

Anya E. Nugent

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GitHub: [github-anugent96](https://github.com/anugent96)

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LinkedIn: www.linkedin.com/in/aenugent

BRIGHT: bright.ciera.northwestern.edu

Research interests Observational astronomy, Gamma-Ray Bursts (GRBs), supernovae, high energy transients, stellar population modeling, large environmental analysis, optical, near-infrared, photometry, spectroscopy

Education

Northwestern University	Evanston, IL
PhD in Astronomy	August 2024
Master's in Astronomy	Dec 2020
Thesis: <i>Deciphering the Origins of the Universe's Most Fantastic Explosions with State-of-the-Art Environmental Studies</i>	
Advisor: Wen-fai Fong	
Hamilton College	Clinton, NY
Bachelor of Arts	May 2018
Physics & Hispanic Studies Majors	

Research Positions

Harvard College Observatory Postdoctoral Fellow	Sept 2024- Present
Center for Astrophysics Harvard & Smithsonian	
Graduate Research Assistant	2018-2024
Northwestern University	
Berkeley Lab Undergraduate Researcher	2017-2018
Lawrence Berkeley National Lab, Physics Division	
Berkeley Lab Undergraduate Researcher	2016
National Energy Research Scientific Computing Center (NERSC)	

Awards and scholarships

NSF AGEP Grant Awardee (Northwestern University)	2021-2022
The Clare Booth Luce Fellowship (Northwestern University)	2018-2022
Elihu Root Fellowship (Hamilton College)	2018
Sigma Xi Honor's Society (Hamilton College)	2018
Hamilton College Scholar Athlete (Hamilton College)	2018
NESCAC Academic-All American (NESCAC)	2016, 2017
The G. Harvey Cameron Memorial Prize in Physics (Hamilton College)	2016
The Grant and Silas Keehn Prize Scholarship (Hamilton College)	2015

Leadership **Journal Referee**

The Astrophysical Journal, The Astrophysical Journal Letters, and Nature

Nature News & Views Author

“Dying Star Reveals its Inner Structure” by A. E. Nugent and P. E. Nugent
Nature, 644, 8077 (2025)

BRIGHT Website Founder

Lead developer and founder of the public repository [BRIGHT](#), which houses all observations and stellar population modeling products for all NASA *Swift* short GRBs with associated host galaxies

Superluminous Supernovae 2025 Panelist (Cambridge, MA) May 2025

Contributed expert advice on superluminous supernovae (SLSNe) host galaxies and their utility in understanding SLSNe progenitors, and the prospect of detecting faint SLSNe hosts in upcoming high-cadence surveys

FRB Workshop Panelist (Toronto, Canada)

April 2023

Contributed expert advice for how to use archival data and public galaxy catalogs to associate fast-radio bursts (FRBs) to host galaxies when many are detected per week

Transient Symposium Organizing Committee

Sept-Nov 2022

Organized virtual symposium for researchers at 9 institutions studying transient astronomy; jobs included collecting and reviewing abstracts, scheduling sessions, talks, and breakout room activities, and keeping the symposium on-schedule

Transient Symposium Organizing Committee

Jan-March 2021

Organized virtual symposium for 5 research groups at 3 universities studying transient astronomy; jobs included collecting and reviewing abstracts, scheduling sessions, talks, and breakout room activities, and keeping the symposium on-schedule

P.I. Telescope
Proposals

***I have been awarded 25.4 nights across 11 proposals**

MMT Observatory

“Exploring the Host Environments of Rare Transients”

Semester 2025B: 2.0 nights (Binospec)

Semester 2025A: 2.0 nights (Binospec)

Semester 2024B: 2.0 nights (Binospec)

“Navigating the Environments of the Universe’s Fastest Explosions”

Semester 2023B: 2.5 nights (Binospec, MMIRS)

Semester 2023A: 2.5 nights (Binospec, MMIRS)

Semester 2022B: 2 nights (Binospec, MMIRS)
Semester 2022A: 1.6 nights (Binospec, MMIRS)
Semester 2021B: 1.8 nights (Binospec, MMIRS)

W.M. Keck Observatory

“NU-Keck Environments of Extreme Transients Program”

Semester 2023A: 3 nights (DEIMOS, LRIS, MOSFIRE)
Semester 2022B: 3 nights (DEIMOS, LRIS, MOSFIRE)

