JUSTIN BOPP

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EDUCATION

Astrophysics & Computational Math, Science & Engineering - Doctor of Philosophy August 2025 - Present
Michigan State University *East Lansing, MI*

Astrophysics - Master of Science May 2025
City University of New York, Graduate Center *New York, NY*

- Thesis: "Fast Transients from Magnetic Disks Around Non-Spinning Collapsar Black Holes"

Physics - Bachelor of Science May 2023
California State University, Stanislaus *Turlock, CA*

RESEARCH EXPERIENCE

Graduate Researcher - Michigan State University June 2025 - Present
Advisor: Dr. Sean Couch *East Lansing, MI*

- Focusing on investigating the effects of convection and turbulence from neutrinos in the region surrounding a proto-neutron star using fully 3D GRMHD simulations.

Graduate Researcher - Center for Computational Astrophysics September 2023 - May 2025
Advisor: Dr. Ore Gottlieb *New York, NY*

- Conducting theoretical black hole research using HAMR GRMHD simulation code (python, C++), simulating the Blanford-Payne mechanism to power collapsar jets in the accretion disc of a non-rotating black hole

Undergraduate Research Intern - California State University, Stanislaus May 2022 - August 2023
Advisor: Dr. Brian Morsony *Turlock, CA*

- Rubin Observatory Data Preview Delegate : used a CMNN algorithm in python as a photometric redshift estimator and made python script to match host galaxies to detected transients
- Fitting Observed Abundances to Metals from Supernovas (FOAMS): obtained metallicity data from APOGEE survey of 100,000 Milky Way stars, converted the abundances from normalized number abundances to the mass abundances needed to run through the FOAMS program, and determined Core-Collapse to Type-Ia supernova ratio of progenitors of Milky Way stars

PUBLICATIONS

J. Bopp & O. Gottlieb 2025
Fast Transients from Magnetic Disks Around Non-Spinning Collapsar Black Hole *NASA ADS*

PRESENTATIONS

Talks:

Fast Transients from Magnetic Disks Around Non-Spinning Collapsar Black Holes September 2025
Compact Objects in Michigan & Ontario Meeting *Flint, MI*

Charting the CCSN-GRB Spectrum: Non-Spinning Black Hole-Driven Jets in the LSST Epoch July 2024
Seventeenth Marcel Grossman Meeting *Pescara, Italy*

Determining PhotoZ in Rubin Science Platform dpo.2 July 2022
CSU/Rubin Data Summit 2022 *San Luis Obispo, CA*

Posters:

Fast Transients from Magnetic Disks Around Non-Spinning Collapsar Black Holes January 2025
245st AAS Meeting *National Harbor, MD*

Using Photometric Redshifts to Identify Host Galaxies in the Rubin Data Preview April 2023
APS April Meeting 2023 *Minneapolis, MN*

Using Photometric Redshifts to Identify Host Galaxies in the Rubin Data Preview January 2023
241st AAS Meeting *Seattle, WA*

TECHNICAL SKILLS

Computer Languages	Python, C++, Javascript, Matlab, Fortran
Tools	Github, Parallel Processing, ADQL, Machine Learning, Rubin Data Platform

MEMBERSHIP AND OUTREACH

Stellar Mentorship Program - Michigan State University August 2025 - Present
Mentor

American Astronomical Society June 2022 - Present
Graduate Student Member

American Physical Society June 2022 - Present
Graduate Student Member

American Museum of Natural History August 2023 - August 2025
Guest Researcher *New York, NY*

Center for Computational Astrophysics August 2023 - August 2025
Guest Researcher *New York, NY*

Society of Physics Students: CSU Stanislaus 2021 - 2023
Chapter President *Turlock, CA*

- Astronomy night 2022 Chair: Led telescope observing session with 150+ community participants
- Science Day 2023 Co-chair: Physics demonstration to 500+ elementary and middle school age participants