

Dr. Steve Croft

UC Berkeley Department of Astronomy, 501 Campbell Hall #3411, Berkeley, CA 94720, USA

PERSONAL DETAILS

Citizenships: USA and UK dual national

Professional Memberships: Fellow of the Royal Astronomical Society, Member of the American Astronomical Society, Member of the International Astronomical Union, Member of the Astronomical Society of the Pacific, Member of the International Academy of Astronautics Permanent Committee on SETI

EDUCATION

1998 – 2002 **Oxford University, UK: DPhil (PhD) Astrophysics**
Galaxy clustering at high redshift from radio surveys. Advisor: Steve Rawlings

1994 – 1998 **University College London (London University), UK: MSci Astrophysics**
MSci project: Magnetism and Accretion in AM Herculis
Degree class: First class honours

1987 – 1994 **Caldy Grange Grammar School, UK**
(1994) A-level: Physics: A, Mathematics: A, Further Mathematics: B, Geography: A,
General Studies: A, Music: C (best A-level results in school)
(1993) AO: German for Business Studies: A
(1992) GCSE: 10 Grade A, 1 Grade B (best GCSE results in school)
(1991) GCSE: Mathematics: A

EMPLOYMENT

2016 to date **Associate Project Astronomer, University of California, Berkeley / Scientist VI, Eureka Scientific**
Project Scientist for the Breakthrough Listen project on the Green Bank Telescope. Leading the outreach, education, undergraduate internship (PI: NSF REU), industry and community engagement, and public data programs, in addition to proposal writing and scientific data analysis, for UC Berkeley SETI Research Center and for Breakthrough Listen.

2021 to date **Adjunct Senior Scientist, SETI Institute (additional affiliation to UCB)**
Science with the Allen Telescope Array. Community Partnerships for SETI.

2012 – 2013 **Researcher, University of Wisconsin, Milwaukee (with David Kaplan) - based at UCB**
Transient searches with the Very Large Array and the Murchison Widefield Array.

2011 – 2016 **Assistant Project Astronomer, University of California, Berkeley (with Geoff Bower / Carl Heiles)**
Surveys with the Allen Telescope Array. Key member of proposal and implementation team for \$800k in NASA education projects. Co-PI on \$232k NSF grant to study supermassive black hole growth and transient radio sources with the Murchison Widefield Array, with David Kaplan, UW-Milwaukee (PI).

2007 – 2011 **Associate Specialist, University of California, Berkeley (with Geoff Bower)**
Surveys with the Allen Telescope Array. X-ray observations of radio transients. \$25k grant to collaborate with Lawrence Livermore National Lab (LLNL) on time-domain sky surveys. Principal Investigator on \$133k Spitzer Space Telescope project: The Most Extreme Starbursts in the Local Universe.

2007 **Postdoctoral Researcher, University of California, Davis (with Bob Becker) - based at LLNL**
Radio galaxies in galaxy cluster environments.

2005 – 2007 **Postdoctoral Researcher, University of California, Merced (with Wil van Breugel) - based at LLNL**
P.I. on \$50k Spitzer project: Studying the Populations of Radio Sources in the Bootes Deep Field. Co-I on Spitzer project: IRAC imaging of high-z, low-luminosity radio galaxies in NDWFS and FLS.

2002 – 2005 **Postdoctoral Researcher, Lawrence Livermore National Laboratory (with Wil van Breugel)**
Radio galaxies, their environments, evolution, clustering, and triggering. Jet-induced star-formation.
Galaxy clusters and proto-clusters.

