

Sabina Sagynbayeva

Curriculum Vitae



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RESEARCH INTERESTS

I am an astrophysicist, who primarily works on the past, present, and future of exoplanets – I study planetary dynamics and planet formation to understand the architecture of exoplanets. In the meantime, I also work on stars that host those exoplanets and stellar characterization by studying their surface activity using the time-series data from *Kepler* and *TESS* telescopes. I am broadly interested in general analytical techniques, astro-statistics, and numerical simulations.

EDUCATION

2021 - PRESENT	PhD: Physics (Astrophysics) <i>Stony Brook University</i> , Stony Brook, NY
2021 - 2023	MA: Physics (Astrophysics) <i>Stony Brook University</i> , Stony Brook, NY
2016 – 2020	Bachelor of Science: Physics Minor: Mathematics, Literature <i>Nazarbayev University</i> , Astana, Kazakhstan

RESEARCH POSITIONS

Kavli Institute for Theoretical Physics

JAN 2025 – JUN 2025 (FT)

Advisors: Dr. Lars Bildsten, Dr. Omer Blaes

Guest Researcher and KITP Grad Fellow

Stony Brook University and Flatiron Institute

CURRENT, FROM FEB 2021 (FT)

Advisors: Dr. Phil Armitage, Dr. Will Farr

Research Project Assistant and Guest Researcher at CCA

Nazarbayev University

JUN 2020 – AUG 2020 (FT)

Advisor: Dr. Daniele Malafarina

Research Assistant

University of Cambridge

MAY 2019 – AUG 2019 (FT)

Advisors: Dr. Roman Rafikov, Dr. William Béthune

Research Intern

Nazarbayev University

AUG 2018 – DEC 2019 (PT)

Advisors: Dr. Ernazar Abdikamalov, Dr. Dana Alina

Research Assistant

PUBLICATIONS: IST AUTHOR

Sabina Sagynbayeva et al. “Rotation Periods for Stars in Open Cluster NGC 6819 From Kepler Light Curves.” *In prep.*

Sabina Sagynbayeva et al. “Polka-dotted Stars: Starspot and Obliquities of HAT-P-11, Kepler-17, Kepler-45, Kepler-63.” *In prep.*

Sabina Sagynbayeva et al. “Polka-dotted Stars: a Hierarchical Model for Mapping Stellar Surfaces Using Occultation Light Curves.” *In review.*

Sabina Sagynbayeva et al. “Requirements for Joint Orbital Characterization of Cold Giants and Habitable Worlds with Habitable Worlds Observatory.” *In review.*

Sabina Sagynbayeva et al. “Circumplanetary Disks are Rare around Planets at Large Orbital Radii: A Parameter Survey of Flow Morphology around Giant Planets.” *ApJ* (2025).




PUBLICATIONS: NTH AUTHOR



- Sarah Blunt et al. [including **S. Sagynbayeva**]. “Statistical Capability of the Habitable Worlds Observatory for Constraining Ozone Onset Time in Earth Analogs.” *In review* (2025).
- Rachel B. Fernandes et al. [including **S. Sagynbayeva**]. “Signatures of Atmospheric Mass Loss and Planet Migration in the Time Evolution of Short-Period Transiting Exoplanets.” *The Astronomical Journal* (2025).
- Briley Lewis et al. [including **S. Sagynbayeva**]. “Exploring the Effects of Astrobites Lesson Plans on Undergraduate Astronomy Students.” *Physical Review Physics Education Research* (2025).
- Thayne Currie et al. [including **S. Sagynbayeva**]. “Direct Imaging and Astrometric Discovery of a Superjovian Planet Orbiting an Accelerating Star.” *Science* (2023).
- Daniele Malafarina, **Sabina Sagynbayeva**. “What a difference a quadrupole makes?” *General Relativity and Gravitation* (2021).
- D. Alina et al. [including **S. Sagynbayeva**]. “Large-scale magnetic field in the Monoceros OB-1 East molecular cloud.” *Astronomy & Astrophysics* (2020).

AWARDS & FELLOWSHIPS

	2024-2025
KITP Graduate Fellowship	
An opportunity for advanced physics doctoral students to spend a minimum period of 5 months at the Kavli Institute for Theoretical Physics.	2024
Peter Kahn Prize	
An award for “outstanding research”.	2023
The Other Worlds Laboratory Exoplanet Summer Program	
The program that allows to visit UC Santa Cruz for three weeks to work on a project with an UCSC faculty.	2023 – 2024
Frontera Computational Science Fellowship	
1-year fellowship for graduate students with an opportunity to compute on Frontera.	2022 – 2024
LSSTC Data Science Fellowship Program	
The program that consists of six week-long sessions on data science.	2020
Young Researchers Alliance FRIP program	
The stipend awarded to students for research projects. Stipend: \$1,000	2019
Yessenov Foundation Scholarship	
Awarded to ten best students from Kazakhstan for a research internship in the US and European universities and laboratories. Funding: \$7,500	

