

CURRICULUM VITAE for ALEXANDER A. MUSHTUKOV

Nationality: Russian
Date of birth: March 13, 1987
Birth place: Leningrad, Russia
Sex: Male
Marital status: partnership with Iana Bruntseva, 1 child Nikita

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Degrees

Ph.D. in Astrophysics

2015, university of Turku, Finland
Supervisors: Prof. Juri Poutanen
Co-supervisors: Prof. Dmitrij I. Nagirner, Dr. Sergey S. Tsygankov
Opponent: Prof. Dong Lai (Cornell University)
Thesis title: *Radiation and matter interaction in strong magnetic fields of neutron stars*

Master of Science in Astronomy

2009, Saint-Peterburg State University (SPSU), Russia
Supervisor: Prof. Dmitrij I. Nagirner
Thesis title: *Compton scattering in strong magnetic field*

Positions

Apr 2022 - now	Stephen Hawking Fellow, Uni. of Oxford, UK
Mar 2022 - Oct 2022	visiting NWO Veni Fellow, Leiden Uni., The Netherlands
Nov 2018 - Mar 2022	NWO Veni Fellow, Leiden Uni., The Netherlands
Nov 2015 - Oct 2018	PostDoc, Anton Pannekoek Institute for Astronomy, Uni. of Amsterdam, The Netherlands
Nov 2011 - Oct 2015	PhD student, Uni. of Oulu, University of Turku (since Jan 2014), Finland
Feb 2011-March 2012	CIMO Fellow, Uni. of Oulu, Finland
2009-2010	post-graduate studies, SPSU, Russia
2004-2009	Undergraduate student, SPSU, Russia

Research Interests

High Energy Astrophysics, Radiative Transfer Theory and Radiation Hydrodynamics,
Computational physics, Stellar astrophysics, Quantum Electrodynamics, Plasma physics

Languages: English, Russian (native)

Software/Programming

C/C++, Fortran, Python, CUDA, Maxima, gnuplot, Bash scripting

Student supervision

MSc students (2)

2019 - 2020 Alexander Batrakov, Leiden Univ./St.-Petersburg State Univ.
Thesis: *Numerical simulations of outbursts in X-ray pulsars powered by accretion onto strongly magnetised neutron stars*

2017 - 2022 Ivan Markozov, St.-Petersburg State Univ.
Thesis: *Features of extreme accretion onto strongly magnetised neutron stars*

BSc students (4)

2018 Koen Leegwater, Univ. of Amsterdam
Thesis: *Propagating fluctuations of the mass accretion rate in accretion discs around stellar mass black holes*

2017 Boris Wolvers, Univ. of Amsterdam
Thesis: *Radiative transfer inside accretion column of neutron star at extremely high mass accretion rate*

2016 Patrick Verhagen, Univ. of Amsterdam
Thesis: *Variability of Bright X-ray Pulsars*

2013 Denis Poliakov, St.-Petersburg State Univ.

Teaching experience

06-08.2019 The Leiden/ESA Astrophysics Program for Summer Students 2019
Supervision of a summer project

09.2017 course in Open Problems of Modern Astrophysics, Univ. of Amsterdam
Development of a part of the course related to accretion processes in astrophysics

09.2016 course in Open Problems of Modern Astrophysics, Univ. of Amsterdam
Development of a part of the course related to accretion processes in astrophysics

- 10-12.2013 Teaching assistant, course in Time series analysis in astrophysics,
Univ. of Oulu
- 02-05.2013 Teaching assistant, course in Theoretical astrophysics, Univ. of Oulu
- 10-12.2012 Teaching assistant, course in Relativistic astrophysics, Univ. of Oulu
- 10-12.2011 Teaching assistant, course in Stellar structure and evolution,
Univ. of Oulu

Fellowships, Honors, Awards

- 2021: Stephen Hawking fellowship awarded by UK Research and Innovation
- 2018: Veni laureate, awarded by the Netherlands Organisation for Scientific Research
- 2017: award for Beatriu de Pinós fellowship
(respectfully declined due to acceptance of Veni fellowship)
- 2017: First runner-up for the nomination for the 2017 “Mike Revnivtsev Prize”
which is sponsored by ESA, IAPS, INAF, and IKI, and awarded to a young scientist
with excellent recent achievements in the field of X-ray and gamma-ray astronomy
- 2015: Award for the best thesis of year 2015 of the Doctoral Programme in Physical
and Chemical Sciences of the Uni. of Turku, Finland
- 2012-2015: Three personal research grant from Magnus Ehrnrooth foundation awarding grant
for researchers working in mathematics and the natural sciences
- 2011: CIMO (Centre for International Mobility) grant for research and study in Finland
- 2009: Award for the best master thesis in astronomy of year 2009 in Saint Petersburg state Uni.

