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Faint quasars at very low frequencies

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References

- Abolfathi, B., Aguado, D. S., Aguilar, G., et al. 2018, *ApJS*, 235, 42
- Adelberger, K. L., Steidel, C. C., Pettini, M., et al. 2005, *ApJ*, 619, 697
- Ahn, C. P., Alexandroff, R., Allende Prieto, C., et al. 2012, *ApJS*, 203, 21
- Aird, J., Coil, A. L., Georgakakis, A., et al. 2015, *MNRAS*, 451, 1892
- Akiyama, M., He, W., Ikeda, H., et al. 2018, , 70, S34
- Alexander, P. 2000, *MNRAS*, 319, 8
- Allevato, V., Finoguenov, A., & Cappelluti, N. 2014a, *ApJ*, 797, 96
- Allevato, V., Finoguenov, A., Cappelluti, N., et al. 2011, *ApJ*, 736, 99
- Allevato, V., Finoguenov, A., Civano, F., et al. 2014b, *ApJ*, 796, 4
- Allison, R., Lindsay, S. N., Sherwin, B. D., et al. 2015, *MNRAS*, 451, 849
- Altman, N. S. 1992, *The American Statistician*, 46, 175
- Antonucci, R. 1993, *ARAA*, 31, 473
- Ashby, M. L. N., Stern, D., Brodwin, M., et al. 2009, *ApJ*, 701, 428
- Assef, R. J., Frank, S., Grier, C. J., et al. 2012, *ApJL*, 753, L2
- Assef, R. J., Kochanek, C. S., Ashby, M. L. N., et al. 2011, *ApJ*, 728, 56
- Assef, R. J., Kochanek, C. S., Brodwin, M., et al. 2010, *ApJ*, 713, 970

- Autry, R. G., Probst, R. G., Starr, B. M., et al. 2003, in Proc. SPIE, Vol. 4841, Instrument Design and Performance for Optical/Infrared Ground-based Telescopes, ed. M. Iye & A. F. M. Moorwood, 525–539
- Bañados, E., Venemans, B. P., Mazzucchelli, C., et al. 2018, *Nature*, 553, 473
- Bañados, E., Venemans, B. P., Morganson, E., et al. 2015, *ApJ*, 804, 118
- Bahcall, N. A., Dong, F., Hao, L., et al. 2003, *ApJ*, 599, 814
- Baldwin, J. A. 1977, *ApJ*, 214, 679
- Barone-Nugent, R. L., Trenti, M., Wyithe, J. S. B., et al. 2014, *ApJ*, 793, 17
- Barvainis, R., Lehár, J., Birkinshaw, M., Falcke, H., & Blundell, K. M. 2005, *ApJ*, 618, 108
- Becker, R. H., White, R. L., Gregg, M. D., et al. 2000, *ApJ*, 538, 72
- Becker, R. H., White, R. L., & Helfand, D. J. 1995, *ApJ*, 450, 559
- Begelman, M. C., Blandford, R. D., & Rees, M. J. 1984, *Reviews of Modern Physics*, 56, 255
- Bershady, M. A., Charlton, J. C., & Geoffroy, J. M. 1999, *ApJ*, 518, 103
- Best, P. N., Kauffmann, G., Heckman, T. M., et al. 2005, *MNRAS*, 362, 25
- Bian, F., Fan, X., Jiang, L., et al. 2013, *ApJ*, 774, 28
- Bisnovatyi-Kogan, G. S. 2001, *Stellar physics. Vol.1: Fundamental concepts and stellar equilibrium*
- Blandford, R. D. & Znajek, R. L. 1977, *MNRAS*, 179, 433
- Blanton, M. R., Lin, H., Lupton, R. H., et al. 2003, *AJ*, 125, 2276
- Bongiorno, A., Zamorani, G., Gavignaud, I., et al. 2007, *A&A*, 472, 443
- Bonoli, S., Marulli, F., Springel, V., et al. 2009, *MNRAS*, 396, 423

- Bonzini, M., Padovani, P., Mainieri, V., et al. 2013, MNRAS, 436, 3759
- Boroson, T. A. & Green, R. F. 1992, ApJS, 80, 109
- Bovy, J., Hennawi, J. F., Hogg, D. W., et al. 2011, ApJ, 729, 141
- Boyle, B. J., Shanks, T., Croom, S. M., et al. 2000, MNRAS, 317, 1014
- Brammer, G. B., van Dokkum, P. G., & Coppi, P. 2008, ApJ, 686, 1503
- Breiman, L. 1996, Machine Learning, 24, 123
- Breiman, L. 2001, Machine Learning, 45, 5
- Bridle, A. H., Hough, D. H., Lonsdale, C. J., Burns, J. O., & Laing, R. A. 1994, AJ, 108, 766
- Bridle, A. H. & Perley, R. A. 1984, ARAA, 22, 319
- Bridle, A. H. & Schwab, F. R. 1999, in Astronomical Society of the Pacific Conference Series, Vol. 180, Synthesis Imaging in Radio Astronomy II, ed. G. B. Taylor, C. L. Carilli, & R. A. Perley, 371
- Brotherton, M. S. & Francis, P. J. 1999, in Astronomical Society of the Pacific Conference Series, Vol. 162, Quasars and Cosmology, ed. G. Ferland & J. Baldwin, 395
- Brown, M. J. I., Brand, K., Dey, A., et al. 2006, ApJ, 638, 88
- Brown, M. J. I., Webster, R. L., & Boyle, B. J. 2000, MNRAS, 317, 782
- Calzetti, D., Armus, L., Bohlin, R. C., et al. 2000, ApJ, 533, 682
- Campbell, J., Lo, A., & MacKinlay, A. 2012, The Econometrics of Financial Markets (Princeton University Press)
- Carballo, R., González-Serrano, J. I., Montenegro-Montes, F. M., et al. 2006, MNRAS, 370, 1034
- Carrasco, D., Barrientos, L. F., Pichara, K., et al. 2015, A&A, 584, A44
- Chabrier, G., Baraffe, I., Allard, F., & Hauschildt, P. 2000, ApJ, 542, 464

- Chambers, K. C., Magnier, E. A., Metcalfe, N., et al. 2016, arXiv e-prints, arXiv:1612.05560
- Chen, T. & Guestrin, C. 2016, arXiv e-prints, arXiv:1603.02754
- Chiaberge, M. & Marconi, A. 2011, MNRAS, 416, 917
- Cirasuolo, M., Magliocchetti, M., & Celotti, A. 2005, MNRAS, 357, 1267
- Cirasuolo, M., Magliocchetti, M., Celotti, A., & Danese, L. 2003, MNRAS, 341, 993
- Cirasuolo, M., Magliocchetti, M., Gentile, G., et al. 2006, MNRAS, 371, 695
- Coatman, L., Hewett, P. C., Banerji, M., & Richards, G. T. 2016, MNRAS, 461, 647
- Cohen, A. S., Lane, W. M., Cotton, W. D., et al. 2007, AJ, 134, 1245
- Coil, A. L., Newman, J. A., Cooper, M. C., et al. 2006, ApJ, 644, 671
- Colless, M., Dalton, G., Maddox, S., et al. 2001, MNRAS, 328, 1039
- Collier, J. D., Norris, R. P., Filipović, M. D., & Tothill, N. F. H. 2016, *Astronomische Nachrichten*, 337, 36
- Condon, J. J. 1992, ARAA, 30, 575
- Condon, J. J. 2007, in *Astronomical Society of the Pacific Conference Series*, Vol. 380, *Deepest Astronomical Surveys*, ed. J. Afonso, H. C. Ferguson, B. Mobasher, & R. Norris, 189
- Condon, J. J., Cotton, W. D., Fomalont, E. B., et al. 2012, ApJ, 758, 23
- Condon, J. J., Cotton, W. D., Greisen, E. W., et al. 1998, AJ, 115, 1693
- Condon, J. J., Kellermann, K. I., Kimball, A. E., Ivezić, Ž., & Perley, R. A. 2013, ApJ, 768, 37
- Cool, R. J. 2007, ApJS, 169, 21
- Cool, R. J., Kochanek, C. S., Eisenstein, D. J., et al. 2006, AJ, 132, 823

