Christine O'Donnell, MPP, MS

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Astronomy & Astrophysics Ph.D. candidate with a proven record of contributing to teams to develop, assess, and continuously improve innovative & inclusive evidence-based education techniques designed to connect science and society.

Education

08/2014 - present (expected: 05/2020)
Ph.D. candidate, Astronomy & Astrophysics
University of Arizona
Thesis:
Part I - Observationally Measuring the Impact of Dark Matter Accretion on Galaxy Formation
Part II - Inclusivity-Driven Design for General Education Courses

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

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 in the Sciences
University of Virginia Undergraduate Research Network Symposium

Academic Positions

Research

08/2014 - present **Graduate Research Assistant**, Astronomy/Astrophysics & Astronomy Education
University of Arizona

05/2012 - 08/2012 **Research Experiences for Undergraduates (REU) Summer Student**
American Museum of Natural History, New York, NY

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

01/2017 - 05/2017 **Graduate Teaching Assistant** (ASTR 170B1: The Physical Universe)
University of Arizona | Instructor: Prof. Tom Fleming

01/2014 - 05/2014 **Graduate Teaching Assistant** (Economics of Public Policy II)
University of Virginia | Instructor: Prof. Christopher Ruhm

09/2013 - 12/2013 **Tutor** (Economics, Statistics, STATA Programming)
University of Virginia

08/2011 - 05/2012 **Teaching Assistant** (Classical and Modern Physics I/II; Principles of Physics)
University of Virginia

Education & Outreach

K-12 Students

04/2018 - present **Graduate Student Volunteer for Teen Astronomy Cafe (NOAO)**

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

02/2019 - 05/2019 **Science Speakeasy** (organizing & pilot testing a unique science cafe)

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

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

Trainings & Certifications

11/2018 **Leader in Classroom Diversity & Inclusion** | University of Arizona

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

Presentations

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

11/2017 "Gas contents of galaxy groups from thermal Sunyaev-Zel'dovich effects (Lim+ 17)"
Steward Observatory Journal Club | University of Arizona

09/2017 "Extracting the SZ Effect from MaDCoWS Galaxy Clusters"
Steward Observatory Internal Symposium | University of Arizona

04/2017 "Remarkable Similarity of Massive Galaxy Clusters From z~0 to z~1.9 (McDonald+ 17)"
Steward Observatory Journal Club | University of Arizona

Conference Presentations: Posters

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

Conference Presentations: Talks

01/2014 "Science Education & Advocacy: Tools to Support Better Education Policies" [#224.01]
American Astronomical Society 223rd Meeting | Washington, D.C.

07/2013 "American Association of Physics Teachers & Advocacy" [presentation to section chairs]
American Association of Physics Teachers Summer Meeting | Portland, OR

05/2013 "M-dwarfs in the Infrared: Searching for Dust & A New Method to Find Metal-Rich Stars"
Virginia Academy of Science May Meeting | Blacksburg, VA

04/2013 "Finding Exo-Earths: A WISE Search for Excess Mid-Infrared Emission around 100,000 Nearby M dwarfs"
University of Virginia Undergraduate Research Network Symposium

Public Research Talks

03/2018 "Extracting Signals from the Noise: Observing Galaxy Clusters from 8 Billion Years Ago"
Sonora Astronomical Society | Green Valley, AZ

10/2017 "Extracting Signals from the Noise: Observing Galaxy Clusters from 8 Billion Years Ago"
University of Arizona Family Weekend: Wildcat Family Conference

Publications

Refereed

O'Donnell, C.; Prather, E.; Behroozi, P. (***in prep.**; expected submission by Dec. 2019*), "Making Science Personal: Inclusivity-Driven Design for General Education Courses"

O'Donnell, C.; Behroozi, P.; Geha, M.; More, S. (***in prep.**; expected submission by Feb. 2020*), "Observational Constraints on the Correlation between Dark Matter Accretion and Galaxy Quenching"

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

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

Peter Behroozi | behroozi@email.arizona.edu
Assistant Professor, University of Arizona | Ph.D. Thesis Advisor

Edward Prather | eprather@email.arizona.edu
Professor, University of Arizona | Education Research Advisor

Rebecca Lipson | rlipson@email.arizona.edu
Assistant Director for Education, University of Arizona Sky School | Supervisor