

Dr. Christine O'Donnell

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Astronomy Education Researcher with a proven record of contributing to teams to develop, assess, and continuously improve innovative & equitable evidence-based education techniques

Education

- 08/2014 - 08/2020 **Ph.D.**, Astronomy & Astrophysics
University of Arizona
Dissertation: "Building Relationships: (1) Unifying Observations and Simulations to Measure Dark Matter Accretion & (2) Inclusivity-Driven Designs for General-Education Astronomy Courses" [[UArizona repository](#)]
Relevant non-astronomy coursework: Whiteness & Education (HED 629) | Fall 2018
- 08/2014 - 12/2017 **Master of Science**, Astronomy & Astrophysics
University of Arizona
- 08/2012 - 05/2014 **Master of Public Policy**
Frank Batten School of Leadership & Public Policy | University of Virginia
Capstone Policy Analysis: "[Women in Physics: Reducing the Gender Gap at the College Level](#)"
- 08/2010 - 05/2013 **Bachelor of Arts (Highest Distinction)**, Astronomy/Physics
University of Virginia
Member of Honors Program (Echols Scholar)

Selected Fellowships, Honors, & Awards

- 10/2020 **Graduate Student, Professional Student, and Postdoctoral Scholar Development (GPPD) Career Development Award**
Professional and Organizational Development (POD) Network
- 03/2019 **College of Science Award for Excellence in Service**
University of Arizona
- 08/2014 **University Fellowship** (prestigious fellowship for interdisciplinary scholarship, awarded to ~15 incoming graduate students across all departments)
University of Arizona
- 05/2013 **D. Nelson Limber Award** (top graduating astronomy student)
University of Virginia
- 04/2013 **First Place Science Presentation, Spectra Science Prize, Student Council Innovation Award**
University of Virginia Undergraduate Research Network Symposium

Selected Academic Positions

Research

- 08/2020 - present **Postdoctoral Research Scholar** | Center for Gender Equity in Science & Technology and the School for Earth & Space Exploration | Arizona State University [joint appointment]
- 08/2014 - 08/2020 **Graduate Research Assistant** | Astronomy/Astrophysics & Astronomy Education University of Arizona

College-Level Teaching

- 01/2019 - 05/2019 **Graduate Teaching Assistant** (ASTR 201: Introductory Cosmology) University of Arizona | Instructor: Prof. Peter Behroozi
- 06/2017, 07/2018 **Teaching Assistant** (STEM week) Warrior-Scholar Project | University of Arizona
- 01/2018 - 05/2018 **Graduate Teaching Assistant** (ASTR 170B1: The Physical Universe) University of Arizona | Instructor: Prof. Edward Prather
- 01/2014 - 05/2014 **Graduate Teaching Assistant** (Economics of Public Policy II) University of Virginia | Instructor: Prof. Christopher Ruhm

Selected Education & Outreach

K-12 Students (Selected)

- 03/2021, 06/2020 **Presenter at Teen Astronomy Cafe (NSF NOIRLab)** | *Cafe title: "Breaking the Solar System (and Other Ways Simulations Help Us Understand Our Universe)"*
- 12/2018 - present **Equity & Inclusion Intern** | Vera C. Rubin Observatory Legacy Survey of Space and Time (LSST) Education & Public Outreach
- 03/2018 - present **Independent Contractor (school field trips & summer camps)** Sonoran Glass School (arts education non-profit) | Tucson, AZ
- 12/2018 - 05/2019 **Instructor (science inquiry activities for 4th-7th Grade Students)** University of Arizona Sky School
- 09/2017 - 05/2018 **Astronomer for Project ASTRO partnership**

General Public (Selected)

- 02/2019 - 05/2019 **Science Speakeasy** | *Organized pilot testing for a "flipped" science cafe format*

Instructor Development

9/2019	Facilitator/Subject Matter Expert (Earth-Moon system) STEMAZing Workshop for kindergarten teachers in Marana Unified School District
06/2019	Facilitator/Subject Matter Expert (light pollution) LIGHT professional development workshop for secondary science teachers Biosphere 2 Tucson, AZ
03/2019 - 04/2019	Facilitator (Solar System activities: planetary orbits, lunar phases, constellations) STEM on the Range (professional development workshops for K-12 teachers)
08/2017, 08/2018	Organizer for College of Science Teaching Assistant Training University of Arizona