- Cortes, C. & Vapnik, V. 1995, *Machine Learning*, 20, 273
- Cotton, W. D., Condon, J. J., Perley, R. A., et al. 2004, in *Proc. SPIE*, Vol. 5489, *Ground-based Telescopes*, ed. J. M. Oschmann, Jr., 180–189
- Coziol, R., Andernach, H., Torres-Papaqui, J. P., Ortega-Minakata, R. A., & Moreno del Rio, F. 2017, *MNRAS*, 466, 921
- Cristiani, S. & Vio, R. 1990, *A&A*, 227, 385
- Croom, S. M. 2011, *ApJ*, 736, 161
- Croom, S. M., Boyle, B. J., Shanks, T., et al. 2005, *MNRAS*, 356, 415
- Croom, S. M., Richards, G. T., Shanks, T., et al. 2009a, *MNRAS*, 392, 19
- Croom, S. M., Richards, G. T., Shanks, T., et al. 2009b, *MNRAS*, 399, 1755
- Croom, S. M., Smith, R. J., Boyle, B. J., et al. 2001, *MNRAS*, 322, L29
- Croom, S. M., Smith, R. J., Boyle, B. J., et al. 2004, *MNRAS*, 349, 1397
- Croton, D. J., Springel, V., White, S. D. M., et al. 2006, *MNRAS*, 365, 11
- Cutri, R. M. 2013, *VizieR Online Data Catalog*, 2328
- Czerny, B., Li, J., Loska, Z., & Szczerba, R. 2004, *MNRAS*, 348, L54
- da Ângela, J., Shanks, T., Croom, S. M., et al. 2008, *MNRAS*, 383, 565
- Daddi, E., Röttgering, H. J. A., Labbé, I., et al. 2003, *ApJ*, 588, 50
- Davidson, K. & Netzer, H. 1979, *Rev. Mod. Phys.*, 51, 715
- Davies, R. I., Thomas, J., Genzel, R., et al. 2006, *ApJ*, 646, 754
- Davis, M. & Peebles, P. J. E. 1983, *ApJ*, 267, 465
- Dawson, K. S., Kneib, J.-P., Percival, W. J., et al. 2016, *AJ*, 151, 44
- de Francesco, G., Capetti, A., & Marconi, A. 2006, *A&A*, 460, 439

- de Francesco, G., Capetti, A., & Marconi, A. 2008, *A&A*, 479, 355
- de Jong, R. S., Bellido-Tirado, O., Chiappini, C., et al. 2012, in *Proc. SPIE*, Vol. 8446, Ground-based and Airborne Instrumentation for Astronomy IV, 84460T
- de Vries, W. H., Becker, R. H., & White, R. L. 2006, *AJ*, 131, 666
- de Vries, W. H., Morganti, R., Röttgering, H. J. A., et al. 2002, *AJ*, 123, 1784
- de Zotti, G., Massardi, M., Negrello, M., & Wall, J. 2010, *A&A Reviews*, 18, 1
- DESI Collaboration, Aghamousa, A., Aguilar, J., et al. 2016, *ArXiv e-prints* [[arXiv]1611.00036]
- di Matteo, T., Springel, V., & Hernquist, L. 2005, 433, 604
- DiPompeo, M. A., Brotherton, M. S., De Breuck, C., & Laurent-Muehleisen, S. 2011, *ApJ*, 743, 71
- DiPompeo, M. A., Hickox, R. C., & Myers, A. D. 2015, *ArXiv e-prints* [[arXiv]1511.04469]
- Donley, J. L., Koekemoer, A. M., Brusa, M., et al. 2012, *ApJ*, 748, 142
- Donoso, E., Li, C., Kauffmann, G., Best, P. N., & Heckman, T. M. 2010, *MNRAS*, 407, 1078
- Doroshenko, V. T., Sergeev, S. G., Klimanov, S. A., Pronik, V. I., & Efimov, Y. S. 2012, *MNRAS*, 426, 416
- Dunlop, J. S., McLure, R. J., Kukula, M. J., et al. 2003, *MNRAS*, 340, 1095
- Edge, D. O., Shakeshaft, J. R., McAdam, W. B., Baldwin, J. E., & Archer, S. 1959, *MEMRAS*, 68, 37
- Efstathiou, G., Bond, J. R., & White, S. D. M. 1992, *MNRAS*, 258, 1P
- Eftekharzadeh, S., Myers, A. D., White, M., et al. 2015, *MNRAS*, 453, 2779
- Einstein, A. 1916, *Annalen Phys.*, 49, 769, [,65(1916)]

- El Boucheffy, K. & Cress, C. M. 2007, *Astronomische Nachrichten*, 328, 577
- Fan, X. 1999, *AJ*, 117, 2528
- Fan, X., Narayanan, V. K., Lupton, R. H., et al. 2001, *AJ*, 122, 2833
- Fanaroff, B. L. & Riley, J. M. 1974, *MNRAS*, 167, 31P
- Fanidakis, N., Baugh, C. M., Benson, A. J., et al. 2011, *MNRAS*, 410, 53
- Fanidakis, N., Baugh, C. M., Benson, A. J., et al. 2012, *MNRAS*, 419, 2797
- Fanidakis, N., Georgakakis, A., Mountrichas, G., et al. 2013a, *MNRAS*, 435, 679
- Fanidakis, N., Macciò, A. V., Baugh, C. M., Lacey, C. G., & Frenk, C. S. 2013b, *MNRAS*, 436, 315
- Fanti, C., Fanti, R., Dallacasa, D., et al. 1995, *A&A*, 302, 317
- Fanti, C., Fanti, R., Parma, P., et al. 1989, *A&A*, 217, 44
- Fanti, C., Fanti, R., Schilizzi, R. T., Spencer, R. E., & van Breugel, W. J. M. 1986, *A&A*, 170, 10
- Fanti, R., Fanti, C., Schilizzi, R. T., et al. 1990, *A&A*, 231, 333
- Fernandes, C. A. C., Jarvis, M. J., Rawlings, S., et al. 2011, *MNRAS*, 411, 1909
- Ferrarese, L. & Merritt, D. 2000, *ApJL*, 539, L9
- Fine, S., Shanks, T., Nikoloudakis, N., & Sawangwit, U. 2011, *MNRAS*, 418, 2251
- Fisher, K. B., Davis, M., Strauss, M. A., Yahil, A., & Huchra, J. 1994, *MNRAS*, 266, 50
- Flaugher, B. 2005, *International Journal of Modern Physics A*, 20, 3121
- Flaugher, B. 2005, *International Journal of Modern Physics A*, 20, 3121
- Flesch, E. W. 2015, *PASA*, 32, e010
- Fontanot, F., Cristiani, S., Monaco, P., et al. 2007, *A&A*, 461, 39

