Zack Andalman

Graduate Student, Princeton University
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https://www.zandalman.com/ ArXiv

EDUCATION

Princeton University	Princeton, NJ	Ph.D., Astrophysics		2023 - 2028
Yale University	New Haven, CT	B.S., Physics	3.95 GPA	2019 - 2023
Evanston Township HS	Evanston, IL	Diploma	4.00 GPA	2015 - 2019

RESEARCH EXPERIENCE

Undergraduate Research Assistant, UC Santa Cruz 2022 - 2023
Advisor: Prof. Enrico Ramirez-Ruiz, Prof. Priyamvada Natarajan
Developed a semi-analytic model for optical line emission in tidal disruption events.

Undergraduate Research Assistant, Yale University 2022 - 2022
Advisor: Prof. Priyamvada Natarajan
Used NuSTAR data to characterize anisotropies in the cosmic X-ray background.

Undergraduate Research Assistant, Yale University 2021 - 2022
Advisor: Prof. Andrew Szymkowiak
Designed a cosmic ray detector for a CubeSat satellite.

Undergraduate Research Assistant, Yale University 2020 - 2021
Advisor: Prof. Nir Navon
Constructed a magneto-optical trap control box for the cooling of Sr atoms to ultracold temperatures.

High School / Undergraduate Research Assistant, Northwestern University 2018 - 2022
Advisor: Prof. Alexander Tchekhovskoy
Analyzed circularization and disk formation in a GRHD simulation of a tidal disruption event.

PUBLICATIONS

[1] **Andalman, Z. L.**; Natarajan, P.; Rameriz-Ruiz, E.; *Optical Line Emission Diagnostics for Tidal Disruption Events*, currently in prep with plans for submissions to The Astrophysical Journal Letters in 08/2023

[2] Kaaz, N.; Liska, M. T. P.; Jacquemin-Ide, J.; Musoke, G.; West, A.; **Andalman, Z. L.**; Tchekhovskoy, A.; Oliver, P.; *Nozzle Shocks, Disk Tearing and Streamers Drive Rapid Accretion in 3D GRMHD Simulations of Warped Thin Disks*, accepted for publication to The Astrophysical Journal in 06/2023, arxiv:2210.10053

[3] **Andalman, Z. L.**; Liska, M. T. P.; Tchekhovskoy, A.; Coughlin, E. R.; Stone, N. *Tidal Disruption Discs Formed and Fed by Stream-stream and Stream-disc Interactions in Global GRHD Simulations*, 2022, Monthly Notices of the Royal Astronomical Society, Volume 510, Issue 2, pp. 1627-1648, arXiv:2008.04922

PRESENTATIONS

HEAD Frontiers Seminar Series, Talk 2023

241st American Astronomical Society Conference, Poster 2023

19th/20th Meeting of the High Energy Astrophysics Division, Invited Talk/Poster 2022, 2023
Undergraduate poster prize (2023)

Connecticut Space Grant Consortium Expo, 2 Posters 2021, 2022

Blue Waters Symposium for Petascale Science and Beyond, 2 Posters 2018, 2019

SKILLS

Computer languages: Python, C, C++, HTML/CSS/Javascript, Unix shell
Software: HPC, git, H-AMR, CLOUDY, Autodesk Fusion/Eagle, Multisim/Ultiboard, VisIt, Paraview
Engineering: Soldering, PCB design, CAD, Arduino/Teensy
Languages: Spanish

GRANTS, FELLOWSHIPS, AND AWARDS

DOE Computational Science Graduate Fellowship, Krell Institute — 2023 - 2027
Martin Schwarzschild Fellowship, Princeton University (departmental award) — 2023 - 2025
Michael Manzella Award, Yale University (leadership award) — 2023
Collaborator on NSF Award Number 2206243 — 2022
Collaborative Research: Connecting Models to Observations of Tidal Disruption Events
Lamat Fellowship, University of California Santa Cruz (REU) — 2022
SURF, National Institute of Standards and Technology (*declined*) — 2021
Hahn Scholarship, Yale University — 2019 - 2021
Using Ultracold Strontium to Investigate the Quantum Many-Body Problem
Student Project Grant, Connecticut Space Grant Consortium — 2020
Active-Adjustment Ornithopter, Federal FTE Award P-1643
Science and Engineering Group Grant, Yale University — 2020
Active-Adjustment Ornithopter
First-Year Summer Fellowship, Yale University — 2020
Using Ultracold Strontium to Investigate the Quantum Many-Body Problem

LEADERSHIP EXPERIENCE

Yale Undergraduate Aerospace Association, President — 2022 - present
Led the largest undergraduate engineering organization at Yale.
Yale Undergraduate Aerospace Association, Director of Projects — 2021 - 2022
Yale Club Triathlon, Captain — 2021 - 2022
Yale Undergraduate Aerospace Association, Project Leader — 2020 - 2021
Led a small team building a robotic bird capable of self-correcting flight.

PROFESSIONAL SERVICE

Contributor to the open-source GRMHD code H-AMR — 2021 - present
YouTube channel with cutting-edge visualizations — 2021 - present
Referee for the scientific journal *The Monthly Notices of the Royal Astronomical Society* — 2021
Number of papers refereed: 2

OUTREACH

Teacher at Yale Splash, Yale University — 2022
Taught a class on black hole physics to high schoolers.
Peer Mentor for the Society for Physics Students, Yale University — 2022
STEM Likely Representative, Yale University — 2020 - 2022
Mentored admitted students in STEM on navigating university.
Designed a challenge for the Governor's Summer STEM Challenge in CT, Yale University — 2021
Where the rubber meets the road!
Led outreach event with public schools in New Haven, Yale University — 2021
The Sky's the Limit! Building and Flying Model Aircraft

HOBBIES

Jazz piano, triathlon (Ironman), Settlers of Catan