & C. Y. Peng. 2011, *The Astrophysical Journal Supplement Series*, 197:22.
85. “The Carnegie-Irvine Galaxy Survey. I. Overview and Atlas of Optical Images.” L. C. Ho, Z.-Y. Li, A. J. Barth, M. S. Seigar, & C. Y. Peng. 2011, *The Astrophysical Journal Supplement Series*, 197:21.
84. “The Host Galaxies of Low-Mass Black Holes.” Y.-F. Jiang, J. E. Greene, L. C. Ho, T. Xiao, & A. J. Barth. 2011, *The Astrophysical Journal*, 742:68.
83. “Exploring the Low-Mass End of the  $M$ - $\sigma$  Relation with Active Galaxies.” T. Xiao, A. J. Barth, J. E. Greene, L. C. Ho, M. C. Bentz, R. R. Ludwig, & Y. Jiang. 2011, *The Astrophysical Journal*, 739:28.
82. “The Mass of the Black Hole in Arp 151 from Bayesian Modeling of Reverberation Mapping Data.” B. J. Brewer, T. Treu, A. Pancoast, A. J. Barth, V. N. Bennert, M. C. Bentz, A. V. Filippenko, J. E. Greene, M. A. Malkan, & J.-H. Woo. 2011, *The Astrophysical Journal*, 733, L33.