Franzen, T. M. O., Jackson, C. A., Offringa, A. R., et al. 2016, MNRAS, 459, 3314

Fukugita, M., Ichikawa, T., Gunn, J. E., et al. 1996, AJ, 111, 1748

Gao, D., Zhang, Y.-X., & Zhao, Y.-H. 2008, MNRAS, 386, 1417

Gavignaud, I., Bongiorno, A., Paltani, S., et al. 2006, A&A, 457, 79

Gebhardt, K., Bender, R., Bower, G., et al. 2000, ApJL, 539, L13

Gehrels, N. 1986, ApJ, 303, 336

Georgakakis, A., Aird, J., Buchner, J., et al. 2015, MNRAS, 453, 1946

Giallongo, E., Grazian, A., Fiore, F., et al. 2015, A&A, 578, A83

Gilli, R., Daddi, E., Zamorani, G., et al. 2005, A&A, 430, 811

Gilli, R., Zamorani, G., Miyaji, T., et al. 2009, A&A, 494, 33

Glikman, E., Djorgovski, S. G., Stern, D., et al. 2011, ApJL, 728, L26

Glikman, E., Gregg, M. D., Lacy, M., et al. 2004, ApJ, 607, 60

Glikman, E., Urrutia, T., Lacy, M., et al. 2012, ApJ, 757, 51

Glikman, E., Urrutia, T., Lacy, M., et al. 2013, ApJ, 778, 127

Goldschmidt, P., Kukula, M. J., Miller, L., & Dunlop, J. S. 1999, ApJ, 511, 612

Grazian, A., Giallongo, E., Boutsia, K., et al. 2018, A&A, 613, A44

Grier, C. J., Peterson, B. M., Pogge, R. W., et al. 2012, ApJ, 755, 60

Gunn, J. E., Carr, M., Rockosi, C., et al. 1998, AJ, 116, 3040

Gunn, J. E., Siegmund, W. A., Mannery, E. J., et al. 2006, AJ, 131, 2332

Gurkan, G. e. a. 2019, A&A

Guzzo, L., Strauss, M. A., Fisher, K. B., Giovanelli, R., & Haynes, M. P. 1997, ApJ, 489, 37

- Haardt, F. & Madau, P. 2012, *ApJ*, 746, 125
- Hales, S. E. G., Baldwin, J. E., & Warner, P. J. 1988, *MNRAS*, 234, 919
- Hamana, T., Yoshida, N., & Suto, Y. 2002, *ApJ*, 568, 455
- Hamilton, A. J. S. 1993, *ApJ*, 417, 19
- Härdle, W. 1990, *Applied Nonparametric Regression*, *Econometric Society Monographs* (Cambridge University Press)
- Hasinger, G., Miyaji, T., & Schmidt, M. 2005, *A&A*, 441, 417
- Hatziminaoglou, E., Mathez, G., & Pelló, R. 2000, *A&A*, 359, 9
- Heald, G. H., Pizzo, R. F., Orrú, E., et al. 2015, *A&A*, 582, A123
- Helfand, D. J., White, R. L., & Becker, R. H. 2015, *ApJ*, 801, 26
- Herrera Ruiz, N., Middelberg, E., Norris, R. P., & Maini, A. 2016, *A&A*, 589, L2
- Hertzsprung, E. 1909, *Astronomische Nachrichten*, 179, 373
- Heywood, I., Jarvis, M. J., & Condon, J. J. 2013, *MNRAS*, 432, 2625
- Hickox, R. C., Jones, C., Forman, W. R., et al. 2009, *ApJ*, 696, 891
- Hickox, R. C., Myers, A. D., Brodwin, M., et al. 2011, *ApJ*, 731, 117
- Hickox, R. C., Wardlow, J. L., Smail, I., et al. 2012, *MNRAS*, 421, 284
- Hoaglin, D. C., Mosteller, F., & Tukey, J. W. 1983, *Understanding robust and exploratory data analysis*
- Hodapp, K. W., Siegmund, W. A., Kaiser, N., et al. 2004, in *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, Vol. 5489, *Ground-based Telescopes*, ed. J. Oschmann, Jacobus M., 667–678
- Hodge, J. A., Becker, R. H., White, R. L., Richards, G. T., & Zeimann, G. R. 2011, *AJ*, 142, 3

- Hook, I. M., McMahon, R. G., Shaver, P. A., & Snellen, I. A. G. 2002, *A&A*, 391, 509
- Hook, I. M., Shaver, P. A., & McMahon, R. G. 1998, in *Astronomical Society of the Pacific Conference Series*, Vol. 146, *The Young Universe: Galaxy Formation and Evolution at Intermediate and High Redshift*, ed. S. D'Odorico, A. Fontana, & E. Giallongo, 17
- Hopkins, A. M., Mobasher, B., Cram, L., & Rowan-Robinson, M. 1998, *MNRAS*, 296, 839
- Hopkins, P. F., Hernquist, L., Cox, T. J., & Kereš, D. 2008, *ApJS*, 175, 356
- Hoyle, F. 1948, *MNRAS*, 108, 372
- Ilbert, O., Arnouts, S., McCracken, H. J., et al. 2006, *A&A*, 457, 841
- Intema, H. T. 2014, in *Astronomical Society of India Conference Series*, Vol. 13, *Astronomical Society of India Conference Series*
- Intema, H. T., Jagannathan, P., Mooley, K. P., & Frail, D. A. 2017, *A&A*, 598, A78
- Intema, H. T., van der Tol, S., Cotton, W. D., et al. 2009, *A&A*, 501, 1185
- Ivashchenko, G., Zhdanov, V. I., & Tugay, A. V. 2010, *MNRAS*, 409, 1691
- Ivezić, Ž., Brandt, W. N., Fan, X., et al. 2014, in *IAU Symposium*, Vol. 304, *Multi-wavelength AGN Surveys and Studies*, ed. A. M. Mickaelian & D. B. Sanders, 11–17
- Ivezić, Ž., Kahn, S. M., Tyson, J. A., et al. 2019, *ApJ*, 873, 111
- Ivezić, Ž., Menou, K., Knapp, G. R., et al. 2002, *AJ*, 124, 2364
- Jackson, J. C. 1972, *MNRAS*, 156, 1P
- Jannuzi, B., Weiner, B., Block, M., et al. 2010, in *Bulletin of the American Astronomical Society*, Vol. 42, *American Astronomical Society Meeting Abstracts #215*, 513
- Jannuzi, B. T. & Dey, A. 1999, in *Astronomical Society of the Pacific Conference Series*, Vol. 191, *Photometric Redshifts and the Detection of High Redshift Galaxies*, ed. R. Weymann, L. Storrie-Lombardi, M. Sawicki, & R. Brunner, 111

