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Olga Borodina

Education

2022 – Present **Harvard University, Cambridge MA, USA**,
PhD Student in Astronomy
- Project: "The Role of Active Galactic Nuclei in Galaxy Evolution: How do jets propagate through the Interstellar Medium?"
- 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 (transferred to MIPT) **Ural Federal University, Russia (UrFU)**, Spicialist Study in Astronomy
- 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**, Kourovka 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?, **MNRAS**, 524, 3437

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

Conferences & Seminars

Oct 2023 **The importance of jet-induced feedback on galaxy scales**, Lorentz Center, Netherlands
"The Role of Active Galactic Nuclei in Galaxy Evolution: How do jets propagate through the Interstellar Medium?" (poster & flash talk)

Oct 2023 **ITC luncheon**, Center for Astrophysics | Harvard & Smithsonian
"On the Tremaine-Weinberg method: how much can we trust gas tracers to measure pattern speeds?" (talk)

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)

Social Activity

2022 – Present **Student Representative**, Harvard Astronomy Student-Faculty Council

July 2023 **ComSciCon Flagship**, Emerson College, Boston
- Organized science communication workshop for graduate students as a part of LOC.

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 – May 2019 **Astronomy Tutor**, KantrSkrip school
- Developed Astronomy & Astrophysics courses for high school students
- Trained all-Russia Astronomy Olympiad winner (2019)

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