

# Catherine Slaughter

Early-Career Astronomer

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## Education

- 2021–2023 **MSc in Astronomy Research**, *Leiden University*, Leiden, The Netherlands.  
Average Grade:  $-/10$   
Expected to defend and graduate June 2023
- 2017–2021 **BA in Astronomy and Physics**, *Dartmouth College*, Hanover, NH.  
GPA:  $3.54/4.00$   
Class of 2021. Studied abroad and participated in an observing run at SAAO in South Africa Jan-Mar 2019.  
Culminating Research Work: *Refining the Age of the Universe Using Globular Clusters*

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## Extracurricular Research Experience

- 2020–Present **Culminating Research Project**, *Dartmouth College Dept. of Physics and Astronomy*, Chaboyer Group, Hanover, NH.  
Implemented new numerical analysis methods along with Monte Carlo Main-Sequence fitting as done in O'Malley et al. 2017 to determine the ages of several nearby globular clusters with significantly decreased error. Doing so sets a hard lower limit for the age of the universe, potentially helpful for future research in the Hubble Tension.  
◦ Related Publications: *Refining the Age of the Universe with Globular Clusters* in preparation
- 2020–2021 **Caltech Summer Undergraduate Research Fellowship**, *California Institute of Technology*, Harrison Group, Pasadena, CA.  
Analyzed previously unused stray-light observations from NuSTAR of several low-mass neutron star x-ray binaries. Began as a Summer project, but work continued into the school year for extracurricular interest. Research conducted remotely due to COVID-19 pandemic.  
◦ Final Report: *Analyzing Straylight X-ray Binaries with NuSTAR*  
◦ Related Publications: *StrayCats: A catalog of NuSTAR Stray Light Observations, 2021*
- 2018–2019 **Undergraduate Researcher**, *Dartmouth College Dept. of Physics and Astronomy*, Chaboyer Group, Hanover, NH.  
Worked calibrating DSED stellar evolution models against certain metal-poor subdwarfs.  
◦ Related Publications: *Metal-Poor Calibrating Subdwarfs in the Gaia Era* in preparation  
◦ Analyzed spectral data and measured emission line equivalent widths in plot  
◦ Created model atmospheres using MOOG program

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## Publications

- Brian Grefenstette et al. StrayCats: A Catalog of NuSTAR Stray Light Observations. *ApJ*, 2021.
- Catherine M. Slaughter and Brian Chaboyer. Refining the Age of the Universe Using Globular Clusters. *In Preparation*, 2021.
- Christina Gilligan et al. Metal-Poor Calibrating Subdwarfs in the Gaia Era. *In Preparation*, 2021.

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## Honors and Awards

- Nov 2019 **Francis L. Town Scientific Prize (Physics and Astronomy)**, Dartmouth College.  
A prize offered annually to "one meritorious and deserving student in each department of scientific study at the College" at the end of Sophomore year.

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## Poster Presentations

- August 2020 **Caltech SFP Symposium**, Pasadena, CA.  
"Analyzing Straylight X-ray Binaries with NuSTAR"  
Presented electronically due to COVID-19
- May 2020 **Wilder Department Symposium**, Hanover, NH.  
"Refining the Age of the Universe Using Globular Clusters: Prerequisite Work"  
Presented electronically due to COVID-19 Pandemic
- May 2018 **Wetterhan Science Symposium**, Hanover, NH.  
"Improving Metal-Poor Stellar Evolution Models"

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## Grants & Fellowships

- 2021-2022 **James B. Reynolds Scholarship for Foreign Study**, \$25,000.  
Fellowship awarded to recent Dartmouth graduates pursuing long-term research or study outside the United States.
- Summer 2020 **Caltech SURF Grant**, \$6620.  
Awarded to Caltech Summer Undergraduate Research Fellows.
- Spring 2019 **Dartmouth College Undergraduate Leave Term Grant**, \$5200.  
Grant awarded to students conducting a term of full-time research.
- 2018-2019 **Dartmouth College Sophomore Research Scholar**, \$2000.  
Grant awarded to second-year students assisting faculty in their research.

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## Teaching Experience

- 2019-2021 **Dartmouth Emerging Engineers Tutor**, *Thayer School of Engineering*, Part-Time, Hanover, NH.  
Tutor for first-year students taking introductory math, physics, and computer science courses.
- 2018-2021 **Public Observing Guide**, *Dartmouth College Dept. of Physics and Astronomy*, Part-Time, Hanover, NH.
- Summer 2019, Spring 2020 **Introductory Astronomy Teaching Assistant**, *Dartmouth College Dept. of Physics and Astronomy*, Part-Time, Hanover, NH.  
Teaching assistant for an introductory astronomy course geared toward arts and humanities students.
- Summer 2018 **Astronomy and Nature Guide**, *Carthage College in collaboration with the Appalachian Mountain Club*, Full-Time, Crawford Notch, NH.  
Worked with the general public in order to educate about astronomy, spread awareness for environmental issues, and encourage widespread social change.

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## Skills

Programming	C, C++, JAVA, MATLAB, PYTHON, PYRAF, VHDL, BASH HTML, CSS, FORTRAN	<i>Experienced</i> <i>Beginner</i>
Computer	Terminal interface, L <sup>A</sup> T <sub>E</sub> X, DS9, MOOG, XSPEC, Anaconda	
Language	English Spanish	<i>First Language</i> <i>Conversational</i>