- Jansky, K. G. 1933, *Nature*, 132, 66
- Jarvis, M. J. & McLure, R. J. 2002, *MNRAS*, 336, L38
- Jiang, L., Fan, X., Ivezić, Ž., et al. 2007a, *ApJ*, 656, 680
- Jiang, L., Fan, X., Vestergaard, M., et al. 2007b, *AJ*, 134, 1150
- Jiang, L., McGreer, I. D., Fan, X., et al. 2016, *ApJ*, 833, 222
- Jin, X., Zhang, Y., Zhang, J., et al. 2019, *MNRAS*, 485, 4539
- Kaiser, N. 1987, *MNRAS*, 227, 1
- Kaiser, N., Aussel, H., Burke, B. E., et al. 2002, in *Proc. SPIE*, Vol. 4836, *Survey and Other Telescope Technologies and Discoveries*, ed. J. A. Tyson & S. Wolff, 154–164
- Kaiser, N., Burgett, W., Chambers, K., et al. 2010, in *Proc. SPIE*, Vol. 7733, *Ground-based and Airborne Telescopes III*, 77330E
- Kashikawa, N., Ishizaki, Y., Willott, C. J., et al. 2015, *ApJ*, 798, 28
- Kaspi, S., Netzer, H., Maoz, D., et al. 2004, in *Coevolution of Black Holes and Galaxies*, ed. L. C. Ho, 30
- Kaspi, S., Smith, P. S., Netzer, H., et al. 2000, *ApJ*, 533, 631
- Kassim, N. E., Perley, R. A., Erickson, W. C., & Dwarakanath, K. S. 1993, *AJ*, 106, 2218
- Katgert, P., Oort, M. J. A., & Windhorst, R. A. 1988, *A&A*, 195, 21
- Kauffmann, G., Heckman, T. M., Tremonti, C., et al. 2003, *MNRAS*, 346, 1055
- Kazemi, S., Yatawatta, S., Zaroubi, S., et al. 2011, *MNRAS*, 414, 1656
- Kellermann, K. I., Fomalont, E. B., Weistrop, D., & Wall, J. 1986, *Highlights of Astronomy*, 7, 367
- Kellermann, K. I., Sramek, R., Schmidt, M., Shaffer, D. B., & Green, R. 1989, *AJ*, 98, 1195

- Kennefick, J. D., Djorgovski, S. G., & de Carvalho, R. R. 1995, *AJ*, 110, 2553
- Kenter, A., Murray, S. S., Forman, W. R., et al. 2005, *ApJS*, 161, 9
- Kerr, R. P. 1963, *Physical Review Letters*, 11, 237
- Kimball, A. E., Kellermann, K. I., Condon, J. J., Ivezić, Ž., & Perley, R. A. 2011, *ApJL*, 739, L29
- Kimball, A. E., Knapp, G. R., Ivezić, Ž., et al. 2009, *ApJ*, 701, 535
- Kirkpatrick, J. A., Schlegel, D. J., Ross, N. P., et al. 2011, *ApJ*, 743, 125
- Kochanek, C. S., Eisenstein, D. J., Cool, R. J., et al. 2012, *ApJS*, 200, 8
- Kratzer, R. M. & Richards, G. T. 2015, *AJ*, 149, 61
- Krumpe, M., Miyaji, T., & Coil, A. L. 2010, *ApJ*, 713, 558
- Kunert-Bajraszewska, M., Cegłowski, M., Katarzyński, K., & Roskowiński, C. 2015, *A&A*, 579, A109
- Kurk, J., Venemans, B., Röttgering, H., Miley, G., & Pentericci, L. 2004, in *Astrophysics and Space Science Library*, Vol. 301, *Astrophysics and Space Science Library*, ed. M. Plionis, 141
- La Franca, F., Gregorini, L., Cristiani, S., de Ruiter, H., & Owen, F. 1994, *AJ*, 108, 1548
- Lacy, M., Petric, A. O., Sajina, A., et al. 2007, *AJ*, 133, 186
- Lacy, M., Wilson, G., Masci, F., et al. 2005, *ApJS*, 161, 41
- Landy, S. D. & Szalay, A. S. 1993, *ApJ*, 412, 64
- Lang, D. 2014, *AJ*, 147, 108
- Laor, A. 2000, *ApJL*, 543, L111
- Laureijs, R., Amiaux, J., Arduini, S., et al. 2011, *arXiv e-prints* [[arXiv]1110.3193]

- Le Fèvre, O., Cassata, P., Cucciati, O., et al. 2013, *A&A*, 559, A14
- Leipski, C., Falcke, H., Bennert, N., & Hüttemeister, S. 2006, *A&A*, 455, 161
- Li, Q. & Racine, J. 2011, *Nonparametric Econometrics: Theory and Practice* (Princeton University Press)
- Lin, Y.-T., Shen, Y., Strauss, M. A., Richards, G. T., & Lunnan, R. 2010, *ApJ*, 723, 1119
- Lindsay, S. N., Jarvis, M. J., & McAlpine, K. 2014a, *MNRAS*, 440, 2322
- Lindsay, S. N., Jarvis, M. J., Santos, M. G., et al. 2014b, *MNRAS*, 440, 1527
- Lira, P., Kaspi, S., Netzer, H., et al. 2018, *ApJ*, 865, 56
- Liu, Y., Jiang, D. R., Wang, T. G., & Xie, F. G. 2008, *MNRAS*, 391, 246
- Loh, Y.-S., Rich, R. M., Heinis, S., et al. 2010, *MNRAS*, 407, 55
- Lonsdale, C. J., Cappallo, R. J., Morales, M. F., et al. 2009, *IEEE Proceedings*, 97, 1497
- Lonsdale, C. J., Smith, H. E., Rowan-Robinson, M., et al. 2003, *PASP*, 115, 897
- LSST Science Collaboration, Abell, P. A., Allison, J., et al. 2009, *ArXiv e-prints* [[arXiv]0912.0201]
- Lu, Y., Wang, T., Zhou, H., & Wu, J. 2007, *AJ*, 133, 1615
- Lupton, R. H., Gunn, J. E., & Szalay, A. S. 1999, *AJ*, 118, 1406
- Lynden-Bell, D. 1969, *Nature*, 223, 690
- MacLeod, C. L., Brooks, K., Ivezić, Ž., et al. 2011, *ApJ*, 728, 26
- MacLeod, C. L., Ivezić, Ž., Kochanek, C. S., et al. 2010, *ApJ*, 721, 1014
- Madau, P., Haardt, F., & Rees, M. J. 1999, *ApJ*, 514, 648