SEDMv2

“Exploring the Environments of Nearby Transients with SEDMv2”

Semester 2023B: 3 nights (IFU Spectroscopy)

Observing Experience

W.M. Keck Observatory 10-m twin telescopes (LRIS, MOSFIRE, DEIMOS) -
8.5 nights

Public Software

FrankenBlast ([GitHub](#), [Zenodo](#))

Code for rapid transient host association, photometry, and stellar population modeling

Invited Talks

Studying Host Galaxies of Rare Transients with Boombox June 2025
Boombox Science Meeting (Palo Alto, CA)

The Host Galaxies of Short Gamma-Ray Bursts April 2024
Hamilton College Physics Colloquium (Clinton, NY)

Dwarf Galaxies, Neutron Star Mergers, and Heavy Elements Nov 2023
UChicago Open Group Seminar (Chicago, IL)

Lessons Learned from GRBs April 2023
FRB Follow-Up Workshop (Toronto, Canada)

Contributed Presentations

Exploring Supernovae Host Galaxies in the Big Data Era May 2025
CIERA Observers Meeting (Evanston, IL)

Where has all the r -process gone? Mar 2025
20 Years of Swift Discoveries (Florence, Italy)

Host Galaxies of Spectroscopically and Photometrically Classified Transients Mar 2025
Transients from Space Conference (Baltimore, MD)

Where has all the r -process gone? August 2024
 RiseTime Conference (West Lafayette, IN)

Characterizing the Host Galaxies of Short GRBs Jan 2024
 243rd American Astronomical Society Meeting (New Orleans, LA)

Dwarf Galaxies, Neutron Star Mergers, and Heavy Elements Dec 2023
 BigBOOM Talk Series (Tucson, AZ)

Dwarf Galaxies, Neutron Star Mergers, and Heavy Elements Nov 2023
 Caltech LIGO Seminar (Pasadena, CA)

Dwarf Galaxies, Neutron Star Mergers, and Heavy Elements Nov 2023
 Carnegie Observatories Tea Time Talk (Pasadena, CA)

Characterizing the Host Environments of Short GRBs: From the Ultra Faint to the Highest-Redshift August 2023
 GRB50 (Warrenton, VA)

The Host Galaxies of Sub-Chandrasekhar Mass Explosions June 2023
 Transient and Variable Universe (Urbana-Champaign, IL)

Short GRB Hosts: Implications For Progenitor Delay Times Feb 2023
 NASA Goddard GRB Talk (Greenbelt, MD)

BRIGHT: An Exploration of Short Gamma-Ray Burst Environments and their Connection to Neutron Star Mergers Feb 2023
 University of Maryland JSI Colloquium (College Park, MD)

BRIGHT: An Exploration of Short Gamma-Ray Burst Environments and their Connection to Neutron Star Mergers Feb 2023
 Penn State Lunch Talk Seminar (State College, PA)

BRIGHT: An Exploration of Short Gamma-Ray Burst Environments and their Connection to Neutron Star Mergers Feb 2023
 UC Santa Cruz FLASH Seminar (Santa Cruz, CA)

BRIGHT: An Exploration of Short Gamma-Ray Burst Environments and their Connection to Neutron Star Mergers Feb 2023
 UC Berkeley Explosive Astronomy Seminar (Berkeley, CA)

BRIGHT: A Legacy Sample of Short GRB Hosts with Implications for Neutron Star Merger Evolution and GW Follow-Up December 2022
 Gravitational Wave Physics & Astronomy Workshop (Melbourne, Australia)

BRIGHT: An Exploration of the Environments of Short Gamma-ray Bursts and their Connection to Neutron Star Mergers July 2022
Gemini Science Meeting 2022 (Seoul, South Korea)

Exploring the Environments of the Short Gamma-ray Burst Population and the Connection to Neutron Star Mergers December 2021
Gravitational Wave Physics & Astronomy Workshop (Virtual)

Exploring the Environments of the Short Gamma-ray Burst Population and the Connection to Neutron Star Mergers August 2021
Keck Science Meeting 2021 (Virtual)

Exploring the Environments of the Short Gamma-ray Burst Population and the Connection to Neutron Star Mergers March 2021
Spoken-WERRD Transient Symposium (Virtual)

