Alexander Salganik

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Research Interests

I am interested in studying X-ray pulsars using data from X-ray telescopes. Most of my work is devoted to the study of observational effects of accretion and radiation transfer.

Education

Bachelor + Master of Science in Astrophysics (6-year program) Sep 2018 - June 2024
St. Petersburg State University, St. Petersburg, Russia
Average unweighted GPA: 4.0/4.0

Research Experiences

Senior Laboratory Assistant at Space Research Institute of the Russian Academy of Sciences (IKI RAS) Aug. 2021 - present

- Spectral and temporal analysis of data from *NuSTAR*, *Swift* and SRG observatories.
- Interpretation of optical and infrared data to study the nature of Be/X-ray binaries.
- Study of observational manifestations of the effects of radiation transfer and accretion in X-ray pulsars.

Awards and Honors

St. Petersburg Government Physics Scholarship for Gifted Students 2018
Enhanced State Academic Scholarship 2018

Publications

- "On the nature of the X-ray pulsar XTE J1859+083 and its broadband properties"
  Salganik A., Tsygankov S. S., Djupvik A. A., Karasev D. I., Lutovinov A. A., Buckley D. A. H., Gromadzki M., Poutanen J., 2022, MNRAS, 509, 5955

- Two more publications with me as the first author are being prepared.

Atels

- "eRASSU J050810.4-660653 in the LMC: Discovery of X-ray pulsations with XMM-Newton and NuSTAR"
  Haberl, F.; **Salganik, A.**; Maitra, C.; Doroshenko, V.; Ducci, L.; Kaltenbrunner, D.; Kreykenbohm, I.; Lutovinov, A.; Maggi, P.; Mereminskiy, I.; Molkov, S.; Rau, A.; Semena, A.; Tsygankov, S.; Vasilopoulos, G.; Weber, P.; Wilms, J., The Astronomer's Telegram, 15133, 1

Accepted observational proposals

PI of *Swift* (6 ks) TOO observations of Swift J1808.4−1754 Aug 2021
PI of *NuSTAR* (56 ks) TOO observations of eRASSU J050810.4−660653 Dec 2021
PI of *Swift* (16.5 ks) TOO observations of eRASSU J050810.4−660653 2021-2022

Talks

"On the nature of the X-ray pulsar XTE J1859+083 and its broadband properties"

- Conference "Fundamental and Applied Space Research 2021", IKI RAS, Moscow Apr 2021
- Saint Petersburg State University, Saint Petersburg, Russia Dec 2021

- University of Turku, Turku, Finland — Dec 2021
- Conference "Astronomy and space exploration", online — Jan 2022

Posters

Conference "High-Energy Astrophysics Today and Tomorrow HEA-2019"
"X-ray pulsars in Small Magellanic Cloud" — Dec 2019
Conference "High-Energy Astrophysics Today and Tomorrow HEA-2021"
"On the nature of the X-ray pulsar XTE J1859+083
and its broadband properties" — Dec 2021

Hackathons

2021 Google Summer of Code:
Machine Learning for Science (ML4SCI) 2021 Hackathon (CGM challenge) — Nov 2021
Member of the Winning Team

Relevant Coursework

Physics: Classical Mechanics, Electromagnetism, Quantum Mechanics, Statistical Physics, Thermal Physics, Radiation transfer theory, Optics, General Relativity.

Mathematics: Calculus, Differential Equations, Linear & Higher Algebra, Statistics, Equations of mathematical physics, Numerical Methods, Time Series Analysis, Differential geometry.

Astrophysics: General Astrophysics, Celestial Mechanics, General Astronomy

Skills

- Programming languages: Python, Fortran, C language
- Operating systems: Mac OS, Linux
- Software: LaTeX, HEASoft, CIAO, XMM-SAS, IRAF/ds9, Git, Midas
- General techniques: Machine Learning, Advanced Statistics, Monte-Carlo simulations, physical simulations

Extracurricular Activities

Popularization of science

- I help in popularizing science and holding competitions to solve astrophysical problems.
- Jury member of the St. Petersburg Astronomical Olympiad for schoolchildren.