

# Nora Bailey

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<http://astro.nora-bailey.com>

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## Research Interests

Applying numerical and analytical methods to develop theories related to exoplanet systems; planetary dynamics; planetary system architectures, resonances, stability, and habitability.

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## Education

**University of Chicago / Ph.D., Astronomy & Astrophysics**

September 2017 - PRESENT, Chicago, IL

Advisor: Prof Daniel Fabrycky. Advanced to candidacy July 2019. Expected defense April 2022.

**United States Naval Academy / B.S., Physics (Astrophysics track)**

June 2005 - May 2009, Annapolis, MD

Graduated with merit. Language Study Minor in Spanish. GPA: 3.92 (4.0 Upper Division).

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## Awards/Honors

|                               |      |
|-------------------------------|------|
| Eckhardt Graduate Scholar     | 2017 |
| Invited Member, Phi Kappa Phi | 2009 |

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## Research Publications

**Bailey, N.**, Gilbert, G., & Fabrycky, D. "Period Ratio Sculpting near Second-order Mean-motion Resonances" [2022, AJ, 163, 13](#)

**Bailey, N.** & Fabrycky, D. "Nodal Precession in Closely Spaced Planet Pairs" [2020, AJ, 159, 217](#)

**Bailey, N.** & Fabrycky, D. "Stellar Flybys Interrupting Planet-Planet Scattering Generates Oort Planets" [2019, AJ, 158, 94](#)

Larsen, J. A., Albert, C. E., Munn, J., **Bailey, N.A.**, et al. "Minor Planet Observations [689 U.S. Naval Observatory, Flagstaff]" [2007, Minor Planet Circulars, 61428, 2](#)

Larsen, J. A., Albert, C. E., Munn, J., **Bailey, N.A.**, et al. "Minor Planet Observations [689 U.S. Naval Observatory, Flagstaff]" [2007, Minor Planet Circulars, 61170, 1](#)

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## Talks

"Period Ratio Sculpting Near Second-Order MMRs." Great Lakes Exoplanet Area Meeting, University of Michigan, Ann Arbor, MI - November 2021

"Planetary Period Ratio Sculpting Near Second-Order Mean-Motion Resonances." 52 Annual Meeting of the AAS Division on Dynamical Astronomy, [Online](#) - May 2021

"Closely Spaced Exoplanets: Inclined to Precess." Lake Michigan Exoplanet Meeting, University of Chicago, Chicago, IL - November 2019

"Stellar Flybys Interrupting Planet-Planet Scattering Generates Oort Planets." Emerging Researchers in Exoplanet Science (ERES) V, Cornell University, Ithaca, NY - June 2019

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## Posters

"Period Ratio Sculpting Near Second-Order Mean-Motion Resonances." Emerging Researchers in Exoplanet Science (ERES) 2021, Princeton University, [Online](#) - May 2021

"Nodal Precession in Closely Spaced Planet Pairs." Exoplanets III, Heidelberg University and MPA, Online - July 2020

“Stellar Flybys Interrupting Planet-Planet Scattering Generates Oort Planets.”  
Exoplanets II, University of Cambridge, Cambridge, UK - July 2018

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## Teaching

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|   |             |
|---|-------------|
| Lecturer, Intro to Global Warming (PHSC 13410), University of Chicago | Fall 2020   |
| Teaching Assistant, Exoplanets (ASTR 12720), University of Chicago    | Spring 2018 |
| Teaching Assistant, Galaxies (ASTR 12710), University of Chicago      | Winter 2018 |
| Teaching Assistant, Stars (ASTR 12700), University of Chicago         | Fall 2017   |

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## Service

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| Member, Dean's Student Advisory Committee, University of Chicago  | 2020-2021 |
| Organizer, Exoplanet Journal Club, University of Chicago  | 2019-2020 |
| President, Very Exciting Research by Astronomers (graduate student organization), University of Chicago | 2018-2020 |
| Member, Brinson Committee, University of Chicago  | 2017-2018 |
| President, Astronomy Club, United States Naval Academy  | 2007-2009 |

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## More Publications

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|---|------------|
| “Your unique muscle response could become a new approach to digital authentication.” <a href="#">UChicago Physical Sciences News</a> .        | April 2021 |
| “Oceans and atmospheres: geophysical sciences professor with a passion for climate change.” <a href="#">UChicago Physical Sciences News</a> . | April 2021 |
| “Aging stars provide a new cosmological yardstick.” <a href="#">UChicago News</a> .   | March 2021 |

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## Outreach & Science Communication

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|  |              |
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| Guest, Sciencious Soundwaves Podcast   | Forthcoming  |
| Co-star, The Cosmos Show   | 2021-        |
| Video Creator, Physics and Space Science, Khan Academy   | 2021-        |
| Creator/Host, Nora's Guide to the Galaxy, <a href="http://galaxy.nora-bailey.com">http://galaxy.nora-bailey.com</a>                      | 2020-        |
| Guest, Bad Astra Channel, “ <a href="#">Interview with an Exoplanets Astronomer</a> ”  | April 2021   |
| Guest Speaker, Pan-Pacific Nerdsday, “Introduction to Exoplanets.”   | January 2021 |
| Physical Sciences Division Science Writing and Digital Media Intern, University of Chicago   | Winter 2021  |
| Guest, Expand Your Perspective Podcast, “ <a href="#">Episode 1</a> – The Universe: Black Holes, Exoplanets, and the Evolution of Stars” | October 2020 |
| Volunteer, Soapbox Science, Chicago, IL  | 2018         |
| Group Leader, Expanding Your Horizons, Chicago, IL   | 2018         |
| Organizer, AstroKids, Annapolis, MD  | 2008-2009    |

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## Other Employment

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**Booz Allen Hamilton** / Associate, Project Management/Systems Engineering  
August 2014 - May 2017, San Diego, CA

Consulted for Navy/DoD clients, including the Space and Naval Warfare Chief Engineer and the Commercial Broadband Satellite Program.

**United States Navy, USS Carl Vinson (CVN-70)** / Reactor Mechanical Division Officer  
June 2012 - June 2014, San Diego, CA

Led a division of 20+ nuclear-trained personnel. Supervised the operation of onboard A4W nuclear reactor. Certified Nuclear Engineer Officer by Departments of Energy and Defense in March 2014, receiving recognition for outstanding performance during examination.

**United States Navy, USS *Green Bay* (LPD-20) / Combat Information Center Officer,  
Fire Control Officer, Public Affairs Officer**

June 2009 - May 2011, San Diego, CA

Led 30+ personnel in performance of operational duties. Handled the ship's military-public interface. Supervised the ship's at-sea operation, navigation, and maneuvering. Qualified Surface Warfare Officer. Ranked first in peer group.

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**Other Education**

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**University of California San Diego Extension / Certificate, Accounting**

March 2015 - May 2016, San Diego, CA

Completed with 98% average.

**Navy Prototype School**

December 2011 - June 2012, Charleston, SC

In-depth, hands-on training in theory and operations, including casualty response and integrated plant operations, on an operating S5G nuclear reactor.

Graduated #1 in class.

**Navy Nuclear Power School**

May 2011 - December 2011, Charleston, SC

Graduate level training in math, thermodynamics, chemistry, physics, material sciences, reactor dynamics, and nuclear plant operations.

Graduated #2 in class.