

# J'Neil Blough-Swingen (Cottle)

**Arizona State University**  
School of Earth and Space Exploration  
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## Education

**Arizona State University**, Tempe AZ

*August 2016 - May 2021*

*PhD candidate, Astrophysics*

Advisors: Drs. Evan Scannapieco and Chris Groppi

Committee Members: Drs. Patrick Young, Phil Mausekopf, and Sanchayeeta Borthakur

**Western Washington University**, Bellingham WA

*September 2012 - June 2016*

*B.S. in Physics, minors in Astronomy & Computer Science*

## Research Experience

**Arizona State University**, School of Earth and Space Exploration

*Advisor: Dr. Evan Scannapieco*

*August 2016 - present*

- Studying the disruption and evolution of clouds embedded in hot winds focusing on the influence of magnetic fields
- Investigating the influence of non-equilibrium chemistry within hydrodynamic simulations of galactic outflows on simulated absorption profiles

*Advisor: Dr. Chris Groppi*

*January 2017 - May 2018*

- Determined the reliability of using aliases to recover high-frequency signals

**Western Washington University**, Department of Physics and Astronomy

*Advisor: Dr. Kevin Covey*

*June 2015 - August 2016*

- Constructed a catalog of 3000 young stellar objects over 420 square degrees selected on 2MASS and WISE IR excesses and optical variability (PanSTARRS) to aid targeting for the APOGEE-2: Young Cluster Program

*Advisor: Dr. Kristen Larson*

*April 2013 - May 2015*

- Developed spatial binning algorithm for SDSS sources, and used Bayesian statistics models to infer the three-dimensional spatial distribution of galactic interstellar medium.

## Teaching Experience

**Sundial Mentor Program**, Arizona State University

*August 2017 - May 2020*

*Mentor and Project Facilitator*

- Mentored freshmen physics students by providing advice and resources to succeed in college and internships
- Constructed and led short term projects for mentees

**Arizona State University**, School of Earth and Space Exploration

*Teaching Assistant*

*August 2016 - December 2016*

- Led weekly introductory undergraduate astronomy labs with lectures and one-on-one instruction.
- Managed set up and takedown of lab equipment including computers and telescopes

**Western Washington University**, Department of Physics and Astronomy

*Lab Teaching Assistant*

*September 2014 - June 2016*

- Supervised weekly undergraduate physics labs, instructed students throughout the lab period, graded lab materials, and set up equipment and materials at 10 student lab stations.
- Calculus and algebra-based introductory physics courses

**Whatcom Community College, Math Center**

*Math Tutor*

*September 2010 - June 2012*

- Worked one on one with students in a drop-in environment on concepts from math courses ranging from algebra to multivariable calculus

### Technical Skills

*Programming Languages:* Python, Java, C++, C, Fortran90, Racket, SQL, MatLab

*Relevant or Specialized Python packages:* matplotlib, numpy, scipy, pandas, emcee, yt, trident

*Formatting and Visualization:* VisIt, LaTeX, HTML, Microsoft Office

Unix-style Command Line, Git/Github version control

### Publications

**Cottle, J.**, Scannapieco, E. (in prep). Column Density Profiles of Cold Clouds with Non-Equilibrium Chemistry

Huang, S., Katz, N., Scannapieco, E., **Cottle, J.**, ... Brüggén, M. (2020). A new model for including galactic winds in simulations of galaxy formation I. Introducing the Physically Evolved Winds (PhEW) model. *MNRAS*, 497, 3

**Cottle, J.**, Scannapieco, E., Brüggén, M., Banda-Barragán, W., Federrath, C. (2020). The Launching of Cold Clouds by Galaxy Outflows III: The Influence of Magnetic Fields. *ApJ*, 892, 59

**Cottle, J.**, Scannapieco, E., & Brüggén, M. (2018). Column Density Profiles of Cold Clouds Driven by Galactic Outflows. *ApJ*, 864, 96

**Cottle J.**, Covey K., Suárez G., et. al. (2018). The APOGEE-2 Survey of the Orion Star Forming Complex: I. Target Selection and Validation with Early Observations. *ApJS*, 236, 27

### Presentations

The Influence of Magnetic Fields and Radiative Cooling on Wind-Cloud Interactions

**Cottle J.** *SESE Research Symposium*, Tempe, AZ, poster (February 2020).

Searching for High Energy Gas Around Galaxies Using Computer Simulations.

**Cottle J.** *Sundial Plain English Science Conference*, Tempe, AZ, talk (April 2019).

Construction and Validation of a Uniform Catalog of Candidate Young Stellar Objects Across the Full Orion Complex.

**Cottle J.**, Covey K., Schlafly E., & APOGEE Young Cluster Team. *Western Washington University Scholars Week*, Bellingham, WA, talk & poster (May 2016).

A Uniform Catalog of Candidate Young Stellar Objects Across the Full Orion Complex.

**Cottle J.**, Covey K., Schlafly E., & APOGEE Young Cluster Team. *227th American Astronomical Society Conference*, Kissimmee, FL, poster abstract 345.02 (January 2016).

REU and Grad School Workshop: Introductory Presentation and Panel MC

*Western Washington University Women in Physics*, Bellingham, WA, (November 2015)

Modeling Interstellar Dust: Bayesian Statistics Models with `emcee`.

**Cottle J.** and Larson K. *Western Washington University Scholars Week*, Bellingham, WA, talk & poster (May 2015).

### Achievements and Awards

Dr. Willard A. & Anne Brown Astronomy Scholarship *June 2015*  
Kaiser-Borsari College of Science and Technology Scholar *March 2013*

### Volunteering and Outreach

ASU Prison Education Course Development *2019-present*  
Sunhacks Judge *Oct 2020*  
ASU GPSA Award Reviewer *2020-2021*  
Letters to a Pre-Scientist *2019-2020*  
ASU Sundial Mentor *2019-2020*  
Girls Who Code Club Facilitator *2019-2020*  
Ask an Earth Space Scientist Author *2019*  
Phoenix ComicCon (Fan Fusion) Science Panelist *May 2017, 2019*  
Broadmor Elementary Science Fair Judge *February 2017, 2019*  
Miami High School Career Day *May 2018*  
Conference for Undergraduate Women in Physics *January 2018*  
    Local organizing committee, session chair, poster session judge  
SESE Open House Volunteer *Spring and Fall 2017, 2018*  
ASU Sundial Summer Program Academic Facilitator *Summer 2017, 2018*  
WWU Women in Physics Vice President *May 2015 - May 2016*