Memberships and Other academic activities

- IXPE Science Team Participant, **group leader**
- THESEUS Science Team Participant
- Junior Member of International Astronomical Union
- Referee for Monthly Notice of the Royal Astronomical Society (since Feb 2015)
- Referee for Astronomy and Astrophysics (since Dec 2016)
- Referee for Nature Astronomy (since Jul 2019)
- Referee for UK Research and Innovation STFC Astronomy Research Grant (2020)
- Referee for Astrophysical Bulletin (since Aug 2020)
- Referee for Astronomy Reports (since Feb 2021)
- Referee for Publications of the Astronomical Society of Japan (since Oct 2021)
- Referee for Universe (since Nov 2021)
- Referee for New Astronomy Reviews (since Apr 2022)

Organization of scientific meetings

- 2020 **Chair** of Symposium on “Extremes in Accretion onto Strongly Magnetised Neutron stars” at EAS 2020, Leiden, The Netherlands
Hosting for 1 Collaborative Short Term Scientific Mission at Leiden Uni.
- 2019 Hosting for 3 Collaborative Short Term Scientific Missions at Leiden Uni.
- 2018 SOC of Conference ”Stars, planets and their magnetic fields”, Saint-Petersburg, Russia
Hosting for 1 Collaborative Short Term Scientific Mission at the Uni. of Amsterdam
- 2017 Hosting for 2 Collaborative Short Term Scientific Missions at the Uni. of Amsterdam
- 2016 Hosting for 1 Collaborative Short Term Scientific Mission at the Uni. of Amsterdam
- 2009-2011 Organisation of weekly astronomical seminar for students and Ph.D. students, Saint Petersburg State Uni.

Research Grants

- Stephen Hawking fellowship awarded by UK Research and Innovation, 2021 (275 k£)
- Veni fellowship awarded by the Netherlands Organisation for Scientific Research, 2018 (250 k€)
- Participation in the RFBR-DFG Grant No. 19-52-12013, 2019
- Participation in the Russian Science Foundation Grant No. 18-72-10070, 2018
- Participation in the Russian Science Foundation Grant No. 14-12-01287, 2014-2018
- Personal research grant from Magnus Ehrnrooth foundation, 2015 (25 k€)
- Personal research grant from Magnus Ehrnrooth foundation, 2014 (25 k€)
- Personal research grant from Magnus Ehrnrooth foundation, 2012 (20 k€)
- CIMO grant for research and study, 2011 (11 k€)

Personal Travel Grants

- PHAROS travel grant for Short Time Scientific Missions in October 2018 (2 k€)
- 3 LKBF (Leids Kerkhoven-Bosscha Fonds) conference fundings, 2016 - 2018 (3 k€ in total)
- 7 NewCompStar travel grants for Short Time Scientific Missions in period from 2013 to 2017 (12 k€ in total)

Seminars (*34 seminars and colloquia*)

- Uni. of Leeds, Fluid Talks, UK, Apr 2022
- Uni. of Turku, High Energy Astrophysics group meeting, Finland, Apr 2021
- Saint Petersburg State Uni., Colloquium for PhD Students, Russia, Apr 2021
- Moscow State Uni., High Energy Astrophysics Seminar, Russia, Jan 2021
- Uni. of Turku, High Energy Astrophysics group meeting, Finland, Nov 2020
- Space Research Institute, Moscow, Russia, Dec 2019
- Institute for Astronomy and Astrophysics in Tübingen, Germany, Jun 2019
- Leiden Uni., Leiden Observatory, The Netherlands, Jun 2019
- Saint Petersburg State Uni., Department of Astrophysics, Russia, Mar 2019

Uni. of Southampton, Astronomy Seminar, UK, Feb 2019
Uni. of Southampton, X-ray Binaries group meeting, UK, Feb 2019
Pulkovo Observatory, Saint Petersburg, Russia, Dec 2018
Department of Physics, Uni. of Oxford, Oxford, UK, Oct 2018
Anton Pannekoek Institute for Astronomy, Amsterdam, The Netherlands, Nov 2017
IRAP, Toulouse, France, Mar 2017
Saint Petersburg State Uni., Department of Astrophysics, Russia, Dec 2016
Department of Theor. Astrophysics of the Ioffe Physical-Technical Inst., Russia, Dec 2016
Anton Pannekoek Institute for Astronomy, Amsterdam, The Netherlands, Nov 2016
Anton Pannekoek Institute for Astronomy, Amsterdam, The Netherlands, Mar 2016
Institute for Astronomy and Astrophysics in Tübingen, Stellar atmosphere group seminar, Germany, Mar 2016
Tuorla observatory, Finland, Oct 2015
Anton Pannekoek Institute for Astronomy, Amsterdam, The Netherlands, May 2015
Saint Petersburg State Uni., Department of Astrophysics, Russia, Mar 2015
Department of Theor. Astrophysics of the Ioffe Physical-Technical Inst., Russia, Mar 2015
Institute for Astronomy and Astrophysics in Tübingen, High energy astrophysics group seminar, Germany, Sep 2014
Institute for Astronomy and Astrophysics in Tübingen, Stellar atmosphere group seminar, Germany, Sep 2014
Saint Petersburg State Uni., Department of Astrophysics, Russia, Apr 2014
Pulkovo Observatory of Russian Academy of Sciences, Russia, Apr 2014
Tuorla observatory, Finland, Feb 2014
Saint Petersburg State Uni., PhD students seminar, Russia, Dec 2013
Department of Theoretical Physics of Yaroslavl State Uni., Russia, Jan 2011
Department of Theor. Astrophysics of the Ioffe Physical-Technical Inst., Russia, Apr 2010
Saint Petersburg State Uni., Department of Astrophysics, Russia, Mar 2010
Alexander Friedmann Laboratory for Theor. Phys., Russia, Feb 2010
Max Planck Institute for Astrophysics, Germany, Apr 2009