SELECTED INVITED SCIENCE TALKS & CONFERENCE POSTERS : POSTER

Exoplanets group meeting, Princeton University	Jun 2025
Exoplanets group meeting, Queen Mary University, London, UK	Jun 2025
Dynamix Conference, Cambridge, UK	Jun 2025
56th DDA meeting, Atlanta, Georgia	May 2025
Planet Formation and Migration near the Inner Edge of Disks, KITP Program	Apr 2025
A&A Journal Club Talk, University of California San Diego	Apr 2025
AstroLunch seminar talk, University of California Santa Barbara	Mar 2025
PLUNCH seminar talk, University of California Santa Cruz	Mar 2025
KITP Local's Lunch, KITP	Feb 2025
Planet Formation group meeting, Flatiron Institute (CCA)	Feb 2025
Know Thy Star, Know Thy Planet 2, Caltech 	Feb 2025
MAPL Lab Group Meeting, University of California Santa Barbara	Feb 2025
Planet Formation group meeting, Flatiron Institute (CCA)	Oct 2024
High-Resolution Exoplanet and Stellar Characterization 	Jul 2024
Cool Stars 22, University of California San Diego 	Jun 2024
Frontera Talk, Texas Advanced Computing Center	May 2024

New York Area Exoplanets Meeting (NYAEM) 2024	May 2024
Lunch Talk, Columbia University	Feb 2024
Bay Area Exoplanet Meeting 44, University of California Santa Cruz	Jul 2023
University of California Santa Barbara	Jul 2023
OWL talk, University of California Santa Cruz	Jul 2023
StanCon 2023, Washington University in St. Louis	Jun 2023
Emerging Researchers in Exoplanet Science, Yale University 	Jun 2023
Origins of Solar Systems, Gordon Research Conference 	Jun 2023
Athena++ workshop, Flatiron Institute (CCA)	May 2023
Gravitational Waves group meeting, Flatiron Institute (CCA)	Oct 2022
Seminar, University of Kansas	May 2022


TEACHING APPOINTMENTS

	MAY 2023 – JUL 2023
Teaching Assistant	
Course: Classical Physics Lab Department of Physics & Astronomy, Stony Brook University	
	MAR 2022 – APR 2022
Group Project Leader	
Women in Science and Engineering program Stony Brook University	
	AUG 2021 – DEC 2021
Teaching Assistant	
Course: Introduction to Planetary Sciences Department of Physics & Astronomy, Stony Brook University	
	JAN 2017 – JAN 2019
Tutor of Mathematics	
Courses: Calculus I,II,III, Linear Algebra, Ordinary Differential Equations, Real Analysis Department of Mathematics, Nazarbayev University	

ACADEMIC LEADERSHIP AND SERVICE

	MAY 2024 –
Steering Committee Member	
NASA HWO Demographics and Architectures Sub-WG	
	OCT 2023
Executive Secretary	
NASA Astrophysics Theory Program (ATP)	
	SEP 2021 – MAY 2023
Senator for the Department of Physics & Astronomy, Member of the Graduate DEI Committee	
Graduate Student Organization, Stony Brook University	
	JUN 2021 – JUN 2022
Underclass person-at-large & Director of External Affairs	
Physics Graduate Student Association, Department of Physics & Astronomy, Stony Brook University	
	MAR 2021 – SEP 2021
Member of the Diversity Committee	
Department of Physics & Astronomy, Stony Brook University	
	SEP 2017 – MAY 2020
Physics Department Representative	
Student Council of Nazarbayev University	

SELECTED OUTREACH : WATCHABLE TALK

	MAR 2023
Outreach talk: The formation of gas giants 	
iTelescope Webinar Series	
	AUG 2022
Outreach talk: Oceans in the Solar System	
Astronomy on Tap, New York City	
	APR 2021
Outreach talk: How do planets form? 	
Astronomy on Tap, Baton Rouge	
	JAN 2021 – JAN 2023
Writer for Astrobits.org	
A website where graduate students publish daily summaries of recent papers on astro-ph.	

I also chaired the Advertising and Undergraduate Committees.

APR 2018 – MAY 2020

President of the Women in Physics Club

Nazarbayev University

OCT 2017 – SEP 2020

Volunteer at the “Education for all” center

An organization that helps children with mental and physical disabilities.

I organized the first three inclusive musical theatre performances in Kazakhstan

COMPUTATIONAL SKILLS

PROGRAMMING / MARKUP LANGUAGES	Python, C/C++, IDL, SQL, HTML, JavaScript, Mathematica, \LaTeX
HYDRO CODES	Athena++, PLUTO
N-BODY CODES	REBOUND
FRAMEWORKS / TOOLS	git, GitHub, ds9, Slurm
SUPERCOMPUTING CLUSTERS	<i>seawulf</i> at SBU, <i>Frontera</i> at the Texas Advanced Computing Center, <i>rusty</i> at Flatiron Institute