81. “Broad-Line Reverberation in the *Kepler*-Field Seyfert Galaxy Zw 229-015.” A. J. Barth, M. L. Nguyen, M. A. Malkan, A. V. Filippenko, W. Li, V. Gorjian, M. D. Joner, & 41 co-authors. 2011, *The Astrophysical Journal*, 732:121.
80. “Feedback in Luminous Obscured Quasars.” J. E. Greene, N. L. Zakamska, L. C. Ho, & A. J. Barth. 2011, *The Astrophysical Journal*, 732:9.
79. “The Lick AGN Monitoring Project: Alternate Routes to a Broad-Line Region Radius.” J. E. Greene, C. E. Hood, A. J. Barth, V. N. Bennert, M. C. Bentz, A. V. Filippenko, E. Gates, M. A. Malkan, T. Treu, J. L. Walsh, & J.-H. Woo. 2010, *The Astrophysical Journal*, 723, 409–416.
78. “The Supermassive Black Hole in M84 Revisited.” J. L. Walsh, A. J. Barth, & M. Sarzi. 2010, *The Astrophysical Journal*, 721, 762–776.
77. “The Lick AGN Monitoring Project: Velocity-Delay Maps from the Maximum-Entropy Method for Arp 151.” M. C. Bentz, K. Horne, A. J. Barth, V. N. Bennert, G. Canalizo, A. V. Filippenko, E. L. Gates, M. A. Malkan, T. Minezaki, T. Treu, J.-H. Woo, & J. L. Walsh. 2010, *The Astrophysical Journal*, 720, L46–L51.
76. “The Lick AGN Monitoring Project: Reverberation Mapping of Optical H and He Recombination Lines.” M. C. Bentz, J. L. Walsh, A. J. Barth, Y. Yoshii, J.-H. Woo, X. Wang, T. Treu, C. E. Thornton, R. A. Street, D. Stern, T. N. Steele, J. M. Silverman, F. J. D. Serduke, Y. Sakata, T. Minezaki, M. A. Malkan, W. Li, N. Lee, K. D. Hiner, M. G. Hidas, J. E. Greene, E. L. Gates, M. Ganeshalingam, A. V. Filippenko, G. Canalizo, V. N. Bennert, & N. Baliber. 2010, *The Astrophysical Journal*, 716, 993–1011.
75. “The Lick AGN Monitoring Project: The  $M_{\text{BH}} - \sigma_*$  Relation for Reverberation-Mapped Active Galaxies.” J.-H. Woo, T. Treu, A. J. Barth, S. A. Wright, J. L. Walsh, M. C. Bentz, P. Martini, V. N. Bennert, G. Canalizo, A. V. Filippenko, E. Gates, J. E. Greene, D. Stern, & T. Minezaki. 2010, *The Astrophysical Journal*, 716, 269–280.
74. “The Lick AGN Monitoring Project: Photometric Light Curves and Optical Variability Characteristics.” J. L. Walsh, T. Minezaki, M. C. Bentz, A. J. Barth, N. Baliber, W. Li, D. Stern, N. Bennert, T. M. Brown, G. Canalizo, A. V. Filippenko, E. L. Gates, J. E. Greene, M. A. Malkan, Y. Sakata, R. A. Street, T. Treu, J.-H. Woo, & Y. Yoshii. 2009, *The Astrophysical Journal Supplement Series*, 185, 156–170.
73. “Emission and Absorption Properties of Low-Mass Type 2 Active Galaxies with XMM-Newton.” C. E. Thornton, A. J. Barth, L. C. Ho, & J. E. Greene. 2009, *The Astrophysical Journal*, 705, 1196–1205.
72. “The Lick AGN Monitoring Project: Broad-Line Region Radii and Black Hole Masses from Reverberation Mapping of  $H\beta$ .” M. C. Bentz, J. L. Walsh, A. J. Barth, N. Baliber, N. Bennert, G. Canalizo, A. V. Filippenko, M. Ganeshalingam, E. L. Gates, J. E. Greene, M. G. Hidas, K. D. Hiner, N. Lee, W. Li, M. A. Malkan, T. Minezaki, Y. Sakata, F. J. D. Serduke, J. M. Silverman, T. N. Steele, D. Stern, R. A. Street, C. E. Thornton, T. Treu, X. Wang, J.-H. Woo, & Y. Yoshii. 2009, *The Astrophysical Journal*, 705, 199–217.
71. “The Growth of Black Holes: Insights From Obscured Active Galaxies.” J. E. Greene, N. L. Zakamska, X. Liu, A. J. Barth, & L. C. Ho. 2009, *The Astrophysical Journal*, 702, 441–459.
70. “Structure of the Accretion Flow in Broad-Line Radio Galaxies: The Case of 3C390.3.” R. M. Sambruna, J. N. Reeves, V. Braito, K. T. Lewis, M. Eracleous, M. Gliozzi, F. Tavecchio., D. R. Ballantyne, P. M. Ogle, A. J. Barth, & J. Tueller. 2009, *The Astrophysical Journal*, 700, 1473–1487.
69. “Dynamical Constraints on the Masses of the Nuclear Star Cluster and Black Hole in the Late-Type Spiral Galaxy NGC 3621.” A. J. Barth, L. E. Strigari, M. C. Bentz, J. E. Greene, & L. C. Ho. 2009, *The Astrophysical Journal*, 690, 1031–1044.
68. “First Results from the Lick AGN Monitoring Project: The Mass of the Black Hole in Arp 151.” M. C. Bentz, J. L. Walsh, A. J. Barth, N. Baliber, N. Bennert, G. Canalizo, A. V. Filippenko, M. Ganeshalingam, E. L. Gates, J. E. Greene, M. G. Hidas, K. D. Hiner, N. Lee, W. Li, M. A. Malkan, T. Minezaki, F. J. D. Serduke, J. H. Shiode, J. M. Silverman, T. N. Steele, D. Stern, R. A. Street, C. E. Thornton, T. Treu, X. Wang, J.-H. Woo, & Y. Yoshii. 2008, *The Astrophysical Journal Letters*, 689, L21–L24.
67. “The Dual-Axis Circumstellar Environment of the Type II<sub>n</sub> Supernova 1997eg.” J. L. Hoffman, D. C. Leonard, R. Chornock, A. V. Filippenko, A. J. Barth, & T. Matheson. 2008, *The Astrophysical Journal*, 688, 1186–1209.
66. “Hubble Space Telescope Spectroscopic Observations of the Narrow-Line Region in Nearby Low-Luminosity Active Galactic Nuclei.” J. L. Walsh, A. J. Barth, L. C. Ho, A. V. Filippenko, H.-W. Rix, J. C. Shields, M. Sarzi, & W. L. W. Sargent. 2008, *The Astronomical Journal*, 136, 1677–1702.