Service & Leadership

01/2021 - present	URGE [Unlearning Racism in Geoscience] Pod Co-Leader School of Earth & Space Sciences Arizona State University
09/2020 - present	Justice, Equity, Diversity, & Inclusion (JEDI) Task Force School of Earth & Space Sciences Arizona State University
08/2017 - 05/2019	Astronomy & Astrophysics Representative: Elected to Vice President (Fall 2017 - Spring 2018) & President (Fall 2018 - Spring 2019) Associate Graduate Council for the College of Science University of Arizona
10/2018	Early Career Focus Session for the Astro2020 Decadal Survey National Academies of Science Washington, D.C.
10/2017 - 04/2018	Graduate Student Representative Committee: Steward Observatory Five-Year Review of Director Buell Januzzi
05/2013 - 08/2013	Executive Office Intern American Association of Physics Teachers

Selected Trainings & Certifications

03/2021	Getting On-the-Spot Feedback from Your Audience Astronomical Society of the Pacific
03/2020	Inclusive Teaching: Supporting All Students in the College Classroom ColumbiaX (edX)
11/2018	Certificate in Inclusive Inquiry STEM Education Institute for Scientist & Engineer Educators
11/2018	Safe Zone Network Training Certification University of Arizona
04/2017	Presenting to Diverse Audiences (Digital Badge) University of Arizona
02/2017	Alan Alda Center Science Communication Workshop University of Arizona
11/2014	Astronomy Ambassadors Workshop American Astronomical Society

Selected Presentations

Invited Talks

- 03/2021 “Making Science Personal & Culturally Responsive: Strategies Towards Equity in Astronomy Education”
Yale Astronomy Virtual Colloquium | Yale University
- 09/2020 “Making Science Personal: Designing Inclusive General Education Courses”
High Energy Physics Division Seminar | Argonne National Lab
- 03/2020 “Making Science Personal: Designing Inclusive General Education Courses”
Center for Gender Equity in Science and Technology | Arizona State University, Phoenix, AZ

Selected Local Talks & Presentations

- 10/2019 “Making Science Personal: Designing Inclusive General Education Courses”
FLASH (local science talk series) | NOAO, Tucson, AZ
- 12/2018 “The Thirty Meter Telescope (TMT) Conflict: A Case Study of Institutional Discrimination”
Steward Observatory Diversity Journal Club | University of Arizona

Selected Conference Presentations

- 03/2021 “Culturally Responsive Astronomy Education: Using a Critical Lens to Promote Equity and Social Justice”
X-DBER 2021 [virtual conference] | University of Nebraska-Lincoln
- 05/2018 “Estimating Redshifts for Ultra-Diffuse Galaxies in DESI Pre-imaging Surveys”
DECam Community Science Workshop 2018 | Tucson, AZ
- 08/2014 “Women in Physics: Reducing the Gender Gap at the College Level”
5th International Conference on Women in Physics | Waterloo, Canada

Publications

Refereed

O'Donnell, C.; Scott, K. (*in prep.*; expected submission by 04/2021 to *Cultural Studies of Science Education*), “Culturally Responsive Astronomy Education: Using a Critical Lens to Promote Equity and Social Justice”

O'Donnell, C.; Behroozi, P.; More, S. (*in prep.*; expected submission by 04/2021 to *Monthly Notices of the Royal Astronomical Society*), “Observing Correlations Between Dark Matter Accretion and Galaxy Growth: II. Testing the Impact of Galaxy Mass, Star Formation Indicator, and Neighbour Colours”

O'Donnell, C.; Behroozi, P.; More, S. (2021), "Observing Correlations Between Dark Matter Accretion and Galaxy Growth: I. Recent Star Formation Activity in Isolated Milky Way-Mass Galaxies", *Monthly Notices of the Royal Astronomical Society*, 501, 1

O'Donnell, C.; Prather, E.; Behroozi, P. (2021), "Making Science Personal: Inclusivity-Driven Design for General Education Courses", *Journal of College Science Teaching*, 50, 3

Decker, B.; Browdin, M.; Abdulla, Z.; Gonzalez, A. H.; Marrone, D. P.; **O'Donnell, C.**; Stanford, S. A.; Wylezalek, D.; et al. (2019), "The Massive and Distant Clusters of WISE Survey VI: Stellar Mass Fractions of A Sample of High-Redshift Infrared-Selected Clusters", *The Astrophysical Journal*, 878, 72

Gonzalez, A. H.; Gettings, D. P.; Brodwin, M.; Stanford, A.; Wylezalek, D.; Decker, B.; Eisenhardt, P. R. M.; Marrone, D. P.; **O'Donnell, C.**; Stalder, B.; Stern, D.; et al. (2019), "The Massive and Distant Clusters of WISE Survey. I: Survey Overview and a Catalog of >2000 Galaxy Clusters at $z \sim 1$ ", *The Astrophysical Journal Supplement Series*, 240, 2