TEACHING AND RESEARCH SUPERVISION

- 2015 to date **Director of Undergraduate Research**
Creation of, and strategy and management for, the undergraduate research program at Berkeley SETI Research Center (now an NSF REU Site). Coordinating the activities of 8 – 12 undergraduates at a time (over 100 students to date), working on a range of research projects. Direct mentoring of 1 – 3 undergrad researchers at a time.
- 2015 – 2017 **Undergraduate project advisor**
Advising two UC Berkeley undergraduates working with me on analysis of survey data from the Murchison Widefield Array.
- 2012 – 2013 **Undergraduate project advisor**
Advising a UC Berkeley undergraduate working with me on analysis of Kepler lightcurves of active galactic nuclei.
- 2012 – 2015 **Instructor / Team Co-Lead**
Co-lead, \$670k “ASPIRE” E/PO grant; creating and delivering regular afterschool and summer workshops for high school students (in addition to teacher professional development) combining art and science, focusing on underrepresented minority interest in astronomy (<http://twitter.com/nasanovas>)
- 2007 – 2010 **Co-advisor for UC Riverside PhD Student**
Data from the Spitzer project I led formed the major part of the thesis of a student whom I co-advised.
- 2000 – 2002 **Part-time A-level Physics and Math Instructor, Greene’s Tutorial College, Oxford**
Extensive part-time teaching experience, including full responsibility for entire A-level Physics course for three students.
- 2000 – 2002 **Graduate Student Instructor, Oxford University Astrophysics**
Introductory Astronomy.
- 1996 **Part-time Physics and Math Tutor**
Teaching physics and math to GCSE and A-level students.

PUBLIC OUTREACH

- 2022 to date Science at Cal Advisory Council
- 2021 Guest speaker, Lindblad / National Geographic Antarctica Expedition
- 2019, 2021 Design team and staffing of SETI booth at the International Astronautical Congress
- 2020 Invited Panelist, “First Contact”, organized by NASA astronaut Mae Jemison
- 2019 Design team and staffing of SETI booth at the Royal Society Summer Exhibition
- 2018 Helped design and lead Air Products UK “Space Camp” for 60 high school students
- 2017 Invited keynote address to 20 high school heads, Northern EdTech Conference, Leeds University, UK
- 2017 Invited panelist, Corpus Christi College, Oxford 500th Anniversary Science Symposium
- 2016 Invited keynote address to 25 high school heads, Malone Scholars conference, Stanford University
- 2015 to date Outreach, education, and public data lead, Berkeley SETI Research Center
(<http://facebook.com/BerkeleySETI>) and Breakthrough Listen (<http://seti.berkeley.edu/listen>)
- 2015 Designed 11 new lessons for the Big History Project (http://bit.do/bhp_astro)
- 2015 Volunteered on planning team for “SUCCESS” summer REU program
- 2013 – 2017 Science@Cal Advisory Board
- 2010 – 2020 Created and led monthly Science@Cal lecture series (<http://scienceatcal.berkeley.edu/lectures>)
- 2012 – 2015 Co-lead, \$130k “EVOLVE” E/PO grant; delivering web resources for teachers on astronomy and evolution, in addition to in-person teacher professional development (http://bit.do/place_for_life)

2012 Collaborated with UK school on high altitude balloon project (<http://bbc.in/Q065ZK>)
 2012 Worked with San Francisco Arts Commission on “Vast and Undetectable” exhibit
 2011, 2012 Planning committee for two Bay Area Science Festivals (<http://scienceatcal.berkeley.edu/festival>)
 2010– 2011 Volunteer for ASP Project ASTRO (visiting inner-city special needs classroom)
 2009 Led International Year of Astronomy activities at UC Berkeley (<http://astro.berkeley.edu/iya>)
 2008 Instructor, Chabot Space and Science Center Black Hole Summer Institute
 Frequent speaker to local astronomical societies and other groups

GRANTS

2021 Breakthrough Listen Kaggle Data Analysis challenge, \$15,000, PI
 2021 NASA XRP, \$593,536, co-I
 2020 NSF REU, \$323,947, PI
 2016 NASA HST GO, \$56,000, PI
 2014 NSF AAG, \$232,000, co-PI
 2012 NASA Education Supplemental, \$129,867, originator and co-lead (admin PI: A. Westphal)
 2012 NASA EPOESS, \$708,992, originator and co-lead (admin PI: M. Fillingim)
 2012 Fund for Astrophysical Research, \$3,000, PI
 2008 LLNL, \$25,000, proposal author
 2007– 2014 Five AAS International Travel Grants, \$7,000 total, PI
 2007 NASA Spitzer GO, \$133,000, PI
 2005 NASA Spitzer Archival, \$50,000, PI
 1999 Corpus Christi College, Oxford, \$4,000

ACTIVITIES AND ACHIEVEMENTS

Professional:

2021 Chair, SETI and Society session, International Astronautical Congress, Dubai, UAE, October 2021
 2021, 2022 International Programme Committee, International Astronautical Federation
 2021 External Examiner, University of Manchester
 2021 NSF Review Panelist
 2020 NSF Review Panelist
 2020 Proposer and organizer of special session on SETI at 235th American Astronomical Society meeting
 2019 to date Project Scientist for Breakthrough Listen on the Green Bank Telescope
 2019 Organizer and chair of GNU Radio Hackathon for 35 participants at Hat Creek Radio Observatory
 2019– 2022 Visiting Lecturer, International Space University (Strasbourg, France)
 2018, 2020 Congressional visits with Berkeley SETI Research Center
 2018 Co-chair, “Towards an All-Sky Radio SETI Telescope” conference, University of Manchester
 2018– 2020 Project Scientist for Breakthrough Listen on SKA-LOW and precursors
 2018 to date Core Member, SKA Cradle of Life Science Working Group
 2017 to date Member, International Academy of Astronautics Permanent Committee on SETI
 2017 to date Member, ngVLA Cradle of Life Science Working Group
 2016 NASA Review Panelist
 2014 to date Associate Member, NANOGrav collaboration
 2014 to date Associate Member, Murchison Widefield Array collaboration
 2014 to date Member, Square Kilometer Array Transient Science Working Group
 2011 Co-organizer of workshop on radio transients at International Astronomical Union Symposium 285
 2010 Participated in American Astronomical Society Congressional Visits
 2009 4th Prize, Boeing / Griffith Observer Science Writing Competition
 2009 NASA Review Panelist
 2008 - 2019 Seminar organizer, UC Berkeley Radio Astronomy Laboratory

Frequent journal referee (A&A, ApJ, AJ, MNRAS, PASP, Ap&SS, ASCOM, JBIS)

Oxford University:

2002 Awarded Willmer Prize for science writing, Corpus Christi College, Oxford
2000 Senior Scholarship, Corpus Christi College
1999 - 2000 Seminar organizer, Oxford University Astrophysics

University College London:

1995 – 1997 President, Astronomy Society
1996 – 1998 Staff - Student Consultative Committee

COMPUTING SKILLS

Extensive experience with Mac OS, Windows, Linux, Python / Jupyter, Perl, C/C++, LaTeX, HTML, and astronomy data reduction environments MIRIAD, IRAF, AIPS, and CASA. Some familiarity with SQL, Fortran, IDL, Tcl/Tk. Much of my research work involves extensive scripting, analysis of large datasets, visualization, and image processing.

ASTRONOMY SKILLS

Experience preparing and executing observations, reducing and analyzing data in optical (imaging and spectroscopy), near- and mid-IR, and radio. Observer and PI on Allen Telescope Array (~40 days), CARMA (~30 days), and Lick 3-m (~40 nights). PI on successful HST, Spitzer, GMRT, and MWA proposals. Observer and co-I on GBT (> 500 hours), Parkes, WHT, UKIRT, IRTF, Calar Alto 3.5-m, McDonald 0.8-m, Keck (14 nights), and McDonald 2.7-m (~70 nights, including 50 as sole telescope operator). Co-I on successful ALMA, VLA and Kepler proposals.

REFEREED PUBLICATIONS

81. **A Search for Radio Technosignatures at the Solar Gravitational Lens Targeting Alpha Centauri**
Tusay, N., Huston, M. J., Dedrick, C. M., Kerby, S., Palumbo, M. L., III, **Croft, S.**, Wright, J. T., Robertson, P., Sheikh, S., Duffy, L., Foote, G. H., Hyde, A., Lafond, J., Mulikin, E., Parts, W., Sandhaus, P., Smith, H. H., Sneed, E. L., Czech, D., Gajjar, V. 2022, AJ, in press.
<https://arxiv.org/abs/2206.14807>
80. **Searching the SETI Ellipsoid with Gaia**
Davenport, J. A., Cabrales, B., Sheikh, S., **Croft, S.**, Siemion, A. P. V., Giles, D., Cody, A. M. 2022, AJ, in press.
<https://arxiv.org/abs/2206.04092>
79. **Searching for Broadband Pulsed Beacons from 1883 Stars using Neural Networks**
Gajjar, V., LeDuc, D., Chen, J., Siemion, A. P. V., Sheikh, S. Z., **Croft, S.**, Czech, D., DeBoer, D., DeMarines, J., Drew, J., Isaacson, H., Lacki, B., Lebofsky, M., MacMahon, D. H. E., Ng, C., De Pater, I., Perez, K. I., Price, D. C., Suresh, A., Webb, C., Worden, S. P. 2022, AJ, submitted.
78. **Observations and Simulations of Radio Emission and Magnetic Fields in Minkowski's Object**
Nolting, C., Lacy, M., **Croft, S.**, Fragile, P. C., Linden, S. T., Nyland, K., and Patil, P. 2022, ApJ, in press.
<https://arxiv.org/abs/2206.04757>
77. **The First Deep-Learning Search for Radio Technosignatures from 820 Nearby Stars**
Ma, P. X., Ng, C., Rizk, L., **Croft, S.**, Siemion, A. P. V., Brzycki, B., Czech, D., Drew, J., Gajjar, V., Hoang, J., Isaacson, H., Lebofsky, M., MacMahon, D., De Pater, I., Price, D. C., Sheikh, S., Worden, S. P., 2022, Nature Astronomy, submitted.
76. **Setigen: Simulating Radio Technosignatures for SETI**
Brzycki, B., Siemion, A. P. V., De Pater, I., **Croft, S.**, Hoang, J., Ng, C., Price, D. C., Sheikh, S., Zheng, Z., 2022, AJ, in press.
<https://arxiv.org/abs/2203.09668>