The rare, galaxy cluster environment of the short GRB161104A and a comparison to the short GRB host population Nov 2020
APS Prairie Section Fall Conference (Virtual)

Analysis of a Short GRB in an Old Galaxy Cluster Feb 2019
Midwest Workshop on Supernovae and Transients (Chicago, IL)

Mentorship

Zion Smith June 2025 – August 2025
Harvard Du Bois Scholars Program

Cristian Castrejon June 2022 – Aug 2025
Posner Fellowship Program (2022)
Weinberg Undergraduate Research Grant Awardee (2023)
NASA Illinois Space Grant Consortium Fellowship (2024)
Northwestern Summer Undergraduate Research Grant Awardee (2024)

Yuxin (Vic) Dong June 2020-September 2021
NASA Illinois Space Grant Consortium Fellowship
NSF Graduate Research Fellow

Publications

***I have authored 31 papers: 6 are first-author and 13 are ≤ 5 -author**

First-author

Characterizing Supernovae Host Galaxies with FrankenBlast: A Scalable Tool for Transient Host Galaxy Association, Photometry, and Stellar Population Modeling

A. E. Nugent, V. Ashley Villar, A. Gagliano, et al.

Submitted to The Astrophysical Journal

Where has all the r -process gone? Timescales for GRB-Kilonovae to Enrich their Host Galaxies

A. E. Nugent, A. P. Ji, W. Fong, H. Shah, F. van de Voort

The Astrophysical Journal, 982, 2 (2025)

A Population of Short-duration Gamma-ray Bursts with Dwarf Host Galaxies

A. E. Nugent, W. Fong, C. Castrejon, J. Leja, M. Zevin, A. P. Ji

The Astrophysical Journal, 962, 5 (2024)

The Host Galaxies of High Velocity Type Ia Supernovae

A. E. Nugent, A. E. Polin, P. E. Nugent

Short GRB Host Galaxies. II. A Legacy Sample of Redshifts, Stellar Population Properties, and Implications for their Neutron Star Merger Origins

A. E. Nugent, W. Fong., Y. Dong, et al.

The Astrophysical Journal, 940, 57 (2022)

The Distant, Galaxy Cluster Environment of the Short GRB 161104A at $z \sim 0.8$ and a Comparison to the Short GRB Host Population

A. E. Nugent, W. Fong, Y. Dong, et al.

The Astrophysical Journal, 904, 52 (2020)

[Major Contributions as Co-author](#)

Exploring the Relationship Between Swift Short Gamma-Ray Burst Afterglows and their Host Galaxy Properties

C. Castrejon, **A. E. Nugent**, W. Fong et al.

Submitted to The Astrophysical Journal

Enabling Early Transient Discovery in LSST via Difference Imaging with DECam

Y. Dong, V. A. Villar, K. de Soto, **A. Nugent**, et al.

Submitted to The Astrophysical Journal Letters

Binary neutron star merger offsets from their host galaxies: II. Short-duration gamma-ray bursts

N. Gaspari, A.J. Levan, A. A. Chrimes, **A. E. Nugent**

Astronomy & Astrophysics, 699, A113 (2025)

A Radio Flare in the Long-Lived Afterglow of the Distant Short GRB 210726A: Energy Injection or a Reverse Shock from Shell Collisions?

G. Schroeder, L. Rhodes, T. Laskar, **A. E. Nugent**, et al.

The Astrophysical Journal, 970, 139 (2024)

SN 2020jgb: A Peculiar Type Ia Supernova Triggered by a Massive Helium-Shell Detonation in a Star-Forming Galaxy

C. Liu, A. A. Miller, A. Polin, **A. E. Nugent**, et al.

The Astrophysical Journal Letters, 946, L83 (2023)

A long-duration gamma-ray burst of dynamical origin from the nucleus of an ancient galaxy

A. J. Levan, D. B. Malesani, B. P. Gompertz, **A. E. Nugent**, et al.

Nature Astronomy, 7, 976 (2023)

Observational Inference on the Delay Time Distribution of Short Gamma-ray Bursts

M. Zevin, **A. E. Nugent**, W. Fong, et al.

The Astrophysical Journal Letters, 940, L18 (2022)

Short GRB Host Galaxies. I. Photometric and Spectroscopic Catalogs, Host Associations, and Galactocentric Offsets