65. “An Offset Seyfert 2 Nucleus in the Minor Merger System NGC 3341.” A. J. Barth, M. C. Bentz, J. E. Greene, & L. C. Ho. 2008, *The Astrophysical Journal Letters*, 683, L119–L122.
64. “Low-Mass Seyfert 2 Galaxies in the Sloan Digital Sky Survey.” A. J. Barth, J. E. Greene, & L. C. Ho. 2008, *The Astronomical Journal*, 136, 1179–1200.
63. “A Revised Mass Model for the Andromeda Galaxy.” M. S., Seigar, A. J. Barth, & J. S. Bullock. 2008, *Monthly Notices of the Royal Astronomical Society*, 389, 1911–1923.
62. “Black Holes in Pseudobulges and Spheroidals: A Change in the Black Hole- Bulge Scaling Relations at Low Mass.” J. E. Greene, L. C. Ho, & A. J. Barth. 2008, *The Astrophysical Journal*, 688, 159–179.
61. “The Host Galaxy and Central Engine of the Dwarf AGN POX 52.” C. E. Thornton, A. J. Barth, L. C. Ho, R. E. Rutledge, & J. E. Greene. 2008, *The Astrophysical Journal*, 686, 892–910.
60. “The Origin of the Intrinsic Scatter in the Relation Between Black Hole Mass and Bulge Luminosity for Nearby Active Galaxies.” M. Kim, L. C. Ho, C. Y. Peng, A. J. Barth, M. Im, P. Martini, & C. H. Nelson. 2008, *The Astrophysical Journal*, 687, 767–827.
59. “Decomposition of the Host Galaxies of Active Galactic Nuclei Using Hubble Space Telescope Images.” M. Kim, L. C. Ho, C. Y. Peng, A. J. Barth, & M. Im. 2008, *The Astrophysical Journal Supplement Series*, 179, 283–305.
58. “SN 2006tf: Precursor Eruptions and the Optically Thick Regime of Extremely Luminous Type II<sub>n</sub> Supernovae.” N. Smith, R. Chornock, W. Li, M. Ganeshalingam, J. M. Silverman, R. J. Foley, A. V. Filippenko, & A. J. Barth. 2008, *The Astrophysical Journal*, 686, 467–484.
57. “Transient and Highly Polarized Double-Peaked H $\alpha$  Emission in the Seyfert 2 Nucleus of NGC 2110.” E. C. Moran, A. J. Barth, M. Eracleous, & L. E. Kay. 2007, *The Astrophysical Journal Letters*, 668, L31.
56. “Serendipitous XMM-Newton Discovery of a Cluster of Galaxies at  $z = 0.28$ .” F. Gastaldello, D. A. Buote, P. J. Humphrey, L. Zappacosta, M. S. Seigar, A. J. Barth, F. Brighenti, & W. G. Mathews. 2007, *The Astrophysical Journal*, 662, 923–926.
55. “A Normal Stellar Disk in the Galaxy Malin 1.” A. J. Barth. 2007, *The Astronomical Journal*, 133, 1085–1091.
54. “The Survey of Nearby Nuclei with STIS (SUNNS): Emission-Line Nuclei at Hubble Space Telescope Resolution.” J. C. Shields, H.-W. Rix, M. Sarzi, A. J. Barth, A. V. Filippenko, L. C. Ho, D. H. McIntosh, G. Rudnick, & W. L. W. Sargent. 2007, *The Astrophysical Journal*, 654, 125–137.
53. “Temporal Variation in Excited Fe<sup>+</sup> Near a GRB Afterglow.” M. Dessauges-Zavadsky, H.-W. Chen, J. X. Prochaska, J. S. Bloom, & A. J. Barth. 2006, *The Astrophysical Journal Letters*, 648, L89–L92.
52. “Constraining Dark Matter Halo Profiles and Galaxy Formation Models Using Spiral Arm Morphology. I. Method Outline.” M. S. Seigar, J. S. Bullock, A. J. Barth, & L. C. Ho. 2006, *The Astrophysical Journal*, 645, 1012–1023.
51. “Is the Broad-Line Region Clumped or Smooth? Constraints from the H $\alpha$  Profile of NGC 4395, the Least Luminous Seyfert 1 Galaxy.” A. Laor, A. J. Barth, L. C. Ho, & A. V. Filippenko. 2005, *The Astrophysical Journal*, 636, 83–89.
50. “Closing in on a Short-Hard Burst Progenitor: Constraints from Early-Time Optical Imaging and Spectroscopy of a Possible Host Galaxy of GRB 050509b.” J. S. Bloom, J. X. Prochaska, D. Pooley, C. W. Blake, R. J. Foley, S. Jha, E. Ramirez-Ruiz, J. Granot, A. V. Filippenko, S. Sigurdsson, A. J. Barth, H.-W. Chen, M. C. Cooper, E. E. Falco, R. R. Gal, B. F. Gerke, M. D. Gladders, J. E. Greene, J. Hennenwi, L. C. Ho, K. Hurley, B. P. Koester, W. Li, L. Lubin, J. Newman, D. A. Perley, G. K. Squires, & W. M. Wood-Vasey. 2006, *The Astrophysical Journal*, 638, 354–368.
49. “The Stellar Populations in the Central Parsecs of Galactic Bulges.” M. Sarzi, H.-W. Rix, J. C. Shields, L. C. Ho, A. J. Barth, G. Rudnick, A. V. Filippenko, & W. L. W. Sargent. 2005, *The Astrophysical Journal*, 628, 169–186.
48. “Dwarf Seyfert 1 Nuclei and the Low-Mass End of the  $M_{\text{BH}} - \sigma$  Relation.” A. J. Barth, J. E. Greene, & L. C. Ho. 2005, *The Astrophysical Journal Letters*, 619, L151–L154.

