Christian Aganze

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Research Interests

Observational and computational astronomy focusing on the lowest mass star and brown dwarf populations, with applications of machine learning methods on large datasets.
Dynamical simulations of stellar streams and dark matter subhalos

Education

2016 – May 2023 (anticipated) **PhD Candidate** Physics, University of California, San Diego, CA
Thesis title: *Galactic Archeology with Ultracool Dwarfs*
Advisor: Prof. Adam Burgasser

2012 – 2016 **B.Sc. Physics,** Morehouse College, Atlanta, GA

Research and Teaching Experience

2019–2021 **Teaching Assistant for Physics 5, 1A& 1AL** UC San Diego

2016 – **Graduate Student Researcher**, UC San Diego

2018–2020 **The Large Synoptic Survey Telescope (LSST) Data Science Fellowship**

2014 – 2016 **Undergraduate Student Researcher**, UC San Diego

Scientific Conference Presentations & Posters

2021 **National Society of Black Physicists (NSBP)**
Scale heights & Ages of Brown Dwarfs in Deep Fields (*talk*)
Beth Brown Memorial Award (Honorable Mention)

Big Apple Dynamics
Streams, Dark Matter: Future Prospects for Galaxies Beyond the Milky Way (*talk*)

American Astronomical Society Meeting (AAS 237)
Studying Ultracool Dwarfs with the Nancy Grace Roman Space Telescope: Predictions from Monte-Carlo Simulations (*Invited Talk*)
Brown Dwarfs in the Galaxy: Predictions for Future Wide-Field Observatories (*Poster*)

2020 **National Society of Black Physicists (NSBP)**
Searching for Distant Ultracool Dwarfs in Deep HST/WFC3 Surveys (*Poster*)
Beth Brown Memorial Award

2019 **Nancy Grace Roman Telescope Meeting**
Brown Dwarfs Beyond Gaia: A Deep Survey of late-M, L, T Dwarfs with HST-WFC3 Parallel Fields (*Poster*)

2018 **20th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun (Cool Stars 20)**
Brown Dwarfs Beyond Gaia: A Deep Survey of late-M, L, T Dwarfs with HST-WFC3 Parallel Fields (*Poster*)

2017 **American Astronomical Society Meeting (AAS 228, 229)**
Toward a Comprehensive Sample of VLM Chemical Abundances with APOGEE (*Poster*)
FAMOUS grant award

Scientific Conference Presentations & Posters (continued)

2016 **American Astronomical Society Meeting (227)**
Identifying Distant Brown Dwarfs in HST/WFC3 Parallel Fields (*Poster*)

2015 **National Society of Black Physicists (NSBP)**
Characterization of the M Dwarf Binary System GJ 660.1AB (*Poster*)

2014 **Society for Advancement of Chicanos/Hispanics and Native Americans in Science conference(SACNAS)**
Characterization of the M Dwarf Binary System GJ 660.1AB (*Poster*)
Best Poster Award

Publications

First-author, Peer-reviewed Articles

1. Aganze, C., Burgasser, A. J., Malkan, M., Theissen, C. A., Tejada Arevalo, R. A., Hsu, C.-C., … Holwerda, B. (2021, October). *Beyond the Local Volume I: Surface Densities of Ultracool Dwarfs in Deep HST/WFC3 Parallel Fields*. arXiv: 2110.07672 [astro-ph.SR]

2. Aganze, C., Burgasser, A. J., Faherty, J. K., Choban, C., Escala, I., Lopez, M. A., … Rockward, W. (2016, February). *Characterization of the Very-low-mass Secondary in the GJ 660.1AB System*. doi:10.3847/0004-6256/151/2/46. arXiv: 1512.08659 [astro-ph.SR]

Co-author, Peer-reviewed Articles

1. Faherty, J. K., Gagné, J., Popinchalk, M., Vos, J. M., Burgasser, A. J., Schümann, J., … Backyard Worlds: Planet 9 Collaboration. (2021, December). A Wide Planetary Mass Companion Discovered through the Citizen Science Project Backyard Worlds: Planet 9. *923*(1), 48. doi:10.3847/1538-4357/ac2499. arXiv: 2112.04678 [astro-ph.SR]

2. Hsu, C.-C., Burgasser, A. J., Theissen, C. A., Gelino, C. R., Birky, J. L., Diamant, S. J. M., … Faherty, J. K. (2021, December). The Brown Dwarf Kinematics Project (BDKP). V. Radial and Rotational Velocities of T Dwarfs from Keck/NIRSPEC High-resolution Spectroscopy. *257*(2), 45. doi:10.3847/1538-4365/ac1c7d. arXiv: 2107.01222 [astro-ph.SR]