W. Fong, **A. E. Nugent**, Y. Dong, et al.

The Astrophysical Journal, 940, 56 (2022)

A Radio-selected Population of Dark, Long Gamma-ray Bursts: Comparison to the Long Gamma-ray Burst Population and Implications for Host Dust Distributions

G. Schroeder, T. Laskar, W. Fong, **A. E. Nugent**, et al.

The Astrophysical Journal, 940, 53 (2022)

Physical Properties of the Host Galaxies of Ca-rich Transients

Y. Dong, D. Milisavljevic, J. Leja + 8 others incl. **A. E. Nugent**

The Astrophysical Journal, 927, 2 (2022)

Hubble Space Telescope Observations of GW170817: Complete Light Curves and the Properties of the Galaxy Merger of NGC 4993

C. D. Kilpatrick, W. Fong, P. Blanchard + 10 others incl. **A. E. Nugent**

The Astrophysical Journal, 926, 1 (2022)

Forward Modeling of Double Neutron Stars: Insights from Highly-Offset Short Gamma-Ray Bursts

M. Zevin, L. Z. Kelley, **A. Nugent**, W. Fong, C. P. L. Berry, and V. Kalogera

The Astrophysical Journal, 904, 120 (2020)

Discovery of the Optical Afterglow and Host Galaxy of Short GRB 181123B at $z = 1.754$: Implications for Delay Time Distributions

K. Paterson, W. Fong, **A. Nugent**, et al.

The Astrophysical Journal Letters, 898, L32 (2020)

[Other Co-author](#)

Evidence for an Instability-Induced Binary Merger in the Double-Peaked, Helium-Rich Type II_n Supernova 2023zkd

A. Gagliano, V. A. Villar, T. Matsumoto, D. O. Jones, C. L. Ransome, **A. E. Nugent**, et al.

The Astrophysical Journal, 989, 2 (2025)

A Repeating Fast Radio Burst Source in a Low-luminosity Dwarf Galaxy

D. M. Hewitt, M. Bhardwaj, A. C. Gordon, +52 others incl. **A. E. Nugent**, et al.

The Astrophysical Journal Letters, 977, 1 (2025)

The Long-lived Broadband Afterglow of Short Gamma-Ray Burst 231117A and the Growing Radio-Detected Short GRB Population

G. Schroeder, W. Fong, C. D. Kilpatrick +29 others incl. **A. E. Nugent**, et al.

The Astrophysical Journal, 982, 1 (2025)

A Radio Study of Persistent Radio Sources in Nearby Dwarf Galaxies: Implications for Fast Radio Bursts

Y. Dong, T. Eftekhari, W. Fong +17 others incl. **A. E. Nugent**, et al.

The Astrophysical Journal, 973, 133 (2024)

A Fast Radio Burst in a Compact Galaxy Group at $z \sim 1$

A. Gordon, W. Fong, S. Simha +17 others incl. **A. E. Nugent**, et al.

The Astrophysical Journal Letters, 963, 34 (2024)

JWST detection of heavy neutron capture elements in a compact object merger

A. J. Levan, B. P. Gompertz, O.S. Salafia +80 others incl. **A. E. Nugent**, et al.

Nature Astronomy, 626, 737 (2024)

The Demographics, Stellar Populations, and Star Formation Histories of Fast Radio Burst Host Galaxies: Implications for the Progenitors

A. Gordon, W. Fong, C. D. Kilpatrick, T. Eftekhari, J. Leja, J. X. Prochaska, **A. E. Nugent**, et al.

The Astrophysical Journal, 954, 80

A Kilonova Following a Long-Duration Gamma-Ray Burst at 350 Mpc
J. Rastinejad, B. P. Gompertz, A. J. Levan, W. Fong, M. Nicholl, G. P. Lamb, D. B. Malesani, **A. E. Nugent** + 27 others
Nature, 612, 223-227 (2022)

The First Short GRB Millimeter Afterglow: The Wide-Angled Jet of the Extremely Energetic SGRB 211106A
T. Laskar, A. Rouco Escorial, G. Schroeder + 14 others incl. **A. E. Nugent**
The Astrophysical Journal Letters, 935, L11 (2022)

The Broadband Counterpart of the Short GRB 200522A at $z = 0.5536$: A Luminous Kilonova or a Collimated Outflow with a Reverse Shock?
W. Fong, J. Rastinejad, T. Laskar, +20 others incl. **A. E. Nugent**
The Astrophysical Journal 906, 127 (2021)

