

# CORAL WHEELER

Theoretical Astrophysics Including Relativity (TAPIR)  
Cahill Center for Astronomy  
California Institute of Technology  
1200 E. California Blvd., Pasadena, CA 91125  
coral@caltech.edu  
(626) 395-6171  
localgroup.ps.uci.edu/coral/  
@coralrosew

## EDUCATION

University of California, Irvine, Irvine, CA  
Ph.D., Physics and Astronomy, July 2016  
Advisor: James Bullock

University of California, Irvine, Irvine, CA  
Completed requirements for M.S., Physics and Astronomy, June 2008

The University of Akron, Akron, OH  
B.S., Mathematics (double major Mathematics & Physics), December, 2003  
Summa Cum Laude

## RESEARCH EXPERIENCE

DuBridge Postdoctoral Fellow, Caltech Fall, 2016-Present  
Investigating the morphologies and star formation histories of dwarf galaxies, and the origin of gradients in stellar age and metallicity.

Setting up and running high resolution, idealized hydrodynamic simulations of quasi-equilibrium Milky Way analogues in order to study their evolution over the last 2 billion years. Modeling known satellite impacts to test the role of minor mergers in triggering star formation and spiral arm creation in our Galaxy.

Josephine de Karman Dissertation Year Fellow, UC Irvine Fall, 2015-Summer, 2016  
Ran and analyzed high resolution, cosmological zoom-in hydrodynamic simulations of dwarf galaxies to investigate their stellar mass, star formation history, morphology and satellite populations.

Graduate Student Researcher, UC Irvine Fall, 2012-Summer, 2015  
Compared cosmological simulations and large scale observational surveys to investigate the shutting down of star formation of dwarf satellite galaxies.

Optimized methodology for observationally selecting and isolating Milky-Way-sized galaxies and their closest large satellites.

GAANN Fellow, UC Irvine 2005-2008  
Investigated analytic effects of a gas temperature floor on the shape and star formation of the dwarf galaxies.

REU at Arecibo Observatory Summer 2003  
Modified de-dispersion algorithm to allow for pulsar signals at lower frequencies than had been previously possible.

## GRADUATE PUBLICATIONS

Fillingham, Sean P.; Cooper, Michael C.; Pace, Andrew B.; Boylan-Kolchin, Michael; Bullock, James S.; Garrison-Kimmel, Shea; **Wheeler, Coral**; “Under pressure: quenching star formation in low-mass satellite galaxies via stripping”, *MNRAS*, 2016, Volume 463, p.1916-1928

**Wheeler, Coral**; Pace, Andrew B.; Bullock, James S.; Boylan-Kolchin, Michael; Oñorbe, Jose; Fitts, Elbert, Oliver D., Alex; Hopkins, Phil; Keres, Dusan; “The

no-spin zone: rotation vs dispersion support in observed and simulated dwarf galaxies”, 2016, preprint(arxiv:1511.01095), accepted in *MNRAS*

**Wheeler, Coral**; Onorbe, Jose; Bullock, James S.; Boylan-Kolchin, Michael; Elbert, Oliver D.; Garrison-Kimmel, Shea; Hopkins, Phil; Keres, Dusan; “Sweating the small stuff: simulating dwarf galaxies, ultra-faint dwarf galaxies, and their own tiny satellites”, *MNRAS*, 2015, Volume 453, Issue 2, p.1305-1316

**Wheeler, Coral**; Phillips, John I.; Cooper, Michael C.; Boylan-Kolchin, Michael; Bullock, James S., “The surprising inefficiency of dwarf satellite quenching”, *MNRAS*, 2014, Volume 442, Issue 2, p.1396-1404

Fillingham, Sean; Cooper, Michael C.; **Wheeler, Coral**; Garrison-Kimmel, Shea; Boylan-Kolchin, Michael; Bullock, James S., “Taking care of business in a flash: Constraining the timescale for low-mass satellite quenching with ELVIS, 2015, preprint(arxiv:1503.06803), accepted in *MNRAS*

Phillips, John I.; **Wheeler, Coral**; Cooper, Michael C.; Boylan-Kolchin, Michael; Bullock, James S.; Tollerud, Erik J., “The mass dependence of satellite quenching in Milky Way-like halos”, *MNRAS*, 2015, Volume 447, Issue 1, p.698-710

Phillips, John I.; **Wheeler, Coral**; Boylan-Kolchin, Michael; Bullock, James S.; Cooper, Michael C.; Tollerud, Erik J., “ A dichotomy in satellite quenching around  $L^*$  galaxies”, *MNRAS*, 2014, Volume 437, Issue 2, p.1930-1941

Kaufmann, Tobias; **Wheeler, Coral**; Bullock, James S., “On the morphologies, gas fractions, and star formation rates of small galaxies, *MNRAS*, 2007, Volume 382, Issue 3, pp. 1187-1195

## UNDERGRADUATE PUBLICATIONS

**C R Wheeler**, R D Ramsier and P N Henriksen, “Visibility of thin-film interference fringes, *Amer. J. Phys.* 72, 279, 2004