75. **The Breakthrough Listen Search for Intelligent Life: Technosignature Search of Transiting TESS Targets of Interest**
Franz, N., **Croft, S.**, Siemion, A. P. V., Traas, R., Brzycki, B., Gajjar, V., Isaacson, H., Lebofsky, M., MacMahon, D. H. E., Price, D. C., Sheikh, S. Z., DeMarines, J., Drew, J., Worden, S. P. 2022, AJ, 163, 104.
<https://arxiv.org/abs/2201.00918>
74. **Multiband Detection of Repeating FRB 20180916B**
Sand, K. R., Faber, J., Gajjar, V., Michilli, D., Andersen, B. C., Joshi, B. C., Kudale, S., Pilia, M., Brzycki, B., Cassanelli, T., **Croft, S.**, Dey, B., Hoang, J., Leung, C., McKinven, R., Ng, C., Pearlman, A. B., Petroff, E., Price, D. C., Siemion, A., Smith, K., Tendulkar, S. P. 2022, ApJ, submitted.
<https://arxiv.org/abs/2111.02382>
73. **Strategies for Maximizing Detection Rate in Radio SETI**
Houston, K., Siemion, A., **Croft, S.** 2021, AJ, 162, 151.
<https://arxiv.org/abs/2106.06594>
72. **Analysis of the Breakthrough Listen signal of interest blc1 with a technosignature verification framework**
Sheikh, S. Z., Smith, S., Price, D. C., DeBoer, D., Lacki, B. C., Czech, D., **Croft, S.**, Gajjar, V., Isaacson, H., Lebofsky, M., MacMahon, D. H. E., Ng, C., Perez, K., Siemion, A. P. V., Drew, J. 2021, Nature Astronomy, 5, 1153.
<https://www.nature.com/articles/s41550-021-01508-8>
71. **A radio technosignature search towards Proxima Centauri resulting in a signal of interest**
Smith, S., Sheikh, S. Z., Price, D. C., DeBoer, D., Lacki, B. C., Czech, D., **Croft, S.**, Gajjar, V., Isaacson, H., Lebofsky, M., MacMahon, D. H. E., Ng, C., Perez, K., Siemion, A. P. V., Drew, J. 2021, Nature Astronomy, 5, 1148.
<https://www.nature.com/articles/s41550-021-01479-w>
70. **A broadband radio view of transient jet ejecta in the black hole candidate X-ray binary MAXI J1535-571**
Chauhan, J., Miller-Jones, J. C. A., Anderson, G. E., Paduano, A., Sokolowski, M., Flynn, C., Hancock, P. J., Hurley-Walker, N., Kaplan, D. L., Russell, T. D., Bahramian, A., Duchesne, S. W., Altamirano, D., Bannister, K. W., Bell, M. E., **Croft, S.**, Krimm, H. A., Sivakoff, G. R., Soria, R., Trott, C. M., Wayth, R. B., Gupta, V., Johnston-Hollitt, M., Tingay, S. J. 2021, PASA, 38, 45.
69. **The Breakthrough Listen Search for Intelligent Life Near the Galactic Center. I.**
Gajjar, V., Perez, K. I., Siemion, A. P. V., Foster, G., Brzycki, B., Chatterjee, S., Chen, Y., Cordes, J. M., **Croft, S.**, Czech, D., DeBoer, D., DeMarines, J., Drew, J., Gowanlock, M., Isaacson, H., Lacki, B. C., Lebofsky, M., MacMahon, D. H. E., Morrison, I. S., Ng, C., de Pater, I., Price, D. C., Sheikh, S. Z., Suresh, A., Webb, C., Worden, S. P. 2021, AJ, 162, 33.
<https://arxiv.org/abs/2104.14148>
68. **The Breakthrough Listen Search for Intelligent Life: MeerKAT Target Selection**
Czech, D., Isaacson, H., Pearce, L., Cox, T., Sheikh, S. Z., Brzycki, B., Buchner, S., **Croft, S.**, DeBoer, D., DeMarines, J., Drew, J., Gajjar, V., Lacki, B. C., Lebofsky, M., MacMahon, D. H. E., Ng, C., de Pater, I., Price, D. C., Siemion, A. P. V., Van Rooyen, R. 2021, PASP, 133, 64502
<https://arxiv.org/abs/2103.16250>
67. **The Galactic Faraday rotation sky 2020**
Hutschenreuter, S., Anderson, C. S., Betti, S., Bower, G. C., Brown, J.-A., Brügger, M., Carretti, E., Clarke, T., Clegg, A., Costa, A., **Croft, S.**, Van Eck, C., Gaensler, B. M., de Gasperin, F., Haverkorn, M., Heald, G., Hull, C. L. H., Inoue, M., Johnston-Hollitt, M., Kaczmarek, J., Law, C., Ma, Y. K., MacMahon, D., Mao, S. A., Riseley, C., Roy, S., Shanahan, R., Shimwell, T., Stil, J., Sobey, C., O'Sullivan, S., Tasse, C., Vacca, V., Vernstrom, T., Williams, P. K. G., Wright, M., Enßlin, T. A. 2022, A&A, 657, 43.
<https://arxiv.org/abs/2102.01709>
66. **The Breakthrough Listen Search for Intelligent Life: Searching for Technosignatures in Observations of TESS Targets of Interest**
Traas, R., **Croft, S.**, Gajjar, V., Isaacson, H., Lebofsky, M., MacMahon, D. H. E., Perez, K., Price, D. C., Sheikh, S., Siemion, A. P. V., Smith, S., Drew, J., Worden, S. P. 2021, AJ, 161, 286.
<https://arxiv.org/abs/2101.11137>