Probing Kilonova Ejecta Properties Using a Catalog of Short Gamma-Ray Burst Observations
J. Rastinejad, W. Fong, C. D. Kilpatrick, + 11 others incl. **A. E. Nugent**
The Astrophysical Journal 916, 89 (2021)

GRB 180418A: A Possibly Short Gamma-Ray Burst with a Wide-angle Outflow in a Faint Host Galaxy
A. Rouco Escorial, W. Fong, P. Veres, +20 others incl. **A. E. Nugent**
The Astrophysical Journal 912, 95 (2021)

Press

On “Dying Star Reveals its Inner Structure” & Schulze et al. 2025
The New York Times, [Onionlike Space Explosion May Be a New Type of Supernova](#)
The Associated Press, [Scientists get a rare peek inside of an exploding star](#)

On Nugent et al. 2025a
AAS Journal Author Series, [Anya Nugent on 2024ApJ...962....5N](#)
CIERA News, [Anya Nugent discusses short gamma-ray bursts for AAS Journal Author Series](#)

On Levan et al. 2023
New Scientist, [Odd gamma ray burst may be from a smash-up between two dead stars](#)

On Nugent et al. 2022
Northwestern Now, [Short gamma-ray bursts traced farther into distant universe](#)
CfA News, [Tracing the Origins of Rare, Cosmic Explosions](#)
Penn State News, [Tracing the Origins of Rare, Cosmic Explosions](#)
Keck News, [Tracing the Origins of Rare, Cosmic Explosions](#)

On Rastinejad et al. 2022

Space.com, [Bizarre long gamma-ray burst came from merging stellar corpses](#)
Keck News, [Surprise Kilonova Upends Established Understanding of Long Gamma-ray Bursts](#)

Northwestern Now, [Surprise kilonova upends established understanding of long gamma-ray bursts](#)

Teaching Experience

Graduate Teaching Assistant at Northwestern University Spring 2021
Introduction to Astrophysics (ASTRON 220)

Graduate Teaching Assistant at Northwestern University Fall 2020
Highlights of Astronomy (ASTRON 120)

Math & Physics Tutor at Hamilton College 2017-2018
Quantitative & Symbolic Reasoning Center

Departmental Service & Outreach

Eclipse 2024 Workshop at Indiana University April 8, 2024
Gave a talk to high school teachers and students on exoplanets in celebration of the total solar eclipse.

CIERA JEDI Committee Sept 2021 - June 2022
Member of the CIERA Justice, Equity, Diversity and Inclusion (JEDI) committee to represent NSF AGEP group and forward center-wide social justice related activities, including mentoring programs and climate surveys.

NSF AGEP Grant Awardee Sept 2021 - June 2022
Awarded the National Science Foundation's (NSF) Alliances for Graduate Education and the Professoriate (AGEP) grant along with two other graduate students in CIERA to improve the graduate student experience through social justice action. Organize speaker events, town halls for graduate students, purchase needed in-office items for graduate students, etc.

Graduate Student Faculty Search Representative March-May 2021
Represented the Northwestern Physics & Astronomy Department graduate students during the Spring 2021 faculty search; lead faculty candidate interviews, collected student feedback, and presented to the faculty search committee

Social Justice Weekly Meeting Planning Committee June 2020 - 2021
Research and lead discussions on social justice related issues within CIERA with the goal of creating a more empathetic and safer environment for under-represented groups in astronomy

Letters to a Pre-Scientist

Sept 2019 – June 2020

Paired with elementary or middle-school aged pen-pal to demystify STEM careers and inspire students in low-income targeted schools to pursue their passions

Astronomy on Tap

Sept 2018 – Feb 2020

Organized science outreach events at local breweries and the Adler Planetarium, planned trivia activities and speaker presentations

CUWiP Organizing Committee

Summer 2018

Researched and elected prominent female speakers with varying backgrounds to present at the Conference for Undergraduate Women in Physics hosted at Northwestern

Skills**Computational**

Python (Prospector, PypeIt, AstroPy, SBI, etc.), IRAF, C, SQL, LaTeX, and MS Office

Languages

English (native), Spanish (fluent)

Other interests

Swimming, hiking, biking, yoga