- Maddox, N., Hewett, P. C., Péroux, C., Nestor, D. B., & Wisotzki, L. 2012, MNRAS, 424, 2876
- Magliocchetti, M., Maddox, S. J., Hawkins, E., et al. 2004, MNRAS, 350, 1485
- Magliocchetti, M., Maddox, S. J., Jackson, C. A., et al. 2002, MNRAS, 333, 100
- Magliocchetti, M., Maddox, S. J., Lahav, O., & Wall, J. V. 1998, MNRAS, 300, 257
- Magnier, E. A., Sweeney, W. E., Chambers, K. C., et al. 2016, arXiv e-prints, arXiv:1612.05244
- Mahony, E. K., Morganti, R., Prandoni, I., et al. 2016, MNRAS, 463, 2997
- Mandal, S. in prep.
- Martin, D. C., Fanson, J., Schiminovich, D., et al. 2005, ApJL, 619, L1
- Masters, D., Capak, P., Salvato, M., et al. 2012, ApJ, 755, 169
- Masters, D., Capak, P., Stern, D., et al. 2015, ApJ, 813, 53
- Matsuoka, Y., Onoue, M., Kashikawa, N., et al. 2016, ApJ, 828, 26
- Matthews, T. A. & Sandage, A. R. 1963, ApJ, 138, 30
- Mauduit, J. C., Lacy, M., Farrah, D., et al. 2012, PASP, 124, 1135
- McGreer, I. D., Becker, R. H., Helfand, D. J., & White, R. L. 2006, ApJ, 652, 157
- McGreer, I. D., Fan, X., Jiang, L., & Cai, Z. 2018, AJ, 155, 131
- McGreer, I. D., Helfand, D. J., & White, R. L. 2009, AJ, 138, 1925
- McGreer, I. D., Jiang, L., Fan, X., et al. 2013, ApJ, 768, 105
- McLure, R. J. & Dunlop, J. S. 2001, MNRAS, 321, 515
- McLure, R. J. & Dunlop, J. S. 2004, MNRAS, 352, 1390
- McLure, R. J. & Jarvis, M. J. 2004, MNRAS, 353, L45

- Meier, D. L. 1976a, *ApJL*, 203, L103
- Meier, D. L. 1976b, *ApJ*, 207, 343
- Meneux, B., Guzzo, L., de la Torre, S., et al. 2009, *A&A*, 505, 463
- Messias, H., Afonso, J., Salvato, M., Mobasher, B., & Hopkins, A. M. 2012, *ApJ*, 754, 120
- Metcalf, R. B. & Magliocchetti, M. 2006, *MNRAS*, 365, 101
- Miley, G. & De Breuck, C. 2008, *A&A Reviews*, 15, 67
- Miley, G. K., Overzier, R. A., Zirm, A. W., et al. 2006, *ApJL*, 650, L29
- Miller, L., Peacock, J. A., & Mead, A. R. G. 1990, *MNRAS*, 244, 207
- Miller, N. A., Bonzini, M., Fomalont, E. B., et al. 2013, *ApJS*, 205, 13
- Miyaji, T., Hasinger, G., Salvato, M., et al. 2015, *ApJ*, 804, 104
- Mohan, N. & Rafferty, D. 2015, PyBDSM: Python Blob Detection and Source Measurement, Astrophysics Source Code Library
- Møller, P. & Jakobsen, P. 1990, *A&A*, 228, 299
- Morabito, L. K., Deller, A. T., Röttgering, H., et al. 2016, *MNRAS*, 461, 2676
- Morabito, L. K., Matthews, J. H., Best, P. N., et al. 2018, *ArXiv e-prints* [[arXiv]1811.07931]
- Mortlock, D. J., Warren, S. J., Venemans, B. P., et al. 2011, *Nature*, 474, 616
- Mountrichas, G. & Georgakakis, A. 2012, *MNRAS*, 420, 514
- Mountrichas, G., Georgakakis, A., Finoguenov, A., et al. 2013, *MNRAS*, 430, 661
- Mullin, L. M., Riley, J. M., & Hardcastle, M. J. 2008, *MNRAS*, 390, 595
- Myers, A. D., Brunner, R. J., Nichol, R. C., et al. 2007, *ApJ*, 658, 85
- Myers, A. D., Brunner, R. J., Richards, G. T., et al. 2006, *ApJ*, 638, 622

- Myers, A. D., Palanque-Delabrouille, N., Prakash, A., et al. 2015, *ApJS*, 221, 27
- Nadaraya, E. 1964, *Theory of Probability & Its Applications*, 9, 141
- Nakoneczny, S., Bilicki, M., Solarz, A., et al. 2019, *A&A*, 624, A13
- Niida, M., Nagao, T., Ikeda, H., et al. 2016, *ApJ*, 832, 208
- Noordam, J. E. 2004, in *Proc. SPIE*, Vol. 5489, *Ground-based Telescopes*, ed. J. M. Oschmann, Jr., 817–825
- Norberg, P., Baugh, C. M., Gaztañaga, E., & Croton, D. J. 2009, *MNRAS*, 396, 19
- Norris, R. P. 2017, *Nature Astronomy*, 1, 671
- Norris, R. P., Hopkins, A. M., Afonso, J., et al. 2011, *PASA*, 28, 215
- Nusser, A. & Tiwari, P. 2015, *ApJ*, 812, 85
- O'Dea, C. 1998, *Publications of the Astronomical Society of the Pacific*, 110, 493
- O'Dea, C. P. 1998, *PASP*, 110, 493
- O'Dea, C. P. & Owen, F. N. 1986, *ApJ*, 301, 841
- Offringa, A. R., de Bruyn, A. G., Biehl, M., et al. 2010, *MNRAS*, 405, 155
- Offringa, A. R., McKinley, B., Hurley-Walker, N., et al. 2014, *MNRAS*, 444, 606
- Offringa, A. R., van de Gronde, J. J., & Roerdink, J. B. T. M. 2012, *A&A*, 539, A95
- Oke, J. B. & Gunn, J. E. 1983, *ApJ*, 266, 713
- Orienti, M., Dallacasa, D., & Stanghellini, C. 2007, *A&A*, 461, 923
- Oshlack, A. Y. K. N., Webster, R. L., & Whiting, M. T. 2002, *ApJ*, 576, 81
- Overzier, R. A., Röttgering, H. J. A., Rengelink, R. B., & Wilman, R. J. 2003, *A&A*, 405, 53
- Padovani, P. 1993, *MNRAS*, 263, 461

- Padovani, P. 2011, MNRAS, 411, 1547
- Padovani, P., Bonzini, M., Kellermann, K. I., et al. 2015, MNRAS, 452, 1263
- Padovani, P., Mainieri, V., Tozzi, P., et al. 2009, ApJ, 694, 235
- Padovani, P., Miller, N., Kellermann, K. I., et al. 2011, ApJ, 740, 20
- Palanque-Delabrouille, N., Magneville, C., Yèche, C., et al. 2016, A&A, 587, A41
- Palanque-Delabrouille, N., Yèche, C., Myers, A. D., et al. 2011, A&A, 530, A122
- Papovich, C., Cool, R., Eisenstein, D., et al. 2006, AJ, 132, 231
- Papovich, C., Shipley, H. V., Mehrtens, N., et al. 2016, ApJS, 224, 28
- Pâris, I., Petitjean, P., Aubourg, É., et al. 2018, A&A, 613, A51
- Pâris, I., Petitjean, P., Ross, N. P., et al. 2017, A&A, 597, A79
- Pasquet, J., Bertin, E., Treyer, M., Arnouts, S., & Fouchez, D. 2019, A&A, 621, A26
- Pasquet-Itam, J. & Pasquet, J. 2018, A&A, 611, A97
- Pastorini, G., Marconi, A., Capetti, A., et al. 2007, A&A, 469, 405
- Pawlik, A. H., Schaye, J., & van Scherpenzeel, E. 2009, MNRAS, 394, 1812
- Peacock, J. A., Miller, L., & Longair, M. S. 1986, MNRAS, 218, 265
- Peacock, J. A. & Nicholson, D. 1991, MNRAS, 253, 307
- Peacock, J. A. & Wall, J. V. 1982, MNRAS, 198, 843
- Pearson, T. J. & Readhead, A. C. S. 1984, ARAA, 22, 97
- Peebles, P. J. E. 1980, The large-scale structure of the universe
- Pei, Y. C. 1992, ApJ, 395, 130
- Pei, Y. C. 1995, ApJ, 438, 623
- Peng, N., Zhang, Y., Zhao, Y., & Wu, X.-b. 2012, MNRAS, 425, 2599