65. **One of Everything: The Breakthrough Listen Exotica Catalog**
Lacki, B. C., Brzycki, B., **Croft, S.**, Czech, D., DeBoer, D., DeMarines, J., Gajjar, V., Isaacson, H., Lebofsky, M., MacMahon, D. H. E., Price, D. C., Sheikh, S. Z., Siemion, A. P. V., Drew, J., Worden, S. P. 2021, ApJS, 257, 42.
<https://arxiv.org/abs/2006.11304>
64. **Space Telescope and Optical Reverberation Mapping Project. XII. Broad-line Region Modeling of NGC 5548**
Williams, P. R., and 157 co-authors including **Croft, S.** 2020, ApJ, 902, 74.
<https://arxiv.org/abs/2010.00594>
63. **Narrow-Band Signal Localization for SETI on Noisy Synthetic Spectrogram Data**
Brzycki, B., Siemion, A. P. V., **Croft, S.**, Czech, D., DeBoer, D., DeMarines, J., Drew, J., Gajjar, V., Isaacson, H., Lacki, B., Lebofsky, M., MacMahon, D. H. E., de Pater, I., Price, D. C., Worden, S. P. 2020, PASP, 132, 114501.
<https://arxiv.org/abs/2006.04362>
62. **Opportunities to Search for Extra-Terrestrial Intelligence with the Five-Hundred-meter Aperture Spherical radio Telescope**
Li, D., Gajjar, V., Wang, P., Siemion, A., Zhang, Z., Zhang, H., Yue, Y., Zhu, Y., Jin, C., Li, S., Berger, S., Brzycki, B., Cobb, J., **Croft, S.**, Czech, D., DeBoer, D., DeMarines, J., Drew, J., Enriquez, J. E., Gizani, N., Korpela, E. J., Isaacson, H., Lebofsky, M., Lacki, B., MacMahon, D. H. E., Nanez, M., Niu, C., Pei, X., Price, D. C., Werthimer, D., Worden, P., Zhang, Y. G., Zhang, T.-J., FAST collaboration, 2020, RA&A, 20, 78.
<https://arxiv.org/abs/2003.09639>
61. **Space Telescope and Optical Reverberation Mapping Project. IX. Velocity-Delay Maps for Broad Emission Lines in NGC 5548**
Horne, K., and 154 co-authors including **Croft, S.** 2021, ApJ, 907, 76.
<https://arxiv.org/abs/2003.01448>
60. **Science with the Murchison Widefield Array: Phase I Results and Phase II Opportunities**
