

# MEREDITH DURBIN

3700 San Martin Drive, Baltimore, MD 21218 • (410) 338-4446  
[mdurbin@stsci.edu](mailto:mdurbin@stsci.edu) • <http://meredith-durbin.com>

## 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 Spitzer/IRAC 3.6 and 4.5  $\mu\text{m}$  data and used known RR Lyrae period-luminosity relations to derive distance to globular cluster  $\omega$  Centauri
- Investigated evidence for metallicity effects in 3.6 and 4.5  $\mu\text{m}$  period-luminosity relation using period-luminosity residuals and metallicities of individual  $\omega$  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

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### 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 Colleges LGBT+ community, locate resources, and develop support networks

## PUBLICATIONS

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### 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

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### 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

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**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

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**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

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**Mr. Max Mutchler**

Relationship: Branch Supervisor  
Space Telescope Science Institute  
[mutchler@stsci.edu](mailto:mutchler@stsci.edu)  
(410) 338-1321  
3700 San Martin Drive  
Baltimore, MD, 21218

**Dr. Elena Sabbi**

Relationship: Team Lead  
Space Telescope Science Institute  
[sabbi@stsci.edu](mailto:sabbi@stsci.edu)  
(410) 338-4732  
3700 San Martin Drive  
Baltimore, MD, 21218

**Dr. Victoria Scowcroft**

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

**Dr. Alma Zook**

Relationship: Academic Advisor  
Pomona College  
[alma\\_zook@pomona.edu](mailto:alma_zook@pomona.edu)  
(909) 621-8723  
610 North College Avenue  
Claremont, California, 91711

**Dr. Philip Choi**

Relationship: Professor  
Pomona College  
[pchoi@pomona.edu](mailto:pchoi@pomona.edu)  
(909) 607-0890  
610 North College Avenue  
Claremont, California, 91711