

# Nell Byler

UNIVERSITY OF WASHINGTON, DEPARTMENT OF ASTRONOMY · BOX 351580, SEATTLE, WA 98195

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## RESEARCH INTERESTS

Stellar Population Synthesis Models · CMD modelling · Spectral Fitting  
Photoionization Models · Stellar Evolution Models  
Integral Field Spectroscopy

## Education

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### UNIVERSITY OF WASHINGTON

2017 **Ph.D. in Astronomy**  
2013 **M.S. in Astronomy**

### WELLESLEY COLLEGE

2011 **B.A. in Physics**, John Charles Duncan Prize in Astronomy, Sigma Xi research honors.

## Grants & Proposals

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### AS SCIENCE P.I.

2015 **HST AR-14283 (\$83K)**, “Detangling Galaxy Spectra: A Baseline Calibration Using Resolved Stars”  
2015 **Royalties Research Fund Grant (\$27K)**, “Beyond stars: Modeling the light from galaxies”  
2015 **MaNGA Ancillary Program**, “MaNGA Resolved Stellar Populations”  
2013 **NSF EAPSI Fellow (\$5k + travel and lodging)**, “Refining Stellar Population Synthesis Models”

### As Co-I

2016 **After-Sloan-IV proposal (Senior Personnel)**, “The Dynamic Ranger: A Multi-Scale Survey of Galaxies”  
2016 **MUSE observing program**, “A systematic multi-tracer study of the HII regions in NGC 300”

## Research Experience

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### Doctoral Research — University of Washington

2014 – Present

COLLABORATORS: JULIANNE DALCANTON (ADVISER), DAN WEISZ

- Thesis: Calibrating SPS models using resolved star and integrated light observations of galaxies.

### Graduate Research — University of Washington

2014 – Present

COLLABORATORS: JULIANNE DALCANTON, CHARLIE CONROY

- Integrating nebular emission model in SPS code FSPS.

### NSF EAPSI Fellow — University of Tokyo, Kavli IPMU

Summer 2013

COLLABORATORS: KEVIN BUNDY

- SPS codes in 2D: fitting techniques for integral field spectroscopy.

### Graduate Research — Instrumentation Shop, University of Washington

2012 – 2013

COLLABORATORS: NICK MACDONALD

- MaNGA hardware metrology for IFU ferrules
- MaNGA first light: Assisted during MaNGA prototype hardware observing run at APO to demonstrate instrumentation and observing procedures.

### Graduate Research — University of Washington

2012 – 2014

COLLABORATORS: JULIANNE DALCANTON, PHIL ROSENFELD

- Constraining late-stage stellar evolution models with Red Clump and AGB bump stars in M31 (PHAT).

### Undergraduate Research — Harvard-Smithsonian Center for Astrophysics

2010 – 2011

COLLABORATORS: ANIL SETH

- Stellar Populations in Globular Clusters: Used spectroscopy to separate chemically and kinematically distinct subpopulations in massive globular clusters.

## Presentations

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### CONTRIBUTED TALKS

2016	<b>Spectral Fitting Workshop: FSPS + MaNGA</b>	Tokyo, Japan
2016	<b>SDSS-IV Collaboration Meeting</b>	Madison, WI
2016	<b>Interplay between Local and Global Processes in Galaxies</b>	Cozumel, Mexico
2015	<b>Fitting Stars, CMDs, &amp; Galaxies Workshop</b>	Rockport, MA

### POSTERS

2015	<b>AAS Winter Meeting</b>	Seattle, WA
2014	<b>IAU 309</b>	Vienna, Austria
2013	<b>NSF EAPSI awardees conference</b>	Tokyo, Japan

## Service & Committees

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2016	<b>Department Curriculum Review Committee</b> , Graduate Student Representative
2015	<b>Diversity Journal Club</b> , Organizer & Discussion Leader
2014	<b>CAPHINE (weekly arXiv discussion)</b> , Organizer & Discussion Leader
2012	<b>Graduate and Professional Student Senate</b> , Senator

## Teaching Experience

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**Upward Bound Astronomy Section Instructor** Summer 2012

- Designed coursework and lead daily sections during 6-week program.

**Teaching Assistant: Astronomy 480** 2015 – 2016

- Senior-level undergraduate course on data reduction techniques. Organized course material and lead lecture on coding practices. 2 quarters.
- Assisted planning and Supervising observing runs for term projects.

**Teaching Assistant: Astronomy 101, 150** 2011 – 2014

- Introductory undergraduate courses. Lead labs and activities, reviewed lecture material for ~ 60 students twice per week. 6 quarters total.

## Outreach

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**Astronomy on Tap, Seattle** 2015 – Present

- Logo and poster design; event co-organizer.

**Pre-Major in Astronomy Program (Pre-MAP)** 2012 – Present

- Diversity Journal Club Chair: organized inclusion-centered discussions and presentations.
- Community building: organized annual retreats to VLBA site in Brewster, WA; LIGO Hanford Observatory.

**UW Mobile Planetarium** 2011 – Present

- Designed and executed curriculum for summer program at East African Community Center.
- Integrating student-lead planetarium presentations into high school physics classes.

**Numerous public talks: science camp for middle school girls, Olympic National Park, Nerd Nite, EMP museum.**

## Publications

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5. **Byler, N.**, Dalcanton, J. J., Conroy, C., & Johnson, B. D. (2016). "Nebular Continuum and Line Emission in Stellar Population Synthesis Models," *arXiv*, arXiv:1611.08305. [ADS](#).
4. Leja, J., Johnson, B. D., Conroy, C., van Dokkum, P. G., & **Byler, N.** (2016). "Deriving Physical Properties from Broad-band Photometry with Prospector: Description of the Model and a Demonstration of its Accuracy Using 129 Galaxies in the Local Universe," *arXiv*, arXiv:1609.09073. [ADS](#).
3. Drory, N., et al., including **N. Byler** (2015). "The MaNGA Integral Field Unit Fiber Feed System for the Sloan 2.5 m Telescope," *AJ*, 149, 77. [ADS](#).
2. Bundy, K., et al., including **N. Byler** (2015). "Overview of the SDSS-IV MaNGA Survey: Mapping nearby Galaxies at Apache Point Observatory," *ApJ*, 798, 7. [ADS](#).
1. Williams, B. F., et al., including **N. Byler** (2014). "The Panchromatic Hubble Andromeda Treasury. X. Ultraviolet to Infrared Photometry of 117 Million Equidistant Stars," *ApJS*, 215, 9. [ADS](#).