- Peters, C. M., Richards, G. T., Myers, A. D., et al. 2015, *ApJ*, 811, 95
- Peterson, B. M. 1988, *PASP*, 100, 18
- Peterson, B. M., Ferrarese, L., Gilbert, K. M., et al. 2004, *ApJ*, 613, 682
- Porciani, C., Magliocchetti, M., & Norberg, P. 2004, *MNRAS*, 355, 1010
- Porciani, C. & Norberg, P. 2006, *MNRAS*, 371, 1824
- Prandoni, I., de Ruiter, H. R., Ricci, R., et al. 2010, *A&A*, 510, A42
- Prandoni, I., Gregorini, L., Parma, P., et al. 2000, *A&A, Supplement*, 146, 41
- Prandoni, I., Gregorini, L., Parma, P., et al. 2001, *A&A*, 365, 392
- Pu, X. 2013, *Ap & SS*, 345, 355
- Qiu, P. 2013, *Introduction to Statistical Process Control*, Chapman & Hall/CRC Texts in Statistical Science (CRC Press)
- Ramos Almeida, C., Bessiere, P. S., Tadhunter, C. N., et al. 2013, *MNRAS*, 436, 997
- Reber, G. 1940a, *Proceedings of the IRE*, 28, 68
- Reber, G. 1940b, *ApJ*, 91, 621
- Reber, G. 1944, *ApJ*, 100, 279
- Rengelink, R. B., Tang, Y., de Bruyn, A. G., et al. 1997, *A&A, Supplement*, 124
- Retana-Montenegro, E. & Röttgering, H. 2018, *Frontiers in Astronomy and Space Sciences*, 5, 5
- Retana-Montenegro, E. & Röttgering, H. J. A. 2017, *A&A*, 600, A97
- Retana-Montenegro, E., Röttgering, H. J. A., Shimwell, T. W., et al. 2018a, *A&A*, 620, A74
- Retana-Montenegro, E., Röttgering, H. J. A., Shimwell, T. W., et al. 2018b, *A&A*, 620, A74

- Richards, G. T., Fan, X., Newberg, H. J., et al. 2002, *AJ*, 123, 2945
- Richards, G. T., Kruczek, N. E., Gallagher, S. C., et al. 2011, *AJ*, 141, 167
- Richards, G. T., Myers, A. D., Gray, A. G., et al. 2009, *ApJS*, 180, 67
- Richards, G. T., Myers, A. D., Peters, C. M., et al. 2015, *ApJS*, 219, 39
- Richards, G. T., Strauss, M. A., Fan, X., et al. 2006, *AJ*, 131, 2766
- Richards, G. T., Weinstein, M. A., Schneider, D. P., et al. 2001, *AJ*, 122, 1151
- Rochais, T. B., DiPompeo, M. A., Myers, A. D., et al. 2014, *MNRAS*, 444, 2498
- Ross, N. P., McGreer, I. D., White, M., et al. 2013, *ApJ*, 773, 14
- Ross, N. P., Myers, A. D., Sheldon, E. S., et al. 2012, *ApJS*, 199, 3
- Ross, N. P., Shen, Y., Strauss, M. A., et al. 2009, *ApJ*, 697, 1634
- Röttgering, H., Afonso, J., Barthel, P., et al. 2011, *Journal of Astrophysics and Astronomy*, 32, 557
- Russell, H. N. 1914, *Popular Astronomy*, 22, 275
- Sabater, J. in prep.
- Salpeter, E. E. 1964, *ApJ*, 140, 796
- Salvato, M., Hasinger, G., Ilbert, O., et al. 2009, *ApJ*, 690, 1250
- Salvato, M., Ilbert, O., Hasinger, G., et al. 2011, *ApJ*, 742, 61
- Sandage, A. 1965, *ApJ*, 141, 1560
- Sandage, A., Véron, P., & Wyndham, J. D. 1965, *ApJ*, 142, 1307
- Sanders, D. B., Salvato, M., Aussel, H., et al. 2007, *ApJS*, 172, 86
- Scaife, A. M. M. & Heald, G. H. 2012, *MNRAS*, 423, L30
- Schilizzi, R. T. 2005, in *EAS Publications Series*, ed. L. I. Gurvits, S. Frey, & S. Rawlings, Vol. 15, 445–463

- Schindler, J.-T., Fan, X., McGreer, I. D., et al. 2017, *ApJ*, 851, 13
- Schinnerer, E., Sargent, M. T., Bondi, M., et al. 2010, *ApJS*, 188, 384
- Schlafly, E. F. & Finkbeiner, D. P. 2011, *ApJ*, 737, 103
- Schmidt, M. 1963, *Nature*, 197, 1040
- Schmidt, M. 1968, *ApJ*, 151, 393
- Schmidt, M. 1969, *ARAA*, 7, 527
- Schmidt, M., Schneider, D. P., & Gunn, J. E. 1995, *AJ*, 110, 68
- Schneider, D. P., Richards, G. T., Hall, P. B., et al. 2010, *AJ*, 139, 2360
- Schulze, A., Done, C., Lu, Y., Zhang, F., & Inoue, Y. 2017, *ApJ*, 849, 4
- Schwab, F. R. 1984, *AJ*, 89, 1076
- Schwarzschild, K. 1916, *Abh. Konigl. Preuss. Akad. Wissenschaften Jahre 1906,92, Berlin,1907, 1916*
- Scranton, R., Johnston, D., Dodelson, S., et al. 2002, *ApJ*, 579, 48
- Shankar, F., Crocce, M., Miralda-Escudé, J., Fosalba, P., & Weinberg, D. H. 2010a, *ApJ*, 718, 231
- Shankar, F., Weinberg, D. H., & Shen, Y. 2010b, *MNRAS*, 406, 1959
- Shanks, T., Croom, S. M., Fine, S., Ross, N. P., & Sawangwit, U. 2011, *MNRAS*, 416, 650
- Shaver, P. A., Wall, J. V., Kellermann, K. I., Jackson, C. A., & Hawkins, M. R. S. 1996, *Nature*, 384, 439
- Shen, Y. 2009, *ApJ*, 704, 89
- Shen, Y., Greene, J. E., Strauss, M. A., Richards, G. T., & Schneider, D. P. 2008, *ApJ*, 680, 169

