

# Dustin Nguyen

Ph.D. Candidate, Department of Physics , The Ohio State University

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*research focus* : galactic starburst winds, X-ray astrophysics, neural differential equations, & machine learning  
*languages & software* : python, julia, yt, c++, Mathematica, Adobe Illustrator

## Education

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### The Ohio State University

*Ph.D, Physics, Advisor: Todd Thompson*

Columbus, OH

*May 2021 – present*

### The Ohio State University

*M.Sc, Physics*

Columbus, OH

*Aug. 2018 – May 2021*

### Arizona State University

*B.Sc, Physics; B.Sc, Astrophysics*

Tempe, AZ

*Aug. 2014 – May 2018*

## Professional Experience

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### Future Investigator in NASA Earth and Space and Technology

*The Ohio State University*

Columbus, OH

*Sep. 2022 – present*

### Graduate Research Assistant

*The Ohio State University*

Columbus, OH

*May 2020 – present*

### Applied Machine Learning Research Fellow

*Los Alamos National Laboratory*

Los Alamos, NM

*Jun. 2022 – Aug. 2022*

### Graduate Teaching Assistant

*The Ohio State University*

Columbus, OH

*Aug. 2018 – May 2020*

### NASA ASU Space Grant Undergraduate Researcher

*Arizona State University*

Tempe, AZ

*May 2017 – May 2018*

### LOFAR-IRES Undergraduate Researcher

*Arizona State University, Ruhr-Universität Bochum, & Universität Hamburg*

Tempe, AZ & Hamburg, DE

*May 2016 – May 2017*

## List of Refereed Publications (Total: 5)

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### Lead Author Publications (3)

3. “Dynamics of hot galactic winds from spherically-stratified starburst cores”

Nguyen, D. D., Thompson, T. A., Schneider, E. E., Lopez, S., Lopez, L. A.

Monthly Notices of the Royal Astronomical Society Letters (2023), 518, 1, [ads:2022MNRAS.tmpL.134N](https://arxiv.org/abs/2022MNRAS.tmpL.134N)

2. “Galactic winds and bubbles from nuclear starburst rings”

Nguyen, D. D., Thompson, T. A.

The Astrophysical Journal Letters (2022), 935, 2, [ads:2022ApJ...935L..24N](https://arxiv.org/abs/2022ApJ...935L..24N)

1. “Mass-Loading and Non-Spherical Divergence in Hot Galactic Winds: Implications for X-Ray Observations”

Nguyen, D. D., Thompson, T. A.

Monthly Notices of the Royal Astronomical Society (2021), 508, 4, [ads:2021MNRAS.tmp.2635N](https://arxiv.org/abs/2021MNRAS.tmp.2635N)

### Co-author Publications (2)

2. “X-ray Properties of NGC 253’s Starburst-Driven Outflow”

Lopez, S., Lopez, L. A., Nguyen, D. D., Thompson, T. A., Mathur, S., Bolatto, A. D., Vulic, N., Sardone, A.

The Astrophysical Journal, [arxiv:2209.09260](https://arxiv.org/abs/2209.09260)

1. “Temperature and Metallicity Gradients in the Hot Gas Outflows of M82”

Lopez, L. A., Mathur, S., Nguyen, D. D., Thompson, T. A., Olivier, G. M.

The Astrophysical Journal (2020), 904, 2, [ads:2020ApJ...904..152L](https://arxiv.org/abs/2020ApJ...904..152L)

## Awards (Total: \$101,772.00)

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- NASA FINESST Grant (FI), *Physics and Phenomenology of Galactic Starburst Winds*, 2 years, **\$97,772.00** Sep. 2022
- First place in Oral Presentations within the Mathematical and Physical Sciences Division, Hayes Research Forum, Ohio State University, **\$600.00** Mar. 2022
- American Physical Society Travel Award **\$400.00** Oct. 2018
- NASA ASU Undergraduate Space Grant, 1 year, **\$3000.00** Aug. 2017

## Referee/reviewer for:

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Monthly Notices of the Royal Astronomical Society (MNRAS), see [Publons](#) .

## Presentations

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- “*What matter(s) around galaxies 2022*” Conference, Champoluc, Italy, *Contributed talk* Sep. 2022
- Applied Machine Learning Symposium, Los Alamos National Laboratory, *Contributed talk* Aug. 2022
- Astro lunch seminar, University of Pittsburgh, *Invited talk* May 2022
- Hayes Research Forum, Ohio State University, *Contributed talk* Mar. 2022
- Arizona NASA Space Grant Statewide Symposium, University of Arizona, *Contributed talk* Apr. 2018
- NASA ASU Space Grant Poster Session, Arizona State University, *Contributed poster* Feb. 2018
- APS-4CS meeting, Colorado State University, *Contributed poster* Oct. 2017

## Press/Features

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- Ohio State News, *How galactic superwinds help drive galactic development*, [url](#), 31 Aug. 2022

## Undergraduate Advisees

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- Ashley Tarrant Aug. 2021 – present
  - Phenomena in multi-phase galactic winds using the **Cholla** astrophysical code  
Results: 1 co-author paper *in prep* (Nguyen+,2023)

## Outreach and Mentorship

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- Polaris (OSU) Aug. 2020 – May 2022
  - Peer and research mentor for first year undergraduate students:  
Celine Roulet (AU 2020, SPR 2021), Ashley Tarrant & Sierra Reis (AU 2021, SPR 2022).
- School of Earth and Space Exploration Public Engagement (ASU) Aug. 2017 – May 2018
  - Volunteered at multiple Earth and Space Open Houses and Exploration Days
- Science is Fun (ASU) Aug. 2016 – May 2017
  - Helped give science demonstrations at local K-12 schools.

## Attended Schools/Workshops

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- Introduction to PyTorch, Los Alamos National Laboratory, Los Alamos, New Mexico, Jun. 2022