47. “POX 52: A Dwarf Seyfert 1 Galaxy with an Intermediate-Mass Black Hole.” A. J. Barth, L. C. Ho, R. E. Rutledge, & W. L. W. Sargent. 2004, *The Astrophysical Journal*, 607, 90–102.
46. “Spectropolarimetry and Modeling of the Eclipsing T Tauri Star KH 15D.” E. Agol, A. J. Barth, S. Wolf, & D. Charbonneau. 2004, *The Astrophysical Journal*, 600, 781–788.
45. “Iron Emission in the  $z = 6.4$  Quasar SDSS J114816.64+525150.3.” A. J. Barth, P. Martini, C. H. Nelson, & L. C. Ho. 2003, *The Astrophysical Journal Letters*, 594, L95–98.
44. “Early optical emission from the  $\gamma$ -ray burst of 4 October 2002.” D. W. Fox *et al.* (21 authors). 2003, *Nature*, 422, 284–286.
43. “Optical Spectropolarimetry of the GRB 020813 Afterglow.” A. J. Barth, R. Sari, M. H. Cohen, R. W. Goodrich, P. A. Price, D. W. Fox, J. S. Bloom, A. M. Soderberg, & S. R. Kulkarni. 2003, *The Astrophysical Journal Letters*, 584, L47–51.
42. “Emission and Absorption in the M87 LINER.” B. M. Sabra, J. C. Shields, L. C. Ho, A. J. Barth, & A. V. Filippenko. 2003, *The Astrophysical Journal*, 584, 164–175.
41. “The Black Hole Masses and Host Galaxies of BL Lacertae Objects.” A. J. Barth, L. C. Ho, & W. L. W. Sargent. 2003, *The Astrophysical Journal*, 583, 134–144.
40. “A Study of the Direct Fitting Method for Measurement of Galaxy Velocity Dispersions.” A. J. Barth, L. C. Ho, & W. L. W. Sargent. 2002, *The Astronomical Journal*, 124, 2607–2614.
39. “Optical and Ultraviolet Spectroscopy of SN 1995N: Evidence for Strong Circumstellar Interaction.” C. Franson, R. A. Chevalier, A. V. Filippenko, B. Leibundgut, A. J. Barth, R. A. Fesen, R. P. Kirshner, D. C. Leonard, W. Li, P. Lundquist, J. Sollerman, & S. D. Van Dyk. 2002, *The Astrophysical Journal*, 572, 350–370.
38. “Limits on the Mass of the Central Black Hole in 16 Nearby Bulges.” M. Sarzi, H.-W. Rix, J. C. Shields, D. H. McIntosh, L. C. Ho, G. Rudnick, A. V. Filippenko, W. L. W. Sargent, & A. J. Barth. 2002, *The Astrophysical Journal*, 567, 237–246.
37. “Stellar Velocity Dispersion and Black Hole Mass in the Blazar Markarian 501.” A. J. Barth, L. C. Ho, & W. L. W. Sargent. 2002, *The Astrophysical Journal Letters*, 566, L13–16.
36. “An Efficient Strategy to Select Targets for Gas-Dynamical Measurements of Black Hole Masses Using the Hubble Space Telescope.” L. C. Ho, M. Sarzi, H.-W. Rix, J. C. Shields, G. Rudnick, A. V. Filippenko, & A. J. Barth. 2002, *Publications of the Astronomical Society of the Pacific*, 114, 137–143.
35. “The Distance to SN 1999em in NGC 1637 from the Expanding Photosphere Method.” D. C. Leonard, A. V. Filippenko, E. L. Gates, W. Li, R. G. Eastman, A. J. Barth, *et al.* (16 authors). 2002, *Publications of the Astronomical Society of the Pacific*, 114, 35–64.
34. “A Composite Seyfert 2 X-ray Spectrum: Implications for the Origin of the Cosmic X-ray Background.” E. C. Moran, L. E. Kay, M. Davis, A. V. Filippenko, & A. J. Barth. 2001, *The Astrophysical Journal Letters*, 556, L75–78.
33. “Evidence for a Supermassive Black Hole in the S0 Galaxy NGC 3245.” A. J. Barth, M. Sarzi, H.-W. Rix, L. C. Ho, A. V. Filippenko, & W. L. W. Sargent. 2001, *The Astrophysical Journal*, 555, 685–708.
32. “An Ultraviolet through Infrared Look at Star Formation and Super Star Clusters in Two Circumnuclear Starburst Rings.” D. Maoz, A. J. Barth, L. C. Ho, A. Sternberg, & A. V. Filippenko. 2001, *The Astronomical Journal*, 121, 3048–3074.
31. “The Broad-Line and Narrow-Line Regions of the LINER NGC 4579.” A. J. Barth, L. C. Ho, A. V. Filippenko, H.-W. Rix, & W. L. W. Sargent. 2001, *The Astrophysical Journal*, 546, 205–209.
30. “LINER/H II ‘Transition’ Nuclei and the Nature of NGC 4569.” A. J. Barth & J. C. Shields. 2000, *Publications of the Astronomical Society of the Pacific*, 112, 753–767.
29. “The Frequency of Polarized Broad Emission Lines in Type 2 Seyfert Galaxies.” E. C. Moran, A. J. Barth, L. E. Kay, & A. V. Filippenko. 2000, *The Astrophysical Journal Letters*, 540, L73–77.
28. “Detailed Analysis of Early to Late-Time Spectra of Supernova 1993J.” T. Matheson, A. V. Filippenko, L. C. Ho, A. J. Barth, & D. C. Leonard. 2000, *The Astronomical Journal*, 120, 1499–1515.