Beardsley, A. P., Johnston-Hollitt, M., Trott, C. M., Pober, J. C., Morgan, J., Oberoi, D., Kaplan, D. L., Lynch, C. R., Anderson, G. E., McCauley, P. I., **Croft, S.**, James, C. W., Wong, O. I., Tremblay, C. D., Norris, R. P., Cairns, I. H., Lonsdale, C. J., Hancock, P. J., Gaensler, B. M., Bhat, N. D. R., Li, W., Hurley-Walker, N., Callingham, J. R., Seymour, N., Yoshiura, S., Joseph, R. C., Takahashi, K., Sokolowski, M., Miller-Jones, J. C. A., Chauhan, J. V., Bojčić, I., Filipović, M. D., Leahy, D., Su, H., Tian, W. W., McSweeney, S. J., Meyers, B. W., Kitaëff, S., Vernstrom, T., Gürkan, G., Heald, G., Xue, M., Riseley, C. J., Duchesne, S. W., Bowman, J. D., Jacobs, D. C., Crosse, B., Emrich, D., Franzen, T. M. O., Horsley, L., Kenney, D., Morales, M. F., Pallot, D., Steele, K., Tingay, S. J., Walker, M., Wayth, R. B., Williams, A., Wu, C. 2019, PASA, 36, 50.
<http://arxiv.org/abs/1910.02895>
59. **The Breakthrough Listen Search for Intelligent Life: Observations of 1327 Nearby Stars over 1.1–3.45 GHz**
Price, D. C., Enriquez, J. E., Brzycki, B., **Croft, S.**, Czech, D., DeBoer, D., DeMarines, J., Foster, G., Gajjar, V., Gizani, N., Hellbourg, G., Isaacson, H., Lacki, B., Lebofsky, M., MacMahon, D. H. E., de Pater, I., Siemion, A. P. V., Werthimer, D., Green, J. A., Kaczmarek, J. F., Maddalena, R. J., Mader, S., Drew, J., Worden, S. P. 2020, AJ, 159, 86.
<https://arxiv.org/abs/1906.07750>
58. **The Breakthrough Listen Search for Intelligent Life: Public Data, Formats, Reduction and Archiving**
Lebofsky, M., **Croft, S.**, Siemion, A. P. V., Price, D. C. P., Enriquez, J. E., Isaacson, H., MacMahon, D. H. E., Anderson, D., Brzycki, B., Cobb, J., Czech, D., DeBoer, D., DeMarines, J., Drew, J., Foster, G., Gajjar, V., Gizani, N., Hellbourg, G., Korpela, E. J., Lacki, B., Sheikh, S., Werthimer, D., Worden, P., Yu, A., Zhang, Y. G. 2019, PASP, 131, 4505.
<https://arxiv.org/abs/1906.07391>
57. **Breakthrough Listen Follow-up of the Reported Transient Signal Observed at the Arecibo Telescope in the Direction of Ross 128**
Enriquez, J. E., Siemion, A., Dana, R., **Croft, S.**, Méndez, A., Xu, A., DeBoer, D., Gajjar, V., Hellbourg, G., Isaacson, H., Lebofsky, M., MacMahon, D. H. E., Price, D. C., Werthimer, D., Zuluaga, J. 2019, International Journal of Astrobiology, 18, 33.
<http://bit.ly/2UaN7Z3>

