

MEREDITH DURBIN

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EMPLOYMENT

Space Telescope Science Institute

JUNE 2014 - PRESENT

Research & Instrument Analyst I

- Responsible for several characterization projects for WFC3/IR detector, including delivering updated bad pixel tables, studying effects of “blob” artifacts on point-source photometry, and investigating time evolution and aggregate photometric properties of transient “snowball” events
- PI of WFC3 Cycle 23 calibration proposals 14367 (UVIS bowtie monitor) and 14374 (IR dark monitor)
- Primary web developer for WFC3 “Quicklook” project & web content manager for WFC3 and Frontier Fields
- Research assistant on CANDELS collaboration as of June 2015

EDUCATION

May 2014 **Pomona College**
B.A. in PHYSICS
G.P.A. 3.6/4.0

August 2010 **Santa Rosa Junior College**
A.S. in NATURAL SCIENCES
Highest Honors

RESEARCH EXPERIENCE

Space Telescope Science Institute

JUNE 2015 - PRESENT

Supervisor: Dr. Henry Ferguson

- Performed artificial galaxy tests on GOODS data to characterize completeness of photometry catalogs
- Produced transfer functions characterizing difference between true vs. measured artificial galaxy magnitude and radius

Carnegie Observatories

JUNE 2013 - PRESENT

Supervisor: Dr. Victoria Scowcroft

- Performed photometry on IRAC 3.6 and 4.5 μm data and used known RR Lyrae period-luminosity relations to derive distance to globular cluster ω Centauri
- Investigated evidence for metallicity effects in 3.6 and 4.5 μm period-luminosity relation using period-luminosity residuals and metallicities of individual ω Centauri stars

Pomona College Department of Physics & Astronomy

MAY - AUGUST 2012

Supervisor: Dr. Alma Zook

- Operated 1-meter telescope at Table Mountain Observatory to obtain polarimetry data on quiescent blazars & polarized standard stars; analyzed data to characterize polarimeter & determine polarization of blazars

SKILLS

PROGRAMMING Advanced numerical & scientific Python (NumPy, SciPy, Astropy, Pandas)
Intermediate web development with HTML/CSS, JavaScript/jQuery, Flask/Jinja2, Jekyll
Basic IDL, MySQL, R, Mathematica

SOFTWARE Astronomical data analysis with DAOPHOT, DOLPHOT, GALFIT, AstroDrizzle, SExtractor
Version control with git/GitHub
Graphic design with Adobe CreativeSuite (Photoshop, Illustrator, InDesign), GIMP

TEACHING & MENTORING EXPERIENCE

RIA Trainer, Space Telescope Science Institute

JULY 2015

- Revised existing Matplotlib training module for new RIA hires

Teaching Assistant, Pomona College Dept. of Physics & Astronomy

JAN 2013 - MAY 2014

- Assisted introductory physics and astronomy students with homework sets and laboratory work, including telescope operation and imaging, experimental setup, software use, troubleshooting, and data analysis

Tutor, Scripps College & W.M. Keck Joint Sciences

MAY - JULY 2013

- Tutored post-baccalaureate premedical students in introductory physics, including Newtonian mechanics, electricity & magnetism, thermodynamics, and topics in modern physics

Mentor, Claremont Colleges Queer, Questioning & Allied Mentor Program

SEPT 2011 - MAY 2012

- Helped students connect with the Claremont LGBT+ community, locate resources, and develop support networks

PUBLICATIONS

Metallicity Effects in the Mid-Infrared RR Lyrae Period-Luminosity Relation

Durbin, M. J.; Scowcroft, V.; Freedman, W. L.; Madore, B. F.; Besla, G.; Bono, G.; Cioni, M.; Clementini, G.; Johnston, K.; Kallivayalil, N.; Kollmeier, J.; Law, D.; Majewski, S.; van der Marel, R.; Marengo, M.; Monson, A.; Nidever, D.; Pietrzynski, G.; Preston, G.; Seibert, M.; Smith, H.; Soszynski, I.; Thompson, I.; Udalski, A. In prep.

WFC3 ISR 2015-06: The Impact of Blobs on WFC3/IR Stellar Photometry

Durbin, M. J.; McCullough, P. R. 28 April 2015.

<http://www.stsci.edu/hst/wfc3/documents/ISRs/WFC3-2015-06.pdf>

WFC3 ISR 2015-01: IR Snowballs: Long-Term Characterization

Durbin, M. J.; Bourque, M.; Baggett, S. 10 March 2015.

<http://www.stsci.edu/hst/wfc3/documents/ISRs/WFC3-2015-01.pdf>

PRESENTATIONS

HST WFC3/IR Calibration Updates

Durbin, M. J.; Brammer, G.; Long, K. S.; Pirzkal, N.; Ryan, R. E.; McCullough, P. R.; Baggett, S. M.; Gosmeyer, C.; Bourque, M.

Poster accepted for AAS 227, Jan. 2016

The RR Lyrae Period-Luminosity Relation in IRAC Channels 1 and 2

Durbin, M. J.; Scowcroft, V.; Freedman, W. L.; Madore, B. F.; Monson, A.; Seibert, M.; Rich, J.

Lunch talk at STScI RIAB Science Lunch, Oct. 2014

Poster presented at AAS 224, June 2014

Contributed talk at APS CA/NV, Nov. 2013

Performance of the Savart-Plate Polarimeter on the Pomona College 1-Meter Telescope at Table Mountain

Zook, A. C.; Carlson, E. K.; Durbin, M. J.; Goldman, R. T.

Poster presented at AAS 221, Jan. 2013

OUTREACH

Co-founder & coordinator, ALPhA (“Awesome Ladies in Physics and Astronomy”) OCT 2013 - MAY 2014

- Organized activities geared towards fostering community and support among women studying physics at Pomona, including discussion sessions & lunches with female faculty members

Graphic designer & contributing artist, Pomona College Physics Festival APRIL 2013 & 2014

- Designed publicity posters and contributed several art pieces depicting astrophysical phenomena to the yearly Pomona College celebration of physics in the arts

HONORS & AWARDS

The Frank Parkhurst Brackett, Jr., and Davida Wark Brackett Prize, Pomona College 2014

- Awarded to an individual student as an incentive to excellence in advancing the study of astronomy, including astrophysics.

The Tileston Physics Prize, Pomona College 2011

- Given annually to outstanding first-year or sophomore students in the introductory courses and to the junior student in physics whose record in the department is judged most promising.

REFERENCES

Mr. Max Mutchler

Relationship: Branch Supervisor
Space Telescope Science Institute
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(410) 338-1321
3700 San Martin Drive
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Dr. Elena Sabbi

Relationship: Team Lead
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Dr. Victoria Scowcroft

Relationship: Research Supervisor
Carnegie Observatories
vs@obs.carnegiescience.edu
(626) 304-0234
813 Santa Barbara Street
Pasadena, California, 91101

Dr. Alma Zook

Relationship: Academic Advisor
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610 North College Avenue
Claremont, California, 91711

Dr. Philip Choi

Relationship: Professor
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