

# Olga Borodina

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## Education

- 2022 – Present **Harvard University, Cambridge MA, USA**,  
PhD Student in Astronomy  
◦ Advisor: Prof. Lars Hernquist
- 2020 – 2022 **Moscow Institute of Physics and Technology, Russia (MIPT)**,  
Masters' Degree in Applied Mathematics and Physics  
◦ Thesis: "On the density distribution of bound clusters after residual star-forming gas expulsion"  
◦ Advisor: Dr. Evgeny Polyachenko
- 2019 – 2020 **Moscow Institute of Physics and Technology, Russia (MIPT)**,  
Bachelors' Degree in Applied Mathematics and Physics  
◦ Thesis: "Unresolved Binaries in Open Clusters"  
◦ Advisor: Dr. Dana Kovaleva
- 2015 – 2019 **Ural Federal University, Russia (UrFU)**, Specialist Study in Astronomy  
(transferred to MIPT)  
◦ Project: "Unresolved Binaries and Galactic Clusters' Mass Estimates"  
◦ Advisor: Dr. Anton Seleznev
- 2017 – 2019 **Ural Federal University, Russia (UrFU)**, Associate Degree in Pedagogy  
◦ Thesis: "Case method application for analytical thinking development in Astronomy classes"  
◦ Advisor: Dr. Galina Sorvacheva

## Research Experience

- Sep 2022 – Present **PhD Student**, Center for Astrophysics | Harvard & Smithsonian
- Mar 2022 – Aug 2022 **Visiting Student**, Max Planck Institute for Astronomy (MPIA)
- 2019 – 2022 **Research Assistant**, Institute of Astronomy, Russian Academy of Sciences (INASAN)  
2021 **Summer Intern**, Max Planck Institute for Astronomy (MPIA)
- 2016 – 2019 **Research Assistant**, Ural Federal University (UrFU)  
2018 **Summer Intern**, Kourvka Astronomical Observatory

## Publications (1st author)

- 2023 **Borodina O. et al.**, On the Tremaine-Weinberg method: how much can we trust gas tracers to measure pattern speeds?, accepted to **MNRAS**
- 2021 **Borodina O. et al.**, Unresolved Multiples and Galactic Clusters' Mass Estimates, **ApJ**, 908, 60
- 2020 **Borodina O.I.**, Kovaleva D.A., Unresolved Binaries in Open Clusters, INASAN SR, 5, 351
- 2019 **Borodina O. et al.**, Unresolved Binaries and Galactic Clusters' Mass Estimates, **ApJ**, 874, 127

## Publications (co-author)

- 2021 Shukirgaliyev, B.;[and 14 others, including **Borodina O.** ], The bound mass of Dehnen models with centrally peaked star formation efficiency, **A&A**, 654, A53

- 2021 Polyachenko, E. V.; Shukhman, I. G.; **Borodina, O. I.**, Damped perturbations in stellar systems: Genuine modes and Landau-damped waves, **MNRAS**, 503, 660

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## Conferences & Seminars

- July 2023 **Galactic Bars**, GRANADA, SPAIN  
"On the Tremaine-Weinberg method: how much can we trust gas tracers to measure pattern speeds?" (poster & flash talk)
- Oct 2022 **AstroHackWeek**, HEIDELBERG, GERMANY  
Lead an astronomy hack for a team of 7 people (mostly PhD and Master students)
- Sep 2022 **Astroseminar**, SPBGU, RUSSIA  
"On the Tremaine-Weinberg method: how much can we trust gas tracers to measure pattern speeds?" (invited talk)
- Jul 2022 **Galaxy Coffee**, MPIA, GERMANY  
"On the Tremaine-Weinberg method: how much can we trust gas tracers to measure pattern speeds?" (talk)
- Jun 2022 **European Astronomical Society Annual Meeting**, VALENCIA, SPAIN  
"On the Tremaine-Weinberg method: how much can we trust gas tracers to measure pattern speeds?" (poster)
- Dec 2021 **Astrophysical Seminar INASAN**, INASAN, RUSSIA  
"The bound mass of Dehnen models with centrally peaked star formation efficiency" (talk)
- Sep 2021 **Volkswagen Trilateral Project Workshop**, ARI/ZAH, INASAN, MAO, NAOC  
"On the density distribution of bound clusters after residual star-forming gas expulsion: Zhao profiles" (talk)
- Nov 2020 **63th All-Russian Scientific Conference**, MIPT, RUSSIA  
"Unresolved Binaries in Open Clusters" (talk)  
◦ the Best Presentation Award
- 2019 – 2020 **Annual conference for young scientists**, INASAN, RUSSIA  
"Unresolved Binaries and Galactic Clusters' Mass Estimates", "Unresolved Binary Stars in Open Clusters" (talks)
- 2016 – 2019 **Annual conference "Physics of the Space"**, KOUROVKA ASTRONOMICAL OBSERVATORY, RUSSIA  
◦ Presented projects on open clusters & binary stars based on 2MASS and GAIA DR1 (talks)

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## Social Activity

- 2022 – Present **Student Representative**, HARVARD ASTRONOMY STUDENT-FACULTY COUNCIL
- 2021 **MPIA Student retreats**, MPIA  
◦ Organized hiking and biking tours from Heidelberg for other interns and Ph.D. students
- 2016 – 2019 **Annual conference "Physics of the Space"**, KOUROVKA ASTRONOMICAL OBSERVATORY  
◦ Organized and coordinated entertainment activities (contests, excursions for >100 attendees)
- Feb 2017 – **Astronomy Tutor**, KANTRSKRIP SCHOOL
- May 2019 ◦ Developed Astronomy & Astrophysics courses for high school students  
◦ Trained all-Russia Astronomy Olympiad winner (2019)

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## Scholarships & Awards

- 2023 **Poster Prize Award winner**, during Galactic Bars conference in Granada, Spain
- 2021 – 2022 **The Andrei Sakharov Scholarship**, for scientific achievements
- 2019 – 2021 **Scholarship** for excellent academic achievements, MIPT
- 2019 **1st place in Astronomy Contest**, KOUROVKA ASTRONOMICAL OBSERVATORY

- 2018 **Scholarship** of President of the Russian Federation
- 2018 **Scholarship** of Parliament of the Russian Federation
- 2018 **Bronze Medal in Mathematics Olympiad**, ARIEL UNIVERSITY, ISRAEL
- 2015 – 2019 **Scholarship** for excellent academic achievement, URFU
- 2017 **1st place in Astronomy Contest**, KOUROVKA ASTRONOMICAL OBSERVATORY
- 2017 **1st place in Physics Contest for Undergraduate Students**, URFU