56. **Space Telescope and Optical Reverberation Mapping Project. VIII. Time Variability of Emission and Absorption in NGC 5548 Based on Modeling the Ultraviolet Spectrum**
Kriss, G., and 166 co-authors including **Croft, S.** 2019, ApJ, 881, 153.
<https://arxiv.org/abs/1907.03874>
55. **A Fast Radio Burst with Frequency-Dependent Polarization Detected During Breakthrough Listen Observations**
Price, D. C., Foster, G., Geyer, M., van Straten, W., Gajjar, V., Hellbourg, G., Karastergiou, A., Keane, E. F., Siemion, A. P. V., Arcavi, I., Bhat, R., Caleb, M., Chang, S-W., **Croft, S.**, DeBoer, D., de Pater, I., Drew, J., Enriquez, J. E., Farah, W., Gizani, N., Green, J. A., Isaacson, H., Hickish, J., Jameson, A., Lebofsky, M., MacMahon, D. H. E., Möller, A., Onken, C. A., Petroff, E., Werthimer, D., Wolf, C., Worden, S. P., Zhang, Y. G. 2019, MNRAS, 486, 3636.
<https://arxiv.org/abs/1901.07412>
54. **The Breakthrough Listen Search for Intelligent Life: Searching Boyajian’s Star for Laser Line Emission**
Lipman, D., Isaacson, H., Siemion, A. P. V., Lebofsky, M., Price, D. C., MacMahon, D., **Croft, S.**, DeBoer, D., Hickish, J., Werthimer, D., Hellbourg, G., Enriquez, J. E., Gizani, N. 2019, PASP, 131, 034202.
<https://arxiv.org/abs/1812.10161>
53. **Self-supervised Anomaly Detection for Narrowband SETI**
Zhang, Y. G., Won, K. H., Son, S. W., Siemion, A., **Croft, S.** 2019, IEEE GlobalSIP 2018
<https://arxiv.org/abs/1901.04636>
52. **The Murchison Widefield Array Transients Survey (MWATS). A Search for low frequency variability in a bright Southern hemisphere sample**
Bell, M., Murphy, T., Hancock, P. J., Callingham, J. R., Johnston, S., Kaplan, D. L., Hunstead, R. W., Sadler, E. M., **Croft, S.**, White, S. V., Hurley-Walker, N., Chhetri, R., Morgan, J. S., Edwards, P. G., Rowlinson, A., Offringa, A. R., Bernardi, G., Bowman, J. D., Briggs, F., Cappallo, R. J., Deshpande, A. A., Gaensler, B. M., Greenhill, L. J., Hazelton, B. J., Johnston-Hollitt, M., Lonsdale, C. J., McWhirter, S. R., Mitchell, D. A., Morales, M. F., Morgan, E., Oberoi, D., Ord, S. M., Prabu, T., Udaya Shankar, N., Srivani, K. S., Subrahmanyam, R., Tingay, S. J., Wayth, R. B., Webster, R. L., Williams, A., Williams, C. L. 2019, MNRAS, 482, 2484.
<https://arxiv.org/abs/1810.10152>
51. **Science with an ngVLA: SETI Searches for Evidence of Intelligent Life in the Galaxy**
Croft, S., Siemion, A. P. V., Cordes, J. M., Morrison, I. S., Paragi, Z., Tarter, J., Wright, J. 2018, ASP Conf. Series Vol. 517, “Science with a Next-Generation VLA”, 257.
<https://arxiv.org/abs/1810.06568>
50. **Highest-frequency detection of FRB 121102 at 4-8 GHz using the Breakthrough Listen Digital Backend at the Green Bank Telescope**
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9. **The Dynamic Radio Sky: An Opportunity for Discovery**
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7. **The TOOT00 Redshift Survey of Radio Sources**
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6. **Jet-Induced Star Formation: Good News from Big Bad Black Holes**
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5. **Radio galaxy proto-clusters**
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4. **A large-area search for radio-loud quasars within the epoch of reionization**
Jarvis, M. J., Rawlings, S., Barrio, F.E., Hill, G. J., Bauer, A., **Croft, S.** 2004 in the proceedings of the conference "Multiwavelength AGN Surveys", Cozumel, Mexico, 8-13 December 2003, eds. R. Mujica, R. Maiolino.
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<http://arxiv.org/abs/astro-ph/0309379>
2. **High-redshift clusters from NVSS: The TexOx Cluster (TOC) Survey**
Croft, S., Rawlings, S., Hill, G. J. 2003 New Astronomy Reviews, 447, 333.
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1. The TexOx Survey of Radio-Selected Galaxy Clusters