27. “Optical Spectroscopy of Supernova 1993J During its First 2500 Days.” T. Matheson *et al.* (18 authors) 2000, *The Astronomical Journal*, 120, 1487–1498.
26. “Evidence for Asphericity in the Type II<sub>n</sub> Supernova 1998S.” D. C. Leonard, A. V. Filippenko, A. J. Barth, & T. Matheson. 2000, *The Astrophysical Journal*, 536, 239–254.
25. “The Environments of Supernovae in Post-Refurbishment Hubble Space Telescope Images.” S. D. Van Dyk, C. Y. Peng, A. J. Barth, & A. V. Filippenko. 1999, *The Astronomical Journal*, 118, 2331–2349.
24. “Polarized Broad-Line Emission from Low-Luminosity Active Galactic Nuclei.” A. J. Barth, A. V. Filippenko, & E. C. Moran. 1999, *The Astrophysical Journal*, 525, 673–684.
23. “Polarized Narrow-Line Emission from the Nucleus of NGC 4258.” A. J. Barth, H. D. Tran, M. S. Brotherton, A. V. Filippenko, L. C. Ho, W. van Breugel, R. Antonucci, & R. W. Goodrich. 1999, *The Astronomical Journal*, 118, 1609–1617.
22. “Polarized Broad H $\alpha$  Emission from the LINER Nucleus of NGC 1052.” A. J. Barth, A. V. Filippenko, & E. C. Moran. 1999, *The Astrophysical Journal Letters*, 515, L61–64.
21. “Hubble Space Telescope WFPC2 Imaging of SN 1979C and its Environment.” S. D. Van Dyk, C. Y. Peng, A. J. Barth, A. V. Filippenko, R. A. Chevalier, R. A. Fesen, C. Fransson, R. P. Kirshner, & B. Leibundgut. 1999, *Publications of the Astronomical Society of the Pacific*, 111, 313–320.
20. “Steps toward Determination of the Size and Structure of the Broad-Line Region in Active Galactic Nuclei. XV. Long-Term Optical Monitoring of NGC 5548.” B. M. Peterson *et al.* (37 authors) 1999, *The Astrophysical Journal*, 510, 659–668.
19. “Steps toward Determination of the Size and Structure of the Broad-Line Region in Active Galactic Nuclei. XII. Ground-based Monitoring of 3C 390.3.” M. Dietrich *et al.* (58 authors) 1998, *The Astrophysical Journal Supplement Series*, 115, 185–202.
18. “A Search for Ultraviolet Emission from LINERs.” A. J. Barth, L. C. Ho, A. V. Filippenko, & W. L. W. Sargent. 1998, *The Astrophysical Journal*, 496, 133–144.
17. “Identification of a host galaxy at redshift  $z = 3.42$  for the gamma-ray burst of 14 December 1997.” S. R. Kulkarni *et al.* (16 authors) 1998, *Nature*, 393, 35–39.
16. “Ultraviolet Emission from the LINER Nucleus of NGC 6500.” A. J. Barth, G. A. Reichert, L. C. Ho, J. C. Shields, A. V. Filippenko, & E. M. Puchnarewicz. 1997, *The Astronomical Journal*, 114, 2313–2322.
15. “Multiwavelength Monitoring of the BL Lacertae Object PKS 2155-304 in May 1994. I. The Ground-Based Campaign.” J. E. Pesce *et al.* (34 authors) 1997, *The Astrophysical Journal*, 486, 770–783.
14. “A Gamma-Ray Flare in NRAO 190.” T. A. McGlynn *et al.* (19 authors) 1996, *The Astrophysical Journal*, 481, 625–632.
13. “A Black Hole in the X-Ray Nova Ophiuchi 1977.” A. V. Filippenko, T. Matheson, D. C. Leonard, A. J. Barth, and S. D. Van Dyk. 1997, *Publications of the Astronomical Society of the Pacific*, 109, 461–467.
12. “The Ultraviolet Spectrum of the LINER NGC 4579.” A. J. Barth, G. A. Reichert, A. V. Filippenko, L. C. Ho, J. C. Shields, R. F. Mushotzky, & E. M. Puchnarewicz. 1996, *The Astronomical Journal*, 112, 1829–1838.
11. “Multiwavelength Observations of Short-Timescale Variability in NGC 4151. IV. Analysis of Multiwavelength Continuum Variability.” R. A. Edelson *et al.* (91 authors) 1996, *The Astrophysical Journal*, 470, 364–377.
10. “Multiwavelength Observations of Short-Timescale Variability in NGC 4151. II. Optical Observations.” S. Kaspi *et al.* (22 authors) 1996, *The Astrophysical Journal*, 470, 336–348.
9. “Hubble Space Telescope Ultraviolet Images of Five Circumnuclear Star-Forming Rings.” D. Maoz, A. J. Barth, A. Sternberg, A. V. Filippenko, L. C. Ho, F. D. Macchetto, H.-W. Rix, & D. P. Schneider. 1996, *The Astronomical Journal*, 111, 2248–2264.
8. “The Environments of Supernovae in Archival Hubble Space Telescope Images.” A. J. Barth, S. D. Van Dyk, A. V. Filippenko, B. Leibundgut, & M. W. Richmond. 1996, *The Astronomical Journal*, 111, 2047–2058.