Research visits

Uni. of Turku, Finland, Sep 2019
Department of Physics, Uni. of Oxford, Oxford, UK, Oct 2018
Institute for Astronomy and Astrophysics in Tübingen, Germany, Sep 2017
NORDITA, Stockholm, Sweden, Feb 2017
The Ioffe Physical-Technical Institute in Saint Petersburg, Russia, Dec 2016
Tuorla observatory, Uni. of Turku, Finland, Aug 2016
Institute for Astronomy and Astrophysics in Tübingen, Germany, Mar 2016
Institute for Astronomy and Astrophysics in Tübingen, Germany, Sep 2014
Institute for Astronomy and Astrophysics in Tübingen, Germany, Sep 2013
Uni. of Oulu, Finland, Feb-Apr 2011
Uni. of Oulu, Finland, Nov-Dec 2010
Institute for Astronomy and Astrophysics in Tübingen, Germany, Apr 2009

Participation in the conferences (*contribution*)

Astro@Home, Oxford, UK, Jun 2022 (*talk*)
API-100, Amsterdam, The Netherlands, Jun 2022 (*talk*)
Timing X-ray Binaries: On the road to eXTP, online, Oct 2021 (*talk*)
BeXRB-2021, online, Jul 2021 (*talk*)
EAS-2020, Leiden, The Netherlands, Jun 2020 (*talk*)
High Energy Astrophysics today and tomorrow, Moscow, Russia, Dec 2019 (*talk & poster*)
The Future of X-ray Timing, Amsterdam, The Netherlands, Oct 2019 (*talk*)
Physics of Stars and Planets, Shamakhy, Azerbaijan, Sep 2019 (*invited talk*)
From Winds to Jets, Amsterdam, The Netherlands, Jul 2019 (*invited talk*)
EWASS-2019, Lyon, France, Jun 2019 (*invited talk*)
X-ray topics in Astronomy: from history to the future, Tübingen, Germany, Apr 2019 (*talk*)
COSPAR-2018, Pasadena, USA, Jul 2018 (*invited talk*)
Ultra-luminous X-ray pulsar workshop, Madrid, Spain, Jun 2018 (*invited talk*)
Workshop "The challenge of transitional millisecond pulsars", Rome, Italy, Mar 2018 (*invited talk*)
High Energy Astrophysics today and tomorrow, Moscow, Russia, Dec 2017 (*invited talk*)
Physics of Neutron Stars - 2017, St-Petersburg, Russia, Jul 2017 (*talk*)
Annual NewCompStar Conference 2017, Warsaw, Poland, Mar 2017 (*talk*)
High Energy Astrophysics today and tomorrow, Moscow, Russia, Dec 2016 (*talk & poster*)
EXTraS workshop, Pavia, Italy, Nov 2016 (*talk*)
Annual NewCompStar Conference 2016, Istanbul, Turkey, Apr 2016 (*talk*)
Accretion onto Magnetized Neutron Stars, Stockholm, Sweden, Mar 2016 (*2 talks*)
Radiation mechanisms of astrophysical objects: classics today, St-Petersburg, Russia, Sep 2015 (*talk*)
Workshop on Relativistic Astrophysics, Turku, Finland, Aug 2015 (*talk*)
The XIII Russian-Finnish Symposium on Radio Astronomy, St-Petersburg, Russia, May 2015 (*talk*)
High Energy Astrophysics today and tomorrow, Moscow, Russia, Dec 2014 (*talk*)
Physics of Neutron Stars 2014, St-Petersburg, Russia, Jul 2014 (*talk & poster*)
Zeldovich 100: Cosmology and Relativistic Astrophysics, Moscow, Russia, Jun 2014 (*poster*)
High Energy Astrophysics today and tomorrow, Moscow, Russia, Dec 2013 (*talk*)
EWASS 2013, Turku, Finland, Jul 2013 (*talk*)
Physics at the magnetospheric boundary, Geneva, Switzerland, Jun 2013 (*talk*)
NORDITA Winter School, Stockholm, Sweden, Jan 2013 (*lecture*)
High Energy Astrophysics today and tomorrow, Moscow, Russia, Dec 2012 (*talk*)
Astronomers Days 2012, Porvoo, Finland, Jun 2012 (*talk*)
Physics of Neutron Stars, St-Petersburg, Russia, Jul 2011 (*poster*)
JENAM-2011, St-Petersburg, Russia, Jul 2011 (*talk*)