Mulroy, S.; Farahi, A.; Evrard, A.; Smith, G. P.; Finoguenov, A.; **O'Donnell, C.**; Marrone, D. P.; Abdulla, Z.; Bourdin, H.; Carlstrom, J. E.; Démoclès, J.; Haines, C. P.; Martino, R.; Mazzotta, P.; McGee, S. L.; Okabe, N. (2019), "LoCuSS: Galaxy Cluster Scaling Relations", *Monthly Notices of the Royal Astronomical Society*, 484, 1

Abdulla, Z.; Carlstrom, J. E.; Mantz, A. B.; Marrone, D. P.; Greer, C. H.; Lamb, J. W.; Leitch, E. M.; Muchovej, S.; **O'Donnell, C.**; Plagge, T. J.; Woody, D. (2019), "Constraints on the Thermal Contents of the X-ray Cavities of Cluster MS 0735.6+7421 with Sunyaev-Zel'dovich Effect Observations", *The Astrophysical Journal*, 871, 2

Moravec, E.; Gonzalez, A. H.; Stern, D.; Brodwin, M.; Clarke, T.; Decker, B.; Eisenhardt, P. R. M.; Mo, W.; **O'Donnell, C.**; Pope, A.; Stanford, S. A.; Wylezalek, D. (2019), "The Massive and Distant Clusters of WISE Survey V: Extended Radio Sources in Massive Galaxy Clusters at $z \sim 1$ ", *The Astrophysical Journal*, 871, 2

Farahi, A.; Mulroy, S.; Evrard, A.; Smith, G. P.; Finoguenov, A.; Abdulla, Z.; Bourdin, H.; Carlstrom, J. E.; Démoclès, J.; Haines, C. P.; Marrone, D. P.; Martino, R.; Mazzotta, P.; **O'Donnell, C.**; Okabe, N. (2018), "Nearby Massive Galaxy Clusters are Reservoirs of Cosmic Baryons", *Nature Communications*, 10

Schindler, J.-T.; Fan, X.; McGreer, I. D.; Yang, J.; Wang, F.; Green, R.; Garavito-Camargo, N.; Huang, Y.-H.; **O'Donnell, C.**; Patej, A.; Pucha, R.; Rees, J. M.; Spalding, E. (2018), "The Extremely Luminous Quasar Survey in the Sloan Digital Sky Survey Footprint. II. The North Galactic Cap Sample", *The Astronomical Journal*, 843, 2

Zasowski, G.; Johnson, Jennifer A.; et al. (incl. **O'Donnell, C.**) (2013), "Target Selection for the Apache Point Observatory Galactic Evolution Experiment (APOGEE)", *The Astronomical Journal*, 146, 4

Bovy, J.; Allende Prieto, C.; et al. (incl. **O'Donnell, C.**) (2012), "The Milky Way's Circular-velocity Curve between 4 and 14 kpc from APOGEE data", *The Astrophysical Journal*, 759, 2

Non-refereed & Other

McConnell, N. J.; Hunter, L.; Seagroves, S.; Palomino, R.; Barnes, A.; Norman, D.; **O'Donnell, C.**; Nevin, R.; Ingermann, B. (2019), "Preparing an Inclusive Astronomy Community through Effective Professional Development", Astro2020 Decadal Survey state of the profession white paper

Bauer, A.; Lundgren, B.; O'Mullane, W.; Corlies, L.; Schwamb, M. E.; Nord, B.; Norman, D. J.; Trouille, L.; Hummels, C.; Pepper, J.; Gill, R.; Plazas, A.; Caldwell, D. A.; Price-Whelan, A.; Sobeck, J.; **O'Donnell, C.**; Blum, R.; Marshall, P.; Newhouse, M.; Coble, K. (2019), "A Need for Dedicated Outreach Expertise and Online Programming," Astro 2020 Decadal Survey state of the profession white paper

Moravec, E.; et al. (incl. **O'Donnell, C.**) (2019), "The Early Career Perspective on the Coming Decade, Astrophysics Career Paths, and the Decadal Survey Process", Astro2020 Decadal Survey state of the profession white paper

Rigby, J.; et al. (incl. **O'Donnell, C.**) (2019), "Astro2020 Must Issue Actionable Recommendations Regarding Diversity, Inclusion, and Harassment", Astro2020 Decadal Survey state of the profession white paper

Behroozi, P.; et al. (incl. **O'Donnell, C.**) (2019), "Empirically Constraining Galaxy Evolution", Astro2020 Decadal Survey science white paper

O'Donnell, C. (2013), "Finding Exo-Earths: A WISE Search for Excess Mid-Infrared Emission around 100,000 Nearby M Dwarfs", *The Oculus* [UVa research journal], 12

References

Available upon request