7. “Optical Identification of Quasar 0917+7122 in the Direction of an Extreme Ultraviolet Source.” D. Maoz, E. Ofek, A. Shemi, A. J. Barth, A. V. Filippenko, M. S. Brotherton, B. J. Wills, D. Wills, & F. J. Lockman. 1996, *Astronomy & Astrophysics*, 308, 511–513.
6. “A Black Hole in the X-Ray Nova GS 2000+25.” A. V. Filippenko, T. Matheson, & A. J. Barth. 1995, *The Astrophysical Journal Letters*, 455, L139–142.
5. “Was Fritz Zwicky’s ‘Type V’ SN 1961V a Genuine Supernova?” A. V. Filippenko, A. J. Barth, G. C. Bower, L. C. Ho, G. S. Stringfellow, R. W. Goodrich, & A. C. Porter. 1995, *The Astronomical Journal*, 110, 2261–2273.
4. “The Type Ic Supernova 1994I in M51: Detection of Helium and Spectral Evolution.” A. V. Filippenko, A. J. Barth, *et al.* (18 authors) 1995, *The Astrophysical Journal Letters*, 450, L11–15.
3. “Hubble Space Telescope Observations of Circumnuclear Star-Forming Rings in NGC 1097 and NGC 6951.” A. J. Barth, L. C. Ho, A. V. Filippenko, & W. L. W. Sargent. 1995, *The Astronomical Journal*, 110, 1009–1018.
2. “The Peculiar Type II Supernova 1993J in M81: Transition to the Nebular Phase.” A. V. Filippenko, T. Matheson, & A. J. Barth. 1994, *The Astronomical Journal*, 108, 2220–2225.
1. “The Classical SU(2) Invariance of the SU(2)<sub>q</sub>-Invariant XXZ Spin Chain.” D. G. Caldi, A. Chodos, Z. Zhu, & A. J. Barth. 1991, *Letters in Mathematical Physics*, 22, 163–165.