Croft, S., Rawlings, S., Hill, G. J., Gay, P. L., Tufts, J. R. 2002 in ASP Conference Series 268, "Tracing Cosmic Evolution with Galaxy Clusters", Sesto, 3-6 July 2001, eds. S. Borgani, M. Mezzetti, R. Valdarnini.
<http://arxiv.org/abs/astro-ph/0110119>

RESEARCH TALKS

Invited talks and colloquia:

Invited talk at Nançay Observatory, France, March 2022
Colloquium at Paris Observatory, France, March 2022
Pesek Lecturer, International Astronautical Congress, Dubai, UAE, October 2021
Invited talk at Louisiana State University, Baton Rouge, LA, April 2021
Invited talk at Brown University, Providence, RI, February 2021
Conference Summary, "Towards an All-Sky Radio SETI Telescope", Manchester, UK, October 2018
Keynote, GNU Radio Convention, Henderson, NV, September 2018
Colloquium at Tel Aviv University, Israel, May 2018
Colloquium at Carnegie Institution for Science, Washington, D. C., September 2017
Colloquium at Manchester University, UK, May 2017
Keynote, "Northern EdTech Conference", Leeds, UK, May 2017
Colloquium at Louisiana State University, Baton Rouge, LA, March 2017
Invited session summary talk at "SKA 2016: Science for the SKA generation", Goa, India, November 2016
Invited talk at "Boutiques and Experiments", Caltech, July 2016
Keynote, Malone Heads of School conference, Stanford, June 2016
Invited talk at CSIRO, Sydney, Australia, February 2015
Invited talk at Monash University, Melbourne, Australia, February 2015
Invited talk at Swinburne University, Melbourne, Australia, February 2015
Invited talk at "Multi-wavelength Emission from Accreting Black Holes", Sydney, Australia, February 2015
Invited talk at "Advancing Astrophysics with the Square Kilometer Array", Giardini Naxos, Italy, June 2014
Invited talk at "Exploring the Transient Radio Sky", Sydney, Australia, December 2013
Colloquium at the SETI Institute, Mountain View, CA, April 2013
Invited talk at University of Wisconsin-Milwaukee, November 2012
Invited talk at University of Wisconsin-Madison, November 2012
Invited talk at Sydney University, Australia, November 2011
Colloquium at Liverpool John Moores University, UK, October 2010
Colloquium at Lawrence Livermore National Laboratory, CA, USA, November 2008
Invited talk at UC Santa Cruz, CA, USA, October 2007

Contributed talks:

American Astronomical Society, Virtual, January 2021
GNU Radio Convention, Virtual, September 2020
International Astronautical Congress, Washington, DC, October 2019
GNU Radio Convention, Huntsville, AL, September 2019
NASA Technosignatures workshop, Houston, TX, September 2018
European Week of Astronomy and Space Science, Liverpool, UK, April 2018
UK SETI Research Network meeting, Oxford, UK, March 2018
American Astronomical Society, Washington, DC, January 2018
European Week of Astronomy and Space Science, Prague, Czech Republic, June 2017
The Broad Impact of Low Frequency Observing, Bologna, Italy, June 2017
Science at Low Frequencies III, Pasadena, CA, December 2016
Science at Low Frequencies II, Albuquerque, NM, December 2015
Brasenose Radio Transients Meeting, Oxford University, UK, September 2015
Transformational Science with the SKA, South Africa, February 2014
Locating Astrophysical Transients, Netherlands, May 2013
Radio Astronomy in the LSST Era, Charlottesville, VA, May 2013

American Astronomical Society, Austin, TX, January 2012
ASKAP Survey Science Meeting, Australia, October 2011
A New Golden Age for Radio Astronomy, Netherlands, June 2010
The Eventful Universe, Tucson, AZ, March 2010
American Astronomical Society, Long Beach, CA, January 2009
LOFAR and the Transient Radio Sky, Netherlands, December 2008
The First Science with LOFAR Surveys, Netherlands, December 2008
Obscured AGN Across Cosmic Time, Germany, June 2007
American Astronomical Society, Denver, CO, May 2004
Radio Galaxies: Past, Present, and Future, Netherlands, November 2002