Olga Borodina

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Education

2020 – now **Moscow Institute of Physics and Technology, Russia (MIPT)**,
M.S. in Applied Mathematics and Physics

2019 – 2020 **Moscow Institute of Physics and Technology, Russia (MIPT)**,
B.S. in Applied Mathematics and Physics **GPA 4.98/5.0**
- Machine Learning, Data Analysis in Space Experiments, Plasma Physics
- Thesis: "Unresolved Binaries in Open Clusters"

2015 – 2019 (transferred to MIPT) **Ural Federal University, Russia (UrFU)**, Astronomy, GPA 5.0/5.0
- General Math (Calculus, Linear Algebra etc.) and Physics
- Astrophysics, Galactic Astronomy, Astrometry, Observational Astronomy, Celestial Mechanics etc.
- Pedagogy & Psychology

Work Experience

July 2019 – now **Research Assistant**, Institute of Astronomy, Russian Academy of Sciences (INASAN)
- Developed 2 methods to measure binary stars fraction in open star clusters (using GAIA DR2)
- Researching clusters' stability and evolution by running N-body simulations on GPUs

Feb 2016 – May 2019 **Research Assistant**, Ural Federal University (UrFU)
- Estimated open clusters' hidden mass caused by unresolved binaries

Feb 2017 – May 2019 **Astronomy Tutor**, KantrSkrip school
- Developed Astronomy & Astrophysics courses for high school students
- Trained all-Russia Astronomy contest winner (2019)

Other Experience

June 2021 – Sep 2021 **Internship**, Max Planck Institute for Astronomy
- Tested Tremaine-Weinberg method applying to simulated galaxies, *PHANGS group*

May 2020 **Course "Data-driven astronomy"**, Coursera
- Applied SQL, Astropy, ML tools to SDSS and NASA Exoplanet Archive data

July 2018 **Internship**, Kourovka Astronomical Observatory
- Conducted spectroscopic observations using solar telescope and calculated gas velocity in prominence
- Observed variable stars on the MASTER-II-Ural telescope and processed images

Publications

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

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

2021 **Borodina 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 et al.**, Unresolved Binaries and Galactic Clusters' Mass Estimates, **ApJ**, 874, 127

Conferences

2020 **63th All-Russian Scientific Conference**, MIPT
- the Best Presentation Award

2019 – 2020 **Annual conference for young scientists**, INASAN

2016 – 2019 **Annual conference "Physics of the Space"**, Kourovka Astronomical Observatory
- Coordinated entertainment activities (contests, intellectual games, excursions etc. for 100 attendees)

2018 **Poster presentation**, Ural Federal University

Skills in Computer Science

Python (NumPy, SciPy, Pandas, Matplotlib, Scikit-learn), AstroPy, SQL, C++, TopCAT, Git, LaTeX