

Sebastian Lopez

Department of Astronomy
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Curriculum Vitae

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[Publication List](#)

Education

The Ohio State University, Columbus, OH

Ph.D in Astronomy Aug 2020 – July 2026 (expected)

M.S. in Astronomy

May 2023

Advisor: Laura A. Lopez

University of Florida, Gainesville, FL

Bachelor's of Science in Astrophysics and Physics Jun 2016 – Apr 2020

Astrophysics B.S: Summa Cum Laude

Physics B.S: Cum Laude

Senior Thesis: *Properties of Spatially Resolved Galactic Gas Accretion in the Illustris-TNG50 Simulation* – Advisor: Paul Torrey

Miami-Dade College, Miami, FL

Associate of Arts Aug 2014 – Apr 2016

Part of High School Dual Enrollment Program

Graduated with Highest Honors

Awards and Honors

OSU Presidential Fellowship (for top OSU PhD students across OSU campus) 2025–2026

Ann S. Tuttle Paper Award (for best paper among OSU astronomy PhD students) 2024

OSU Graduate Enrichment Fellowship (for academic and research excellence) 2020–2021

UF Astronomy Department Best Thesis Award Spring 2020

UF Dean's List Recipient Fall 2018, Spring 2019, Fall 2019, Spring 2020

Publications

Primary Author:

1. **Lopez, S.**, Ring, C.*, Leroy, A. K. et al. 2025c, “JWST Observations of Starbursts: PAHs Closely Trace the Cool Phase of M82’s Galactic Wind”, *ApJL* submitted [arXiv:2510.01314](https://arxiv.org/abs/2510.01314)
2. **Lopez, S.**, Lopez, L. A., Lanz, L. et al. 2025b, “The Spatially Resolved Hot Gas Properties of NGC 1266’s AGN-Driven Outflow”, *ApJ* submitted [arXiv:2510.01321](https://arxiv.org/abs/2510.01321)
3. **Lopez, S.**, Lopez, L. A., Thompson, T. A. et al. 2025a, “Observational Constraints on Cool Gas Clouds in M82’s Starburst-Driven Outflow”, *ApJ*, **989**, 100
4. Porraz Barrera, N.*, **Lopez, S.**, Lopez, L. A. et al. 2024, “Hot Gas Outflow Properties of the Starburst Galaxy NGC 4945”, *ApJ*, **968**, 54
5. **Lopez, S.**, Lopez, L. A., Nguyen, D. D., et al. 2023, “X-Ray Properties of NGC 253’s Starburst-driven Outflow”, *ApJ*, **942**, 108

*Denotes Undergraduate Research Advisees

Co-Author:

6. Rodriguez, J. A. et al. 2025, "Taming the Tarantula: How Stellar Wind Feedback Shapes Gas and Dust in 30 Doradus" *ApJ submitted* [arXiv:2512.03129](https://arxiv.org/abs/2512.03129)
7. Otter, J. A. et al. 2025, "Clumpy, dense gas in the outflow of NGC 1266" *ApJ Accepted* [arXiv:2512.09889](https://arxiv.org/abs/2512.09889)
8. Monson, E. B. et al. 2025, "Constraining the Sub-Galactic Relationship Between Star Formation and the Hot Interstellar Medium in NGC 4254" *ApJ submitted*
9. Barnes, P. J. et al. 2025, "The Three-mm Ultimate Mopra Milky Way Survey. III. Data Release 6" *ApJS*, **280**, 31
10. Fisher, D. B. et al. 2025, "JWST Observations of Starbursts: Cold Clouds and Plumes Launching in the M82 Outflow" *MNRAS*, **538**, 4
11. Villanueva, V. et al. 2024, "JWST Observations of Starbursts: Relations between PAH Features and CO Clouds in M82" *A&A*, **695**, A202
12. Bolatto, A. D. et al. 2024, "JWST Observations of Starbursts: PAH Emission at the Base of the M82 Galactic Wind" *ApJ*, **967**, 63
13. Nguyen, D. D. et al. 2024, "Dynamics of Hot Galactic Winds from Spherically-Stratified Starburst Cores" *MNRAS*, **518**, 87

