

SERAT M. SAAD

Ph.D. Student in Astronomy, The Ohio State University

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RESEARCH INTERESTS

Dynamics: binary stars, radial migration, modified newtonian dynamics (MOND)

Stellar Spectroscopy: chemical abundances, metal-rich stars, star spots, young stellar objects

AI for Astronomy: LLM agents, agent-callable tools, retrieval augmented generation (RAG)

EDUCATION

Ph.D. in Astrophysics (in progress), The Ohio State University 2025-Present
Advisors: Prof. Yuan-Sen Ting and Prof. Krzysztof (Kris) Stanek

A.B. in Physics & Applied Mathematics, Vanderbilt University 2021-2025
Thesis: Understanding Accretion Activity in Young Stars using SDSS-V BOSS Spectra
Advisor: Prof. Keivan Stassun

HONORS & AWARDS

University Distinguished Fellowship, The Ohio State University <i>awarded through the graduate school in support of doctoral study</i>	2028-2029
University Fellowship, The Ohio State University <i>awarded through the graduate school in support of doctoral study</i>	2025-2027
Hult Prize, National Finalist <i>for a student venture expanding access to personalized education</i>	2026
Larry R. Cathey Award, Vanderbilt University <i>annual departmental award to the best graduating student studying astronomy</i>	2025
Highest Honors in Astronomy, Vanderbilt University <i>for distinction in the undergraduate honors thesis and its defense</i>	2025
International Full-ride Student Grant, Vanderbilt University <i>full four-year scholarship covering all costs of undergraduate study</i>	2021-2025
Dean's List, Vanderbilt University <i>for eight semesters of academic distinction</i>	2021-2025
Pi Mu Epsilon, Vanderbilt University <i>member of the national mathematics honor society</i>	2024
Sigma Pi Sigma, Vanderbilt University <i>member of the physics honor society, for academic achievement in physics</i>	2023
Buchanan Fellowship, Vanderbilt University <i>to pursue a data science project applying NLP to British periodical collections</i>	2022
Silver Medal, International Olympiad on Astronomy and Astrophysics <i>represented Bangladesh at IOAA 2019 and the Global e-Competition (GeCAA) 2020</i>	2020

PUBLICATION SUMMARY

11 papers, 6 as first author; 4 published in refereed journals and 7 currently under review.
102 citations from 99 citing papers ([NASA ADS Library](#)).

FIRST AUTHOR PUBLICATIONS

6. **Serat M. Saad** & Yuan-Sen Ting (2026)
“Spectroscopic Binary Detection as Agent-Callable Tools: Detecting 40,000+ Main-Sequence Binary Candidates from SDSS DR19 APOGEE Spectra”
The Open Journal of Astrophysics, submitted
5. **Serat M. Saad**, D. M. Rowan, K. Z. Stanek, et al. (2026)
“PANTERA. I. Hunting for the Most Metal-Rich Stars in the Solar Neighborhood with High-Resolution Spectroscopy”
The Open Journal of Astrophysics, submitted
4. **Serat M. Saad** & Yuan-Sen Ting (2026)
“Gravitational Anomaly Measurement in Wide Binaries is Sensitive to Orbital Modeling”
The Open Journal of Astrophysics, submitted
3. **Serat M. Saad** & Yuan-Sen Ting (2026)
“High-Precision Differential Radial Velocities of C3PO Wide Binaries: A Test of Modified Newtonian Dynamics (MOND)”
The Open Journal of Astrophysics, submitted
2. **Serat M. Saad**, Marina Kounkel, Keivan G. Stassun, et al. (2025)
“ABYSS III: Observing Accretion Activity in Young Stars through Empirical Veiling Measurements”
The Astronomical Journal, 170, 87
1. **Serat M. Saad**, Kaitlyn Lane, Marina Kounkel, Keivan G. Stassun, et al. (2024)
“ABYSS II: Identification of Young Stars in Optical SDSS Spectra and Their Properties”
The Astronomical Journal, 167, 125

