

Neil Bassett

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Education

University of Colorado Boulder 2018-Pres.
Department of Astrophysical & Planetary Sciences
Center for Astrophysics and Space Astronomy
PhD Track

Indiana University Bloomington 2014-2018
Bachelor of Science (with Honors) Astronomy & Astrophysics
Thesis: “Constraints on Internal Stellar Physics from Lithium in NGC 752”
Bachelor of Science Physics
Minor Mathematics
Graduated with Highest Distinction

Research Experience

University of Colorado, Boulder, CO 2018-Pres.
Advisor: Professor Jack O. Burns
Role: Graduate research assistant studying the redshifted 21-cm line from the hyperfine transition of neutral hydrogen as a cosmological probe of the Dark Ages and Epoch of Reionization. Research focuses on developing a software pipeline for extracting the 21-cm global signal from observational data through pattern recognition and other statistical techniques.

Indiana University, Bloomington, IN 2015-2018
Advisor: Professor Constantine Deliyannis
Role: Undergraduate student research assistant through the IU Science, Technology, and Research Scholars (STARS) program. Work included performing stellar photometry and spectroscopy on open star cluster NGC 752 in order to probe the shortcomings of the standard theory of stellar evolution. Worked full-time during Summer 2015 and Summer 2017.

University of Wyoming, Laramie, WY 2016
Advisor: Professor Adam Myers
Role: Part of the NSF Research Experience for Undergraduates (REU) program at Wyoming as a Summer research assistant. Used observations from the Wyoming Infrared Observatory as well as SDSS, GALEX, and WISE surveys to identify quasar candidates in the region of the galaxy M33.

Publications

- [1] **Neil Bassett**, David Rapetti, Jack O. Burns, Keith Tauscher, and Robert MacDowall. “Characterizing the Radio Quiet Region Behind the Lunar Farside for Low Radio Frequency Experiments”. In: *Advances in Space Research* (2020). ISSN: 0273-1177. DOI: [10.1016/j.asr.2020.05.050](https://doi.org/10.1016/j.asr.2020.05.050).
- [2] Jack Burns, Stuart Bale, **Neil Bassett**, et al. “Dark Cosmology: Investigating Dark Matter & Exotic Physics in the Dark Ages using the Redshifted 21-cm Global Spectrum”. In: *Science whitepaper submitted to the Astro2020 Decadal Survey* (Feb. 2019). arXiv: [1902.06147](https://arxiv.org/abs/1902.06147) [[astro-ph.CO](https://arxiv.org/abs/1902.06147)].

Presentations

N. Bassett, D. Rapetti, J. Burns, K. Tauscher, J. Hibbard, “Ensuring the Robustness of SVD Analysis for Global 21-cm Signal Extraction,” Oral presentation. *AAS 236th Meeting*, Virtual, 3 June 2020.

N. Bassett, D. Rapetti, J. Burns, K. Tauscher, “The Radio Quiet Environment Above the Lunar Far-side and its Application to 21-cm Experiments,” Oral presentation. *NASA Exploration Science Forum*, NASA Ames Research Center, CA, 24 July 2019.

N. Bassett, D. Rapetti, J. Burns, K. Tauscher, “The Radio Quiet Environment Above the Lunar Far-side and its Application to 21-cm Experiments,” Oral presentation. *LunGradCon*, NASA Ames Research Center, CA, 22 July 2019.

N. Bassett, “Constraints on Internal Stellar Physics from Lithium in NGC 752,” Oral presentation. Indiana Department of Astronomy Undergraduate Honors Colloquium, Bloomington, IN, 29 March 2018.

N. Bassett, S. Deam, W. Harvey, E. Griffith, D. Lee, B. Lyke, E. Nuñez, R. Parziale, C. Witherspoon, A. Myers, J. Findlay, H. Kobulnicky, D. Dale, “Planning and Depths of Observations for a WIRO Quasar Survey Behind M33,” Poster presentation. *AAS 229th meeting*, Grapevine, TX, 6 January 2017.

N. Bassett, C. Deliyannis, “Stellar Photometry of Open Cluster NGC 752,” Poster presentation. *Indiana University STARS symposium*, Bloomington, IN, 13 February 2016.

Honors & Awards

2018 - Indiana Department of Astronomy Hollis and Grete Johnson Research Prize

2018 - Indiana Department of Astronomy Alumni Award for Overall Academic Excellence

2018 - Phi Beta Kappa

2017 - Indiana Department of Astronomy Marshal H. Wrubel Memorial Award

2016 - National Science Foundation Research Experience for Undergraduates (REU)

2015 - Indiana Department of Astronomy McCreery Travel Award

2014 - 2018 - Indiana University Science, Technology, and Research Scholar

2014 - 2018 - Indiana University Provost Scholar

2014 - National Merit Finalist

Computing Skills

Programming Languages: Python, C, Fortran

Other: Supercomputing (NASA Pleiades, RMACC Summit), IRAF, UNIX/Linux Operating Systems, Git/Mercurial, Mathematica, \LaTeX