- Shen, Y. & Liu, X. 2012, *ApJ*, 753, 125
- Shen, Y., McBride, C. K., White, M., et al. 2013, *ApJ*, 778, 98
- Shen, Y., Richards, G. T., Strauss, M. A., et al. 2011, *ApJS*, 194, 45
- Shen, Y., Strauss, M. A., Ross, N. P., et al. 2009, *ApJ*, 697, 1656
- Sheth, R. K., Mo, H. J., & Tormen, G. 2001, *MNRAS*, 323, 1
- Shimwell, T. W., Röttgering, H. J. A., Best, P. N., et al. 2017a, *A&A*, 598, A104
- Shimwell, T. W., Röttgering, H. J. A., Best, P. N., et al. 2017b, *A&A*, 598, A104
- Shimwell, T. W., Tasse, C., Hardcastle, M. J., et al. 2019, *A&A*, 622, A1
- Shimwell, T. W., Tasse, C., Hardcastle, M. J., et al. 2018, *arXiv e-prints*, arXiv:1811.07926
- Siana, B., Polletta, M. d. C., Smith, H. E., et al. 2008, *ApJ*, 675, 49
- Sikora, M. 2009, *Astronomische Nachrichten*, 330, 291
- Sikora, M., Stawarz, Ł., & Lasota, J.-P. 2007, *ApJ*, 658, 815
- Silverman, J. D., Green, P. J., Barkhouse, W. A., et al. 2005, *ApJ*, 624, 630
- Singal, J., Petrosian, V., Lawrence, A., & Stawarz, L. 2011, *ApJ*, 743, 104
- Singal, J., Petrosian, V., Stawarz, Ł., & Lawrence, A. 2013, *ApJ*, 764, 43
- Siopis, C., Gebhardt, K., Lauer, T. R., et al. 2009, *ApJ*, 693, 946
- Skibba, R. A., Smith, M. S. M., Coil, A. L., et al. 2014, *ApJ*, 784, 128
- Smirnov, O. M. 2011, *A&A*, 527, A107
- Smirnov, O. M. & Tasse, C. 2015, *MNRAS*, 449, 2668
- Smith, H. J. & Haffleit, D. 1963, *AJ*, 68, 292

- Smith, J. D., Thompson, D., & Djorgovski, S. 1993, in *Astronomical Society of the Pacific Conference Series*, Vol. 43, *Sky Surveys. Protostars to Protogalaxies*, ed. B. T. Soifer, 189
- Smolčić, V., Delvecchio, I., Zamorani, G., et al. 2017a, *A&A*, 602, A2
- Smolčić, V., Novak, M., Bondi, M., et al. 2017b, *A&A*, 602, A1
- Smolčić, V., Schinnerer, E., Scodeggio, M., et al. 2008, *ApJS*, 177, 14
- Snellen, I. A. G., Schilizzi, R. T., Miley, G. K., et al. 2000, *MNRAS*, 319, 445
- Somerville, R. S., Hopkins, P. F., Cox, T. J., Robertson, B. E., & Hernquist, L. 2008, *MNRAS*, 391, 481
- Spergel, D., Gehrels, N., Baltay, C., et al. 2015, arXiv e-prints [[arXiv]1503.03757]
- Spergel, D., Gehrels, N., Breckinridge, J., et al. 2013, ArXiv e-prints [[arXiv]1305.5422]
- Spergel, D. N., Bean, R., Doré, O., et al. 2007, *ApJS*, 170, 377
- Springel, V., White, S. D. M., Jenkins, A., et al. 2005, *Nature*, 435, 629
- Starikova, S., Cool, R., Eisenstein, D., et al. 2011, *ApJ*, 741, 15
- Stern, D., Djorgovski, S. G., Perley, R. A., de Carvalho, R. R., & Wall, J. V. 2000, *AJ*, 119, 1526
- Stern, D., Eisenhardt, P., Gorjian, V., et al. 2005, *ApJ*, 631, 163
- Stocke, J. T., Morris, S. L., Weymann, R. J., & Foltz, C. B. 1992, *ApJ*, 396, 487
- Sulentic, J. & Marziani, P. 2015, *Frontiers in Astronomy and Space Sciences*, 2, 6
- Sulentic, J. W., Bachev, R., Marziani, P., Negrete, C. A., & Dultzin, D. 2007, *ApJ*, 666, 757
- Sulentic, J. W., Marziani, P., & Dultzin-Hacyan, D. 2000a, *Annual Review of Astronomy and Astrophysics*, 38, 521
- Sulentic, J. W., Zamfir, S., Marziani, P., et al. 2003, *ApJL*, 597, L17

- Sulentic, J. W., Zwitter, T., Marziani, P., & Dultzin-Hacyan, D. 2000b, *ApJL*, 536, L5
- Sullivan, M., Hopkins, A. M., Afonso, J., et al. 2004, *ApJS*, 155, 1
- Sutherland, W. & Saunders, W. 1992, *MNRAS*, 259, 413
- Tasse, C. 2014, ArXiv e-prints [[arXiv]1410.8706]
- Tasse, C. in prep.
- Tasse, C., Hugo, B., Mirmont, M., et al. 2017, ArXiv e-prints [[arXiv]1712.02078]
- Tasse, C., Hugo, B., Mirmont, M., et al. 2018, *A&A*, 611, A87
- Taylor, G. B. 2007, *Highlights of Astronomy*, 14, 388
- Telfer, R. C., Zheng, W., Kriss, G. A., & Davidsen, A. F. 2002, *ApJ*, 565, 773
- Timlin, J. D., Ross, N. P., Richards, G. T., et al. 2016, *ApJS*, 225, 1
- Timlin, J. D., Ross, N. P., Richards, G. T., et al. 2018, *ApJ*, 859, 20
- Tingay, S. J., Goeke, R., Bowman, J. D., et al. 2013, *PASA*, 30, e007
- Tonry, J. L., Stubbs, C. W., Lykke, K. R., et al. 2012, *ApJ*, 750, 99
- Trump, J. R., Impey, C. D., Elvis, M., et al. 2009, *ApJ*, 696, 1195
- Tuccillo, D., González-Serrano, J. I., & Benn, C. R. 2015, *MNRAS*, 449, 2818
- Tyson, J. A. 2002, in *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, Vol. 4836, *Survey and Other Telescope Technologies and Discoveries*, ed. J. A. Tyson & S. Wolff, 10–20
- Ueda, Y., Akiyama, M., Ohta, K., & Miyaji, T. 2003, *ApJ*, 598, 886
- Ulvestad, J. S., Antonucci, R. R. J., & Barvainis, R. 2005, *ApJ*, 621, 123
- Urry, C. M. & Padovani, P. 1995, *PASP*, 107, 803
- van Breugel, W., Miley, G., & Heckman, T. 1984, *AJ*, 89, 5

- van Breugel, W., Miley, G., Heckman, T., Butcher, H., & Bridle, A. 1985, *ApJ*, 290, 496
- van den Bosch, F. C. 2002, *MNRAS*, 331, 98
- van Haarlem, M. P., Wise, M. W., Gunst, A. W., et al. 2013, *A&A*, 556, A2
- van Velzen, S. & Falcke, H. 2013, *A&A*, 557, L7
- van Weeren, R. J., Williams, W. L., Hardcastle, M. J., et al. 2016, *ApJS*, 223, 2
- van Weeren, R. J., Williams, W. L., Tasse, C., et al. 2014, *ApJ*, 793, 82
- Vanden Berk, D. E., Richards, G. T., Bauer, A., et al. 2001, *AJ*, 122, 549
- Varenius, E., Conway, J. E., Martí-Vidal, I., et al. 2015, *A&A*, 574, A114
- Vasconcellos, E. C., de Carvalho, R. R., Gal, R. R., et al. 2011, *AJ*, 141, 189
- Vernstrom, T., Scott, D., Wall, J. V., et al. 2016, *MNRAS*, 462, 2934
- Vigotti, M., Carballo, R., Benn, C. R., et al. 2003, *ApJ*, 591, 43
- Visnovsky, K. L., Impey, C. D., Foltz, C. B., et al. 1992, *ApJ*, 391, 560
- Volonteri, M. & Rees, M. J. 2005, *ApJ*, 633, 624
- Wake, D. A., Croom, S. M., Sadler, E. M., & Johnston, H. M. 2008, *MNRAS*, 391, 1674
- Walsh, J. L., Barth, A. J., Ho, L. C., & Sarzi, M. 2013, *ApJ*, 770, 86
- Wang, D., Zhang, Y. X., Liu, C., & Zhao, Y. H. 2007, *MNRAS*, 382, 1601
- Warren, S. J., Hewett, P. C., & Osmer, P. S. 1994, *ApJ*, 421, 412
- Watson, G. S. 1964, *Sankhya: The Indian Journal of Statistics, Series A (1961-2002)*, 26, 359
- Wayth, R. B., Lenc, E., Bell, M. E., et al. 2015, *PASA*, 32, e025
- Weinstein, M. A., Richards, G. T., Schneider, D. P., et al. 2004, *ApJS*, 155, 243