### Invited Reviews

2. “Black Holes in Active Galaxies.” A. J. Barth. 2004, in *Carnegie Observatories Astrophysics Series, Vol. 1: Coevolution of Black Holes and Galaxies*, edited by L. C. Ho (Cambridge University Press), 21–36.
1. “Low-Luminosity AGNs and Unification.” A. J. Barth. 2002, in *ASP Conference Series Vol. 258, Issues in Unification of AGNs*, edited by R. Maiolino, A. Marconi, & N. Nagar, 147–158.

### Conference Papers

21. “The infrared imaging spectrograph (IRIS) for TMT: latest science cases and simulations.” S. A. Wright *et al.* 2016, in Proc. SPIE 9909, “Adaptive Optics Systems V”, 990905.
20. “The InfraRed Imaging Spectrograph (IRIS) for TMT: Overview of innovative science programs.” S. A. Wright *et al.* 2014, in Proc. SPIE 9147, “Ground-based and Airborne Instrumentation for Astronomy V”, 91479S-1.
19. “The infrared imaging spectrograph (IRIS) for TMT: the science case.” E. J. Barton, J. E. Larkin, A. M. Moore, S. A. Wright, D. Crampton, L. Simard, B. Macintosh, P. Côté, A. J. Barth, A. M. Ghez, J. R. Lu, T. J. Davidge, D. R. Law, and the IRIS Science Team. 2010, in Proc. SPIE 7735, “Ground-based and Airborne Instrumentation for Astronomy III”.
18. “The Smallest AGN Host Galaxies.” J. E. Greene, A. J. Barth, & L. C. Ho. 2006, *New Astronomy Reviews*, 50, 739–742.
17. “Seyfert 2 Galaxies Uncovered with Keck Spectropolarimetry.” L. E. Kay, E. C. Moran, A. J. Barth, A. V. Filippenko, & A. M. Magalhaes. 2005, in *ASP Conference Series Vol. 343, Astronomical Polarimetry: Current Status and Future Directions*, edited by A. Adamson *et al.*, 505.
16. “SN 1994W: Evidence of Explosive Mass Ejection a Few Years Before Explosion.” N. N. Chugai, R. J. Cumming, S. I. Blinnikov, P. Lundquist, A. V. Filippenko, A. J. Barth, A. Bragaglia, D. C. Leonard, T. Matheson, & J. Sollerman. 2005, in *Cosmic Explosions, Proceedings of IAU Colloquium 192*, edited by J. M. Marcaide & K. W. Weller (Springer-Verlag), 111.
15. “Intermediate-Mass Black Holes in Active Galactic Nuclei.” A. J. Barth, J. E. Greene, & L. C. Ho. 2005, in *Growing Black Holes: Accretion in a Cosmological Context*, edited by A. Merloni, S. Nayakshin, & R. Sunyaev (Springer-Verlag), 154–158.
14. “Black Hole Masses in Active Galaxies.” A. J. Barth. 2004, in *The Interplay among Black Holes, Stars, and ISM in Galactic Nuclei: Proceedings of IAU Symposium No. 222*, edited by Th. Storchi-Bergmann, L. C. Ho, & H. R. Schmitt (Cambridge University Press), 3–8.

