

# Kyle A. Corcoran

Graduate Student  
Department of Astronomy  
University of Virginia

## Curriculum Vitae

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### Research Interests

Hot subdwarf stars, white dwarf stars, Type Ia supernovae progenitors, variable candidate identification methods, compact binary stars, asteroseismology, stellar evolution, substellar objects

### Education

#### University of Virginia

*Doctor of Philosophy* [First Year]  
*Dissertation:* TBD  
*Adviser:* TBD

Charlottesville, VA  
Projected 2024

#### High Point University

*Bachelor of Science*, **summa cum laude** – physics  
*Adviser:* Dr. Brad N. Barlow  
*Double Major:* Mathematics [B.A.]

High Point, NC  
May, 2019

### Publications

2. **A Method to Select Candidate WD Variables from Gaia DR2** [*in prep*]  
J. J. Hermes, **Kyle A. Corcoran**, Thomas M. Boudreaux, Brad Barlow, John Kuehne, Zach Vanderbosch, J. S. Reding, B. H. Dunlap, A. Aungwerojwit, B. T. Gänsicke, ...
1. **EVR-CB-001: An Evolving, Progenitor, White Dwarf Compact Binary Discovered With The Evryscope** [*submitted*]  
Jeff Ratzloff, Brad N. Barlow, Thomas Kupfer, **Kyle A. Corcoran**, Nick Law, Hank Corbett, Ward Howard, Octavi Fors

### Published Abstracts

5. **A Radial Velocity Survey of Candidate Variable Hot Subdwarfs from Gaia DR2**  
Nathan Grinalds, **Kyle Corcoran**, Will Frondorf, Isaac Parker, David Vestal, Brad Barlow
4. **Evryscope Photometry of the New Hot Subdwarf Reflection Effect Binary EC 01578-1743**  
Walser, Stephen, **Corcoran, Kyle A.**, Barlow, Brad, Mycroft, Sam, Aube, John, Ratzloff, Jeff, Law, Nicholas, Corbett, Henry T., Fors, Octavi, Howard, Ward S., 2019, AAS Meeting, 233, #464.03

3. **Evryscope Observations of Post-Common-Envelope Hot Subdwarf Systems**  
**Corcoran, Kyle A.**, Barlow, Brad, Walser, Stephen, Mycroft, Sam, Aube, John, Ratzloff, Jeff, Law, Nicholas, Corbett, Henry T., Howard, Ward S., Fors, Octavi, 2019, AAS Meeting, 233, #360.16
2. **A Journey to Mars: HPUniverse Day and Its Impact on Young Minds and a Community**  
**Corcoran, Kyle A.**, Barlow, Brad, Welter, Michael, Brady, Erin, Roth, Nolan, Boudreaux, Thomas Macaulay, Walser, Stephen, 2019, AAS Meeting, 233, #147.05
1. **Updated O-C Diagrams for Several Bright HW Vir Binaries Observed with the Evryscope**  
**Corcoran, Kyle A.**, Barlow, Brad, Corbett, Hank, Fors, Octavi, Howard, Ward S., Law, Nicholas, Ratzloff, Jeff, 2018, AAS Meeting, 231, #150.23.

## Observing Experience

- **4.1m SOAR Telescope** (Goodman Spectrograph)
  - 4 nights of observing experience (awarded through NOAO)
- **SMARTS Consortium Telescopes** (CTIO 1.5m/CHIRON, CTIO 0.9m)
  - 7 nights of observing experience on the 0.9m
  - reduced and analyzed around 80 hours of time-series photometry from our 7 night run
  - obtained, reduced, and analyzed over 5 hours of spectroscopy on the 1.5m telescope
- **SKYNET/PROMPT – CTIO**
  - obtained, reduced, and analyzed over 15 hours of time-series photometry

## Academic Employment

- High Point University** High Point, NC  
*Research Assistant – NSF AST #1812874* 2018-2019
- conducted research projects on hot subdwarfs using SOAR, the Evryscope, SKYNET, and the SMARTS 1.5m/CHIRON
  - advised five undergraduate students with research projects on hot subdwarfs
  - helped to submit two observing proposals – one to NOAO for which we were awarded four nights on SOAR’s Goodman spectrograph and one to the TESS Guest Investigator program for Cycle 2
  - gave multiple presentations at national and international conferences
- High Point University** High Point, NC  
*Supplemental Instructor and Tutor* 2018-2019
- held office hours and review sessions for student questions
  - worked with students both in one-on-one and group settings