**C R Wheeler**, R D Ramsier and P N Henriksen, “Observing thin-film interference effects, *Phys. Educ.* 38, No 6, 495-496, Nov 2003

**C R Wheeler**, R D Ramsier and P N Henriksen, “An investigation of the temporal coherence length of light, *Eur. J. Phys.* 24 No 4, 443-450, July 2003

Brian Cheyne, Vishal Gupta, **Coral Wheeler**, “Hamilton cycles in addition graphs, *Rose Hullman Undergraduate Mathematics Journal*, Volume 4(1), 2003

## INVITED AND CONTRIBUTED TALKS

2015: Presented “Sweating the small stuff” at Satellites and Streams in Santiago in Santiago, Chile; at Multiwavelength Dissection of Galaxies in Sydney, Australia; at Local Group Astrostatistics in Ann Arbor, MI; at Mocking the Universe in Baltimore, MD; at the UC Santa Cruz Galaxy Formation Workshop; and at the 3rd annual GMT science meeting in Pacific Grove, CA; Gave an invited seminar at OSU; gave or will give seminars at Carnegie Observatories, Harvard, Columbia, UC Riverside, Caltech, Stanford, UC Berkeley, UCSC and UCSD.

2014: Presented “The remarkable inefficiency of satellite quenching” at the 11th annual Potsdam Thinkshop in Potsdam, Germany; Gave seminars at MPIA and HITS in Heidelberg, Germany, and at Yale University.

2013: Presented “A dichotomy in satellite quenching around  $L^*$  galaxies” at the 221st meeting of the American Astronomical Society; Presented The remarkable inefficiency of satellite quenching at the UC Santa Cruz Galaxy Formation Workshop.

2012: Presented “A dichotomy in satellite quenching around  $L^*$  galaxies,” and “The remarkable inefficiency of satellite quenching,” at the UCLA Dwarf Galaxy Workshop; Presented “A dichotomy in satellite quenching around  $L^*$  galaxies,” at the UC Santa Cruz Galaxy Formation Workshop.

## TEACHING EXPERIENCE

- Astronomy 20A and Physics 240A Fall 2012  
Taught discussion sections, graded homework and exams, and gave lectures for introductory astronomy course as well as for a graduate level math physics course. for the astronomy course.
- Cosmology 20B and Physics 7 Fall 2005 and Spring 2006  
Taught discussion section, monitored lab, and graded homework and the final project for an introductory physics course and an introductory cosmology course.
- Substitute Teacher and Math Tutor 2001 - 2005  
Worked as a private math tutor for students in subjects ranging from pre-algebra to statistics and differential equations. Employed as a substitute teacher for Akron public schools, specializing in physics and mathematics.

## AWARDS and HONORS

- 2015-2016:** Awarded the Graduate Women in Science (GWIS) Eloise Gerry Fellowship
- 2015-2016:** Awarded the Josephine de Karman Dissertation Year Fellowship
- 2015:** Won “Excellence in Speaking” at the 2nd annual AGS Symposium at UCI
- 2014:** Won “Best Student Talk” at the 14th annual TASC (Theoretical Astrophysics in Southern California) Meeting.
- 2014:** Won “Best Poster” at the prospective graduate student visit for the UCI Dept of Physics and Astronomy.
- 2012:** Awarded the Chancellor’s Fellowship for re-entry into the astronomy/astrophysics PhD program at UC Irvine.
- 2006:** Awarded the GAANN fellowship at UC Irvine.
- 2005:** Awarded the Regents Fellowship for entry into the astronomy/astrophysics PhD program at UC Irvine.

## BROADER IMPACT

- Created the UCI Women in Physics “Grad-Undergrad Mentor Match-up” program, a program that pairs postdoctoral and graduate women with undergraduate women in physics to improve retention of women in the field.
- Physical Sciences Representative in the Associated Graduate Students (AGS) at UCI. Focused on improving campus climate and family-friendly benefits for graduate students, and improving graduate student mental health.
- Head Steward of UAW 2865, the union for TAs, Readers and Tutors at UCI. Negotiated or supported negotiations for better family friendly policies for student and postdoctoral workers at the UC. Participated in a joint committee with the University of California to create a program designed to provide undocumented students the opportunity to attend graduate school.

## REFERENCES

- Phil Hopkins, Ph.D.  
Assistant Professor  
Caltech  
phopkins@caltech.edu
- James S. Bullock, PhD.  
Professor  
University of California, Irvine  
bullock@uci.edu
- Michael Boylan-Kolchin, PhD.  
Assistant Professor  
University of Texas at Austin  
mbk@astro.as.utexas.edu

Michael C. Cooper, PhD.  
Assistant Professor  
University of California, Irvine  
cooper@uci.edu

Andrew Wetzel, PhD.  
Moore Prize Fellow and Carnegie Fellow  
California Institute of Technology and Carnegie Observatories  
awetzel@caltech.edu