# Sabina Sagynbayeva

*Curriculum Vitae*

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https://github.com/ssagynbayeva

## 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 **MA/PhD:** Physics (Astrophysics)
*Deferred my admission to Spring 2021 due to COVID-19
*Stony Brook University*, Stony Brook, NY

2016 – 2020 **Bachelor of Science:** Physics
Minor: Mathematics, Literature
*Nazarbayev University*, Astana, Kazakhstan

## RESEARCH POSITIONS

CURRENT, FROM FEB 2021 (FT)

### *Stony Brook University*

**Advisors: Dr. Phil Armitage, Dr. Will Farr**
Research Project Assistant

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

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

**Sabina Sagynbayeva** et al. "Circumplanetary Gas Disks are Rare: A Parameter Survey of Flow Morphology around Giant Planets." *In prep*.

Briley Lewis et al. [including **S. Sagynbayeva**]. "Exploring the Effects of Astrobites Lesson Plans on Undergraduate Astronomy Students." *Submitted*.

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

**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

## SCIENCE TALKS & POSTERS : POSTER

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|---|---|
| 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 |

## PUBLIC OUTREACH TALKS : WATCHABLE

MAR 2023

**The formation of gas giants**
iTelescope Webinar Series

AUG 2022

**Oceans in the Solar System**
Astronomy on Tap, New York City

APR 2021

**How do planets form?**
Astronomy on Tap, Baton Rouge

## 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 AND DEPARTMENTAL LEADERSHIP

MAY 2024 –

**Steering Committee Member**

NASA HWO Demographics and Architectures Sub-WG

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

JAN 2021 – PRESENT

**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

**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

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|---|---|
| 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 | *seawulf* at SBU, *Frontera* at the Texas Advanced Computing Center |