Timothy Carleton

Academic Positions

2018–current **Postdoctoral Fellow**, *University of Missouri*, Columbia, MO.

2015–2018 **Graduate Student Researcher**, *UC Irvine*, Irvine, CA.

2014–2018 **Graduate Outreach Coordinator**, *UC Irvine*, Irvine, CA.

2012–2015 **Teaching Assistant**, *UC Irvine*, Irvine, CA.

Education

2018 **Ph.D., Physics**, *University of California, Irvine*, Irvine, CA.
Diffuse Gas and Diffuse Galaxies – Investigations into the State of Molecular Gas in High$-z$ Galaxies and the Origin of Ultra-Diffuse Galaxies

2014 **M.S., Physics**, *University of California, Irvine*, Irvine, CA.

2012 **B.S., Physics and Astronomy**, *University of Arizona*, Tucson, AZ.

Research Interest

- The influence of environment on dwarf galaxy evolution
- Ultra-Diffuse Galaxies
- Star formation in $z \simeq 1$ galaxies

Research Experience

2019 **Globular cluster formation around UDGs**.
Modeled globular cluster formation around UDGs

2018–2019 **Bursty quenching at $z \simeq 1$**.
Investigated Hα emission among quiescent $z \simeq 1$ galaxies using stellar population models

2016–2018 **The Origins of Ultra-Diffuse Galaxies**, *Manoj Kaplinghat*.
Tested the hypothesis that severly stripped dark matter halos can produce Ultra-Diffuse Galaxies using models and simulations

2013–2016 **The CO-H_2 conversion factor in $z > 1$ galaxies**, *Michael Cooper*.
Studied the CO-H_2 conversion factor in galaxies at $z > 1$ with existing Hubble Space Telescope and IRAM Plateau de Bure observations.
Analyzed *HST* grism observations to measure extent of Hα emission.

2010–2012 **Convection in stars**, *Casey Meakin*.
Compared high precision observations of transiting binary stars to stellar evolution models to study stellar convection

2011 **Polarimetry of quasars**, *Paul Smith*.
Developed a tool for analyzing polarized spectra in IDL, and used this tool to refute a claim that the angle of optical polarization of the Active Galactic Nuclei 3C279 flipped over an 8 day period

Teaching and Outreach

2018–2019 **Programming Mentor**, *University of Missouri*.
Organized weekly python tutorials with junior graduate students and served as resource for students who need help with coding

2014–2018 **Graduate Outreach Coordinator**, *UCI Observatory*.
Hosted public nights at the observatory; scheduled over 50 events with local schools and organizations with programming tailored to meet specific needs

2014, 2016, 2017 **COSMOS Teaching Assistant**, *University of California, Irvine*.
Led high school students through a summer research project

2017 **Competitive Edge Mentor**, *University of California, Irvine*.
Mentored a incoming physics graduate student during the summer before his first year

2012–2016 **Teaching Assistant**, *University of California, Irvine*.
Led discussions and labs for introductory physics and astronomy classes; provided weekly tutoring sessions

2014 **Educator Consultant**, *ESCAPE Summer Institute in Earth Science*.
Assisted K-12 educators in the development of new STEM lessons

Community Service

2018 **Reviewer**, *ApJ, NASA*.

Awarded Funding

2019 **Co-I**, *HST-AR-15798*.

2018 **Postdoctoral Travel Grant**, *University of Missouri*.

2015–2017 **ARCS Scholar**, *University of California, Irvine*.

2011–2012 **Astronomy Department Scholarship**, *Steward Observatory*.

2009–2011 **Galileo Circle Scholarship**, *University of Arizona*.

Specialized Skills

- Data analysis, statistics, grant writing, technical writing
- Fluent in python, and IDL programming languages; proficient in C and C++

Selected Talks

[1] *The formation of Ultra-diffuse galaxies through tidal heating.* STSCI Lunch Talk: Oct 4, 2019, *Invited*.

[2] *Evidence for Stochastic Quenching in Massive Galaxies at $z \sim 1$.* MARAC Meeting: April 12, 2019.

[3] *The Big Bang to the Periodic Table.* Nuclear Science & Engineering for Secondary Science Teachers: June 10, 2019.

[4] *The Origins of Ultra-Diffuse Galaxies.* CANDELS Meeting: October 24, 2018.

[5] *Tidally Disrupted Halos as the Hosts of Ultra-Diffuse Galaxies.* GalFRESCA: August 25, 2017.

[6] *Searching for Ultra-Diffuse Galaxies in the Bolshoi Simulation.* Santa Cruz Galaxy Workshop: August 10, 2017.

[7] *The CO-H2 Conversion Factor at $z < 1.5$.* Multi-Scale Star Formation Conference: April 5, 2017.

[8] *Star Formation in Young Galaxies.* ARCS Research Symposium: March 16, 2017.

[9] *The Sky Tonight.* ASUCI Student Night at the UCI Observatory: May 22, 2013.

[10] *Meteor Showers and Solar System Debris.* Perseid Meteor Shower Visitor Night at the UCI Observatory: August 11, 2013.

Selected Publications

[1] *Evidence for Non-smooth Quenching in Massive Galaxies at $z \sim 1$.* 2019. **Carleton** et al. MNRAS, 491, 2822.

[2] *Astrophysical Tests of Dark Matter with Maunakea Spectroscopic Explorer.* 2019. Li et al. arXiv:1903.03155.

[3] *The Formation of Ultra Diffuse Galaxies in Cored Dark Matter Halos Through Tidal Stripping.* 2019. **Carleton** et al. MNRAS, 485, 382.

[4] *PHIBSS: exploring the dependence of the CO-H2 conversion factor on total mass surface density at $z < 1.5$.* 2017. **Carleton** et al. MNRAS, 476, 4886.

[5] *Ground-based near-UV observations of 15 transiting exoplanets: constraints on their atmospheres and no evidence for asymmetrical transits.* 2016. Turner et al. MNRAS, 459, 789.

[6] *Near-UV and optical observations of the transiting exoplanet TrES-3b.* 2013. Turner et al. MNRAS, 428, 678.

[7] *Variability of the blazar 4C 38.41 (B3 1633+382) from GHz frequencies to GeV energies.* 2012. Raiteri et al. Astronomy and Astrophysics, 545, A48.

[8] *The Unusual Variable Hot B Subdwarf LS IV-14°116.* 2011. Green, E. M., Guvenen, B., O'Malley, C. J., O'Connell, C. J., Baringer, B. P., Villareal, A. S., **Carleton, T. M.**, Fontaine, G., Brassard, P., Charpinet, S. ApJ, 734, 59.

[9] *C_{60} in reflection nebulae.* 2010. Sellgren, K., Werner, M. W., Ingalls, J. G., Smith, J. D. T., **Carleton, T. M.**, Joblin, C. ApJ Letters, 722, L54..