Presentations

1. **Invited Talk**, Stanford KIPAC Tea Talk, Nov. 2025, *A Panchromatic View of Nearby Galactic Winds*
2. **Invited Talk**, University of Maryland CTC Seminar, Nov. 2025, *Galactic Winds through a Panchromatic Lens: A Multiwavelength View of Feedback in Nearby Galaxies*
3. **Invited Talk**, HEAD Meeting, AXIS Session, Oct. 2025, *Morphology and Metal Content of Star Formation Driven Outflows*
4. Talk, HEAD Meeting, Oct. 2025, *Probing the Hot Winds of Nearby AGN- and Starburst-Driven Galactic Outflows*
5. **Invited Talk**, STScI Galaxy Journal Club, Sept. 2025, *Galactic Winds through a Panchromatic Lens: A Multiwavelength View of Feedback in Nearby Galaxies*
6. **Invited Talk**, JHU AstroCoffee, Sept. 2025, *Observational Constraints on Cool Gas Clouds in M82's Starburst-Driven Outflow*
7. **Invited Talk**, AXIS Galaxy SWG, Jun 2025, *Morphology and Metal Content of Star Formation Driven Outflows*
8. Poster, SACNAS, Oct 2024, *Cool Gas Clouds Swept by M82's Hot Galactic Wind*
9. **Invited Talk**, Kansas University Astronomy Seminar, Sep 2024, *The Multiwavelength Properties of Starburst-Driven Outflows*
10. Talk, STScI Spring Symposium, Apr 2024, *Hot Gas Properties of Local Starburst-Driven Outflows*
11. Talk, SACNAS, Oct 2023, *Million Degree Gas Outflows Launched from Star-Forming Galaxies*
12. Talk, Ohio Latino Affairs Summit, Sep 2023, *Nurturing Future Latino/Hispanic Scientists in Columbus, OH*

13. Talk, New Views on Feedback & the Baryon Cycle of Galaxies, Healesville, Australia, July 2023, *The Temperature and Metallicity Gradients of Starburst-Driven Outflows*
14. **Invited Talk**, HEAD Meeting, Mar 2023, *The Temperature and Metallicity Gradients of Starburst-Driven Outflows*
15. Poster, HEAD Meeting, Mar 2022, *Properties of the Hot Gas Outflow of NGC 253*

PI Accepted Proposals

XMM-Newton: “Hot Outflow Constraints of NGC 1482 with XMM-Newton” (100 ks, \$TBD), AO-25 (2025), PI: Sebastian Lopez

XMM-Newton: “The Hot Outflow Properties of the Starbursting Dwarf Galaxy NGC 1569” (100 ks, \$54k), AO-24 (2024), PI: Sebastian Lopez

Chandra X-ray Observatory: “Probing the Hot Gas Outflow of NGC 1808 Using *Chandra*” (Archival, Selected but unfunded due to *Chandra* budget cuts), Cycle 26 (2024), PI: Sebastian Lopez

Chandra X-ray Observatory: “Unveiling the Origin of Cool Galactic Winds with *Chandra*” (Archival, \$49k), Cycle 25 (2023), PI: Sebastian Lopez

Service and Outreach

Summer Undergraduate Research Program, OSU (Summer 2022, 2024)

- Co-advisor for undergraduate students

AstroLatinX (Summer 2023 – Present)

- Founding member. Organization providing bilingual outreach to Hispanic/Latin American communities in Columbus to increase interest in astronomy among underrepresented groups.

Polaris Mentorship Program, OSU (Aug 2021 – Aug 2023)

- Mentor supporting diverse, inclusive, and equitable environments in Physics and Astronomy, aiding retention of underrepresented and non-traditional students.