CO-AUTHOR PUBLICATIONS

5. Qinghui Sun, **Serat M. Saad**, Yuan-Sen Ting, et al. (2026)
“Planets Around Solar Twins/Analogues (PASTA) III: Chemical Clock Relations in Planet-Hosting Solar Analogues”
Astronomy & Astrophysics, submitted
4. SDSS Collaboration, including **Serat M. Saad** (2026)
“The Twentieth Data Release of the Sloan Digital Sky Surveys”
The Astrophysical Journal Supplement Series, submitted
3. Zimo Cheng, Sharon X. Wang, Fan Liu, . . . **Serat M. Saad**, et al. (2026)
“A Bayesian Search for Planet Engulfment Signatures in Solar Analogues”
AAS Journals, submitted
2. SDSS Collaboration, including **Serat M. Saad** (2026)
“The Nineteenth Data Release of the Sloan Digital Sky Survey”
The Astrophysical Journal Supplement Series, 285, 9
1. Yuan-Sen Ting, **Serat M. Saad**, Fan Liu, Yuting Shen (2026)
“Egent: An Autonomous Agent for Equivalent Width Measurement”
The Open Journal of Astrophysics, 9

TELESCOPE TIME ALLOCATIONS

Principal Investigator

Large Binocular Telescope, PEPsi, 20 hours · PANTERA: ultra metal-rich stars	2026B
Large Binocular Telescope, PEPsi, 20 hours · PASTA: 36 planet-hosting stars	2026A
Large Binocular Telescope, PEPsi, 28 hours · PASTA: 43 planet-hosting stars	2025B

Co-Investigator

Automated Planet Finder, Levy, 40 hours · metal-rich stars (PI: D. M. Rowan)	2026B
Chandra X-ray Observatory, Cycle 26 · Pink Mergers (PI: Prof. Adi Foord)	2024

INVITED TALKS AND CONFERENCE PRESENTATIONS

AAS 245 Winter Meeting, American Astronomical Society <i>An Alternative to the Supermassive Black Hole Binary Hypothesis for J1430 (Tick Tock)</i>	2025
Cool Stars 22, Cambridge <i>Using Low Resolution Optical Spectra to Identify Young Stars and Their Properties</i>	2024
IEEE Quantum Computing and Engineering (QCE) <i>Developing Workforce in Quantum Industry: The Wond'ry Quantum Studio</i>	2023

TEACHING & MENTORING

Mentor, Project SHORT	2025
Mentor, Bangladesh Olympiad on Astronomy and Astrophysics	2021-2024
TA, DS 2100: Statistics for data science., Vanderbilt University	Spring 2025
TA, ASTR 1010: Introductory Astronomy, Vanderbilt University	Spring 2024
Grader, DS 1100: Introduction to data science, Vanderbilt University	Fall 2023
Instructor, Quantum Computing for everyone, The Wond'ry Vanderbilt	Fall 2023
Grader, CS 1100: Introduction to problem solving with python.	2022-2023
Tutor, Vanderbilt Student Athletics	2022

OTHER EXPERIENCES

Co-founder, porAI	2026-
Author and Editor, Astrobites	2026-
Academic Team Member, Bangladesh Olympiad on Astronomy and Astrophysics	2021 - 2024
Co-lead, The Wond'ry Quantum Studio	2022 - 2023
Team Leader, International Olympiad on Astronomy and Astrophysics	2022

NON-REFEREED PUBLICATIONS

5. **Serat M. Saad** (2026)
“Where Have All the Star Couples Gone?”
[Astrobites](#), *August*
4. **Serat M. Saad** (2026)
“Cosmic Cannibalism: When Stars Eat Their Planets”
[Astrobites](#), *May*

3. **Serat M. Saad** (2026)
 “Wormholes Might Be More Real Than We Thought”
Astrobites, April
2. **Serat M. Saad** (2026)
 “A Wandering Supermassive Black Hole Eating a Star”
Astrobites, March
1. **Serat M. Saad**
 “Pixels and Persuasion”
As Seen on TV, digital exhibition, Vanderbilt University Libraries

REFERENCES

Yuan-Sen Ting, The Ohio State University	Ph.D. Advisor, ting.74@osu.edu
Krzysztof (Kris) Stanek, The Ohio State University	Ph.D. Advisor, stanek.32@osu.edu
Marina Kounkel, University of North Florida	Research Advisor, marina.kounkel@unf.edu
Jessie C. Runnoe, Vanderbilt University	Research Advisor, jessie.c.runnoe@vanderbilt.edu
Keivan G. Stassun, Vanderbilt University	Undergraduate Advisor, keivan.stassun@vanderbilt.edu