13. “Intermediate-mass Black Holes in Galactic Nuclei.” J.E. Greene, L.C. Ho, & A.J. Barth. 2005, in *The Interplay among Black Holes, Stars, and ISM in Galactic Nuclei: Proceedings of IAU Symposium No. 222*, edited by Th. Storchi-Bergmann, L. C. Ho, & H. R. Schmitt (Cambridge University Press), 33–36.
12. “The stellar populations in the central parsecs of galactic bulges.” M. Sarzi, H.-W. Rix, J. C. Shields, A. J. Barth, G. Rudnick, A. V. Filippenko, & W. L. W. Sargent. 2005, in *The Interplay among Black Holes, Stars, and ISM in Galactic Nuclei: Proceedings of IAU Symposium No. 222*, edited by Th. Storchi-Bergmann, L. C. Ho, & H. R. Schmitt (Cambridge University Press), 145–148.
11. “An Intermediate-Mass Black Hole in the Dwarf Seyfert 1 Galaxy POX 52.” A. J. Barth, L. C. Ho, & W. L. W. Sargent. 2004, in *ASP Conference Series Vol. 311, AGN Physics with the Sloan Digital Sky Survey*, edited by G. T. Richards & P. B. Hall, 91.
10. “A Hubble Space Telescope Spectroscopic Survey of LINER/H II Transition Nuclei.” A. J. Barth, L. C. Ho, & A. V. Filippenko. 2003, in *ASP Conference Series Vol. 290, Active Galactic Nuclei: From Central Engine to Host Galaxy*, edited by S. Collin *et al.*, 387.
9. “The Black Hole Masses and Host Galaxies of BL Lac Objects.” A. J. Barth, L. C. Ho, & W. L. W. Sargent. 2004, in *ASP Conference Series Vol. 290, Active Galactic Nuclei: From Central Engine to Host Galaxy*, edited by S. Collin *et al.*, 601.
8. “*HST* Spectroscopy of the M87 Nucleus.” J. C. Shields, B. M. Sabra, L. C. Ho, A. J. Barth, & A. V. Filippenko. 2004, in *ASP Conference Series Vol. 290, Active Galactic Nuclei: From Central Engine to Host Galaxy*, edited by S. Collin *et al.*, 401.
7. “Ultraviolet Absorption in LINERs.” J. C. Shields, B. M. Sabra, L. C. Ho, A. J. Barth, & A. V. Filippenko. 2002, in *ASP Conference Series Vol. 255, Mass Outflow in Active Galactic Nuclei: New Perspectives*, edited by D. M. Crenshaw, S. B. Kraemer, & I. M. George, 105.
6. “Measuring Black Hole Masses Using Ionized Gas Kinematics.” A. J. Barth, M. Sarzi, L. C. Ho, H.-W. Rix, J. C. Shields, A. V. Filippenko, G. Rudnick, & W. L. W. Sargent. 2001, in *ASP Conference Series Vol. 249, The Central Kiloparsec of Starbursts and AGN: The La Palma Connection*, edited by J. H. Knapen *et al.*, 370.
5. “ATV: An Image-Display Tool for IDL.” A. J. Barth. 2001, in *ASP Conference Series Vol. 238, Astronomical Data Analysis and Software Systems 2000*, edited by F. A. Primini, F. R. Harnden, & H. E. Payne, 385.
4. “A WFPC2 Search for Ultraviolet Emission from LINERs.” A. J. Barth, L. C. Ho, A. V. Filippenko, & W. L. W. Sargent. 1996, in *ASP Conference Series Vol. 103, The Physics of LINERs in View of Recent Observations*, edited by M. C. Eracleous *et al.*, 153.
3. “Hubble Space Telescope Images of Nuclear Rings in Barred Galaxies.” A. J. Barth, L. C. Ho, A. V. Filippenko, V. Gorjian, M. A. Malkan, & W. L. W. Sargent. 1996, in *ASP Conference Series Vol. 91, Barred Galaxies*, edited by R. Buta *et al.*, 94.
2. “Multiwavelength Observations of PKS 2155-304 in May 1994: The Ground-Based Campaign.” J. E. Pesce *et al.* (34 authors) 1996, in *ASP Conference Series Vol. 110, Blazar Continuum Variability*, edited by H. R. Miller, J. R. Webb, & J. C. Noble, 423.
1. “The Environments of Type Ib/c Supernovae.” S. D. Van Dyk, A. J. Barth, & A. V. Filippenko. 1996, in the *Proceedings of IAU Symposium 165, Compact Stars in Binaries*, edited by J. van Paradijs, E. P. van den Heuvel, & E. Kulkers (Dordrecht: Kluwer), 135.

#### Contributions to Science Planning Documents and White Papers

2. “Thirty Meter Telescope Detailed Science Case: 2015”. W. Skidmore *et al.*, 2015. (arXiv:1505.01195)
1. “LSST Science Book, Version 2.0.” LSST Science Collaborations, 2009. (arXiv:0912.0201)

#### International Astronomical Union (IAU) Circulars and Central Bureau for Astronomical Telegrams (CBET) Telegrams: (<http://www.cbat.eps.harvard.edu/cbet/RecentCBETs.html>)

Contributions to IAU Circulars 5964, 5971, 6001, 6046, 6071, 6138, 6141, 6165, 6195, 6246, 6267, 6270, 6490, 6627, 6633, 6794, 6971, 7604, 7607, and 7829, and CBET Telegrams 1313, 2681, 2712, and 3111.

**Gamma-ray Burst Coordinates Network (GCN) Circulars** ([http://gcn.gsfc.nasa.gov/gcn/gcn3\\_archive.html](http://gcn.gsfc.nasa.gov/gcn/gcn3_archive.html))  
Contributions to Circulars 1475, 1477, 1569, and 1620.