

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 **Ural Federal University, Russia (UrFU)**, Astronomy, GPA 5.0/5.0
(transferred to MIPT)
- 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 for binary stars fraction measurement (using GAIA DR2)
 - Researching clusters stability 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 Teacher**, KANTRSKRIP SCHOOL
- Developed Astronomy & Astrophysics courses for high school students
 - Trained all-Russia Astronomy contest winner (2019)

Other Experience

- May 2020 **Course "Data-driven astronomy"**, COURSERA
- Practiced SQL, Astropy, ML tools with real data (SDSS, NASA Exoplanet Archive)
- July 2018 **Internship**, KOUROVKA ASTRONOMICAL OBSERVATORY
- Conducted spectroscopic observations using solar telescope and calculated gas velocity in prominence
 - Learned how to service and point reflecting telescope
 - Observed variable stars on the MASTER-II-Ural telescope and processed images

Publications

- 2021 Polyachenko, E. V.; Shukhman, I. G.; **Borodina, O. I.**, Damped perturbations in stellar systems: Genuine modes and Landau-damped waves, **MNRAS** under review
- 2021 **Borodina et al.**, Unresolved Multiples and Galactic Clusters' Mass Estimates, **ApJ**, 806, 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

Astrophysics

- Photometric and spectroscopic data analysis, working with astronomical databases

Computer Science

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