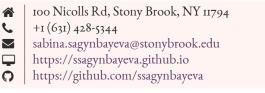
# Sabina Sagynbayeva





#### **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)

Stony Brook University, Stony Brook, NY

2021 - 2023 MA: Physics (Astrophysics)

Stony Brook University, Stony Brook, NY

2016 – 2020 **Bachelor of Science:** Physics

Minor: Mathematics, Literature

Nazarbayev University, Astana, Kazakhstan

#### RESEARCH POSITIONS

# Kavli Institute for Theoretical Physics

Advisors: Dr. Lars Bildsten, Dr. Omer Blaes

Guest Researcher and KITP Grad Fellow

CURRENT, FROM FEB 202I (FT)

JAN 2025 - JUN 2025 (FT)

# Stony Brook University and Flatiron Institute

Advisors: Dr. Phil Armitage, Dr. Will Farr

Research Project Assistant and Guest Researcher at CCA

JUN 2020 - AUG 2020 (FT)

#### Nazarbayev University

Advisor: Dr. Daniele Malafarina

Research Assistant

MAY 2019 - AUG 2019 (FT)

# University of Cambridge

Advisors: Dr. Roman Rafikov, Dr. William Béthune

Research Intern

AUG 2018 – DEC 2019 (PT)

# Nazarbayev University

Advisors: Dr. Ernazar Abdikamalov, Dr. Dana Alina

Research Assistant

# PUBLICATIONS: IST/2ND AUTHOR

- 16. **Sabina Sagynbayeva** et al. "Occurrence Rates Based on Chemical Abundances of K2 Planets." *In prep, expected submission Dec* 2025.
- 15. Sabina Sagynbayeva et al. "Rotation Periods for Stars in Open Cluster NGC 6819 From Kepler Light Curves." In review.
- 14. Sabina Sagynbayeva et al. "Polka-dotted Stars II: Starspost and Obliquities of HAT-P-11, Kepler-17, Kepler-45, Kepler-63." In review.
- 13. **Sabina Sagynbayeva** et al. "Polka-dotted Stars: a Hierarchical Model for Mapping Stellar Surfaces Using Occultation Light Curves." *ApJ* (2025).
- 12. **Sabina Sagynbayeva** et al. "Requirements for Joint Orbital Characterization of Cold Giants and Habitable Worlds with Habitable Worlds Observatory." *AJ* (2025).
- II. **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).

10. Daniele Malafarina, Sabina Sagynbayeva. "What a difference a quadrupole makes?" General Relativity and Gravitation (2021).

#### PUBLICATIONS: NTH AUTHOR

- 9. Elisabeth Newton et al. [including **S. Sagynbayeva**]. "The role of stellar multiplicity in the prevalence of small, cool planets" In prep (2025).
- 8. Mona El Morsy et al. [including S. Sagynbayeva]. "OASIS Survey Direct Imaging and Astrometric Discovery of HIP 71618 B: A Substellar Companion Suitable for the Roman Coronagraph Instrument Technology Demonstration" In review (2025).
- Thayne Currie et al. [including S. Sagynbayeva]. "SCExAO/CHARIS and Gaia Direct Imaging and Astrometric Discovery of a Superjovian Planet 3-4  $\lambda/D$  from the Accelerating Star HIP 54515" *In review* (2025).
- 6. Courtney Dressing et al. [including **S. Sagynbayeva**]. "Scientific Discovery Space for the Habitable Worlds Observatory." In review (2025).
- Sarah Blunt et al. [including S. Sagynbayeva]. "A Statistical Method for Constraining the Capability of the Habitable Worlds Observatory to Understand Ozone Onset Time in Earth Analogs." *JATIS* (2025).
- 4. 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).
- 3. Briley Lewis et al. [including S. Sagynbayeva]. "Exploring the Effects of Astrobites Lesson Plans on Undergraduate Astronomy Students." Physical Review Physics Education Research (2025).
- 2. Thayne Currie et al. [including S. Sagynbayeva]. "Direct Imaging and Astrometric Discovery of a Superjovian Planet Orbiting an Accelerating Star." *Science* (2023).
- I. D. Alina et al. [including **S. Sagynbayeva**]. "Large-scale magnetic field in the Monoceros OB-1 East molecular cloud." Astronomy & Astrophysics (2020).

# AWARDS, GRANTS, & FELLOWSHIPS

2024-2025

#### KITP Graduate Fellowship

I was selected for the 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" for which I was nominated by my academic advisor.

2023

# The Other Worlds Laboratory Exoplanet Summer Program

I was selected for the program that allows to visit UC Santa Cruz for three weeks to work on a project with an UCSC faculty.

#### Frontera Computational Science Fellowship

1-year fellowship for graduate students with an opportunity to compute on Frontera.

2022 - 2024

#### LSSTC Data Science Fellowship Program

I was selected for 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 (16) & CONFERENCE TALKS

Exoplanet seminar, Space Telescope Science Institute	Dec 2025
Carnegie EPL Astronomy Seminar, Carnegie Institution for Science	Oct 2025
Stars & Planets workshop, MIT	Aug 2025
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
MAPL Lab Group Meeting, University of California Santa Barbara	Feb 2025
Planet Formation group meeting, Flatiron Institute (CCA)	Oct 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
Athena++ workshop, Flatiron Institute (CCA)	May 2023
Gravitational Waves group meeting, Flatiron Institute (CCA)	Oct 2022
Seminar, University of Kansas	May 2022
TEACHING APPOINTMENTS	
The later Andrews	MAY 2023 – JUL 2023
Teaching Assistant Course: Classical Physics Lab Department of Physics & Astronomy, Stony Brook University	
Group Project Leader Women in Science and Engineering program	MAR 2022 – APR 2022
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	JAN 2017 - JAN 2019
<b>Courses</b> : Calculus I,II,III, Linear Algebra, Ordinary Differential Equations, Real Analysis Department of Mathematics, Nazarbayev University	
ACADEMIC LEADER SHIP AND SERVICE	
	MAY 2024 -
Steering Committee Member NASA HWO Demographics and Architectures Sub-WG	OCT 2023
Executive Secretary NASA Astrophysics Theory Program (ATP)	332 232,
	SEP 202I – 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	- 0
Physics Graduate Student Association, Department of Physics & Astronomy, Stony Brook University	SEP 2017 – MAY 2020
Physics Department Representative Student Council of Nazarbayev University	

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 Astrobites.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

MAR 2023

President of the Women in Physics Club

Nazarbayev University

OCT 2017 – SEP 2020

Organizer 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, Julia, C/C++, IDL, HTML, JavaScript, Mathematica, LATEX

STATISTICAL SKILLS Hierarchical Bayesian Models, Gaussian Processes, MCMC sampling

HYDRO CODES Athena++, PLUTO REBOUND

FRAMEWORKS / TOOLS git, GitHub, ds9, Slurm

SUPERCOMPUTING CLUSTERS seawulf at SBU, Frontera at the Texas Advanced Computing Center, rusty at Flatiron Institute