- Welling, C. A., Miller, B. P., Brandt, W. N., Capellupo, D. M., & Gibson, R. R. 2014, MNRAS, 440, 2474
- White, G. J., Hatsukade, B., Pearson, C., et al. 2012, MNRAS, 427, 1830
- White, R. L., Helfand, D. J., Becker, R. H., Glikman, E., & de Vries, W. 2007, ApJ, 654, 99
- Williams, W. L., Intema, H. T., & Röttgering, H. J. A. 2013, A&A, 549, A55
- Williams, W. L., van Weeren, R. J., Röttgering, H. J. A., et al. 2016, MNRAS, 460, 2385
- Willott, C. J., Delorme, P., Omont, A., et al. 2007, AJ, 134, 2435
- Willott, C. J., Delorme, P., Reyl  , C., et al. 2010, AJ, 139, 906
- Willott, C. J., McLure, R. J., & Jarvis, M. J. 2003, ApJL, 587, L15
- Wilman, R. J., Miller, L., Jarvis, M. J., et al. 2008, MNRAS, 388, 1335
- Wilson, A. S. & Colbert, E. J. M. 1995, ApJ, 438, 62
- Windhorst, R., Mathis, D., & Neuschaefer, L. 1990, in Astronomical Society of the Pacific Conference Series, Vol. 10, Evolution of the Universe of Galaxies, ed. R. G. Kron, 389–403
- Windhorst, R. A., Fomalont, E. B., Partridge, R. B., & Lowenthal, J. D. 1993, ApJ, 405, 498
- Windhorst, R. A., Miley, G. K., Owen, F. N., Kron, R. G., & Koo, D. C. 1985, ApJ, 289, 494
- Wolf, C., Wisotzki, L., Borch, A., et al. 2003, A&A, 408, 499
- Woo, J.-H. & Urry, C. M. 2002, ApJL, 581, L5
- Wright, E. L., Eisenhardt, P. R. M., Mainzer, A. K., et al. 2010, AJ, 140, 1868
- Wu, H. & Zhang, J. 2006 (Wiley Press)

Publications

Refereed first and second author publications:

- **Retana-Montenegro, E.** & Röttgering, H. J. A., *The luminosity function of LOFAR radio-selected quasars at $1.4 \leq z \leq 5.0$ in the NDWFS-Boötes field*, in prep., 2019.
- **Retana-Montenegro, E.** et al., *Deep 150MHz imaging survey of the Boötes field: Unveiling the faint low-frequency sky*, A&A, 620, A74, 2018.
- **Retana-Montenegro, E.** & Röttgering, H. J. A., *On the selection of high- z quasars using LOFAR observations*, Frontiers in Astronomy and Space Sciences, Vol. 5, id 5, 2018.
- Andreani, P., **Retana-Montenegro, E.**, et al., *Extreme conditions in the molecular gas of lensed star-forming galaxies at $z \sim 3$* , A&A, 615, A142, 2018.
- **Retana-Montenegro, E.** & Röttgering, H. J. A., *Probing the radio loud/quiet AGN dichotomy with quasar clustering*, A&A, 600, A97, 2017
- **Retana-Montenegro, E.** & Frutos-Alfaro, F. , *Lensing properties of the Einasto profile in terms of the Meijer G function*, Revista de Matemática Teoría y Aplicaciones, 21, 2, 2014.
- Frutos-Alfaro, F., **Retana-Montenegro, E.**, Cordero-García, I., Ulloa-Esquivel, O., *Metric of a Slow Rotating Body with Quadrupole Moment from the Erez-Rosen Metric*, International Journal of Astronomy and Astrophysics, 3, 431-437, 2013.
- **Retana-Montenegro, E.**, Van Hese, E., Gentile, G., Baes, M. & Frutos-Alfaro, F. , *Analytical properties of Einasto dark matter haloes*, A&A, 540, A70, 2012.

- **Retana-Montenegro, E.**, Frutos-Alfaro, F. & Baes, M., *Analytical shear and flexion of Einasto dark matter haloes*, A&A, 546, A32, 2012.

Refereed co-author publications:

- Shimwell, T. W., et al. (including **E. Retana-Montenegro**), *The LOFAR Two-metre Sky Survey. I. Survey description and preliminary data release*, A&A, 460, 2385-2412, 2016.
- Williams, W. L., et al. (including **E. Retana-Montenegro**), *LOFAR 150-MHz observations of the Boötes field: catalogue and source counts*, MNRAS, 459, 277-290, 2016
- Shimwell, T. W., et al. (including **E. Retana-Montenegro**), *A plethora of diffuse steep spectrum radio sources in Abell 2034 revealed by LOFAR*, MNRAS, 459, 277-290, 2016
- Mahony, E. K., et al. (including **E. Retana-Montenegro**), *The Lockman Hole project: LOFAR observations and spectral index properties of low-frequency radio sources*, MNRAS, 463, 2997-3020, 2016

Curriculum Vitae

I was born in San José, Costa Rica. Since middle school, I have been interested in learning how nature works, which differed from the then-contemporary interests of many kids. I used to read advance biology, physics and astronomy books from all the places I could borrow them. After I completed my high-school studies, I enrolled at the University of Costa Rica (UCR) to pursue studies in Physics. During my undergraduate studies, I worked **on** several projects within the Astronomy and Astrophysics group at the UCR, including the modeling of gravitational lensing systems under the supervision of Dr. Francisco Frutos-Alfaro. During this time, I also worked as a teaching assistant for general physics laboratories, and Electromagnetism I and II. After my undergraduate studies, I started my Master studies once again working under the supervision of Dr. Frutos-Alfaro, studying the analytical properties of Einasto dark matter haloes.

In 2013, I began my doctoral studies at Leiden University, working under the supervision of Prof. Huub Röttgering. My PhD research focused on using radio observations to study the properties and evolution of quasars. I was involved in commissioning work for the Low Frequency Array (LOFAR), and in applying new calibration algorithms to process LOFAR data. I had short working visits to the European Southern Observatory in Garching, Germany, along with the opportunity to participate in observations runs at the Isaac Newton Telescope in La Palma, Spain and the Giant Metrewave Radio Telescope located in Pune, India. I presented the work of this thesis at various conferences and workshops in the Netherlands (Leiden and Amsterdam), Germany (Munich), Italy (Padova), and South Africa (Cape Town).

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