3. Schneider, A. C., Meisner, A. M., Gagné, J., Faherty, J. K., Marocco, F., Burgasser, A. J., … The Backyard Worlds: Planet 9 Collaboration. (2021, November). Ross 19B: An Extremely Cold Companion Discovered via the Backyard Worlds: Planet 9 Citizen Science Project. *921*(2), 140. doi:10.3847/1538-4357/ac1c75. arXiv: 2108.05321 [astro-ph.EP]

4. Meisner, A. M., Schneider, A. C., Burgasser, A. J., Marocco, F., Line, M. R., Faherty, J. K., … Backyard Worlds: Planet 9 Collaboration. (2021, July). New Candidate Extreme T Subdwarfs from the Backyard Worlds: Planet 9 Citizen Science Project. *915*(2), 120. doi:10.3847/1538-4357/ac013c

5. Meisner, A. M., Schneider, A. C., Burgasser, A. J., Marocco, F., Line, M. R., Faherty, J. K., … Planet 9 Collaboration. (2021, June). New Candidate Extreme T Subdwarfs from the Backyard Worlds: Planet 9 Citizen Science Project. *arXiv e-prints*, arXiv:2106.01387. arXiv: 2106.01387 [astro-ph.SR]

6. Gagliano, A., Izzo, L., Kilpatrick, C. D., Mockler, B., Vincente Jacobson-Galán, W., Terreran, G., … Tinyanont, S. (2021, May). An Early-Time Optical and Ultraviolet Excess in the type-Ic SN 2020oi. *arXiv e-prints*, arXiv:2105.09963. arXiv: 2105.09963 [astro-ph.HE]

7. Kirkpatrick, J. D., Gelino, C. R., Faherty, J. K., Meisner, A. M., Caselden, D., Schneider, A. C., … Backyard Worlds: Planet 9 Collaboration. (2021, March). The Field Substellar Mass Function Based on the Full-sky 20 pc Census of 525 L, T, and Y Dwarfs. *253*(1), 7. doi:10.3847/1538-4365/abd107. arXiv: 2011.11616 [astro-ph.SR]

8. Meisner, A. M., Faherty, J. K., Kirkpatrick, J. D., Schneider, A. C., Caselden, D., Gagné, J., … Backyard Worlds: Planet 9 Collaboration. (2020, August). Spitzer Follow-up of Extremely Cold Brown Dwarfs Discovered by the Backyard Worlds: Planet 9 Citizen Science Project. *899*(2), 123. doi:10.3847/1538-4357/aba633. arXiv: 2008.06396 [astro-ph.SR]

9. Burgasser, A. J., Lopez, M. A., Mamajek, E. E., Gagné, J., Faherty, J. K., Tallis, M., … Aganze, C. (2016, March). The First Brown Dwarf/Planetary-mass Object in the 32 Orionis Group. *820*(1), 32. doi:10.3847/0004-637X/820/1/32. arXiv: 1602.03022 [astro-ph.SR]

Conference Proceedings

1. Dimitriadis, G., Foley, R. J., Aganze, C., Burgasser, A., Gerasimov, R., Hsu, C., … Theissen, C. (2020a, March). *Spectroscopic Classifications of AT 2020dvr with the Lick Shane telescope.*

2. Dimitriadis, G., Foley, R. J., Aganze, C., Burgasser, A., Gerasimov, R., Hsu, C., … Theissen, C. (2020b, March). *UCSC Transient Classification Report for 2020-03-04.*

Awards

2021 ■ Beth Brown Memorial Award (Honorable Mention AAS, NSBP)
■ LSST DP0 Delegate
2020 ■ Beth Brown Memorial Award (AAS, NSBP)
2018 ■ LSST Data Science Fellowship
2016 ■ UC-HBCU Graduate Student Fellowship
2015 ■ FAMOUS Travel Grant (AAS)
2014 ■ Poster Award (SACNAS)

Training and Workshops

2021 ■ Summer School on Galactic Dynamics (The Flatiron Institute, NY, NY)
2020 ■ Big Data and Deep Learning Workshop (Pittsburg Supercomputing Center)
2017 ■ Kraft Observational Astronomy Workshop (Lick Observatory, San Jose, CA)
■ Scicoder Workshop (Vanderbilt University, Nashville, TN)

Successful Proposals

2021 ■ *Telescope Proposal*: Radial Velocity Monitoring of A New Peculiar Nearby M Dwarf

Skills

Coding ■ Python, Github, Parallel Computing
Research ■ NIR Spectral Analysis, Machine Learning, Archival Data Analysis, Optical & NIR Telescope Observations

Organizations

2016– American Astronomical Society (AAS)
National Society of Black Physicists (NSBP)
UCSD Graduate Student Association (GSA)
Physics Graduate Student Council (PGC)

2014–2016 Society of Physics Students (SPS)