## Awards and Honors

- **All University Honors**, 2019, High Point University
- **Chief Junior Marshall**, 2018, High Point University
- **Sigma Pi Sigma, National Honors Society**, 2018, Elected Member
- **Walt and Susan Patterson Prize for Outstanding Presentation**, 2017, MAA 96th Southeastern Regional Meeting
- **Alpha Lambda Delta, National Honors Society**, 2015, Elected Member
- **Presidential Fellowship Scholarship**, 2015-2019, High Point University
- **Honors Scholars Program**, 2015-2019, High Point University
- **Dean's List**, 2015-2019, High Point University

## Professional Memberships

- Junior Member, American Astronomical Society
- Member, Society of Physics Students

## Educational & Public Outreach

- HPUniverse Day Volunteer where I gave presentations about spacetime to young children (2016-Present)
- Piedmont Triad Science fair for Non-Public Schools Volunteer (2016-2019)
- Spaceport America Cup (Intercollegiate Rocketry and Engineering Competition) Volunteer (2016)

## Computing Skills

- Programming Languages
  1. Expert: Python, C
  2. Comfortable: MATLAB, C++, Arduino
  3. Familiar: R, HTML
- Miscellaneous: IRAF, L<sup>A</sup>T<sub>E</sub>X, GitHub, Period04, ds9, Windows, macOS, Linux

## Oral Presentations

2. **Ninth Meeting on Hot Subdwarfs and Related Objects** Hendaye, France  
*"A Radial Velocity Survey of Candidate Variable Hot Subdwarfs from Gaia DR2"* Jun 24th, 2019
1. **MAA Southeastern Section 96th Annual Meeting** Macon, GA  
*"The O-C Diagram and its Applications to Astrophysical Systems"* Mar 11th, 2017

## Poster Presentations

6. **233rd Meeting of the American Astronomical Society** Seattle, WA  
*"Evryscope Observations of Post-CommonEnvelope Hot Subdwarf Systems"* Jan 9th, 2019

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| 5. <b>233rd Meeting of the American Astronomical Society</b>                                 | Seattle, WA     |
| <i>"A Journey to Mars: HPUniverse Day and Its Impact on Young Minds and a Community"</i>     | Jan 7th, 2019   |
| 4. <b>North Carolina Astronomer's Meeting – 2018</b>   | Greensboro, NC  |
| <i>"A Method to Select Candidate WD Variables from Gaia DR2"</i>                             | Sep 22nd, 2018  |
| 3. <b>High Point University Research and Creative Works Symposium</b>                        | High Point, NC  |
| <i>"Updated O-C Diagrams for Several Bright HW Vir Binaries Observed with the Evryscope"</i> | Apr 10th, 2018  |
| 2. <b>231st Meeting of the American Astronomical Society</b>                                 | Washington D.C. |
| <i>"Updated O-C Diagrams for Several Bright HW Vir Binaries Observed with the Evryscope"</i> | Jan 9th, 2018   |
| 1. <b>North Carolina Astronomer's Meeting – 2017</b>   | Greensboro, NC  |
| <i>"AA Dor: An Irritatingly Stable Post-Common-Envelope Binary "</i>                         | Sep 23rd, 2017  |

## Research Projects

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| • Identifying Variable sdB Candidates from Gaia DR2          | 2019-Present |
| • EC 01578-1743 Case Study                                   | 2018-2019    |
| • DAV White Dwarf Analysis                                   | 2018-2019    |
| • O-C Analyses of Post-Common-Envelope Binaries              | 2017-Present |
| • Educational Research in Radio Astronomy                    | Aug 2017     |
| • Reflection Effect Studies in Post-Common-Envelope Binaries | 2016-2017    |

## References

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|---|--------------------------|
| <b>Dr. Brad Barlow</b>                            | bbarlow@highpoint.edu    |
| <i>High Point University</i>                      | (336) 841-9542           |
| <b>Dr. Aaron Titus</b>                            | atitus@highpoint.edu     |
| <i>High Point University</i>                      | (336) 841-4668           |
| <b>Dr. Briana Fiser</b>                           | bfiser@highpoint.edu     |
| <i>High Point University</i>                      | (336) 841-9412           |
| <b>Dr. David Moffett</b>                          | david.moffett@furman.edu |
| <i>Furman University</i>                          | (864) 294-2259           |
| <b>Dr. Lindsay Piechnik</b>                       | lpiechni@highpoint.edu   |
| <i>High Point University</i>                      | (336) 841-9458           |
| <b>Dr. Dan Reichart</b>                           | reichart@physics.unc.edu |
| <i>University of North Carolina – Chapel Hill</i> | (919) 962-5310           |

## Contact Information

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Last Updated – June 13, 2019