

Curriculum Vitae - **Dr. Sergey Tsygankov**  
Department of Physics and Astronomy, University of Turku  
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**Contact information**

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**Research interests**

highly magnetised neutron stars (X-ray pulsars, magnetars), ultraluminous X-ray sources, compact objects, gamma-ray lines, nuclear astrophysics, Galactic diffuse emission, supernova explosions and remnants

**Education and degrees awarded**

09/2012	<b>Docent of Astronomy</b> , University of Oulu, Oulu, Finland
03/2007	<b>Ph.D.</b> , thesis topic: <i>Study of accreting neutron stars with strong magnetic fields from X-ray observatories</i> , Space Research Institute, Moscow, Russia
02/2004	<b>MSc in Nuclear Physics</b> , Moscow Engineering Physics Institute, Moscow, Russia

**Languages**

English (fluent), Russian (mother tongue), German (basic), Swedish (basic), Finnish (basic)

**Current position**

09/2017–now	<b>University researcher (yliopistotutkija)</b> , Department of Physics & Astronomy, University of Turku
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**Previous work experience**

09/2014–08/2017	<b>Senior researcher (Junior group leader)</b> , Tuorla Observatory, Department of Physics & Astronomy, University of Turku
09/2011–08/2014	<b>Postdoctoral position</b> , Finnish Centre for Astronomy with ESO (FINCA), University of Turku
07/2008–08/2011	<b>Postdoctoral position</b> , Max Planck Institute for Astrophysics, Garching, Germany
08/2007–08/2011	<b>Researcher</b> , Astrophysics Department (Russian Science Data Center (RSDC) for the INTEGRAL project), Space Research Institute, Moscow, Russia
03/2002–07/2007	<b>Junior Researcher</b> , Astrophysics Department (Russian Science Data Center (RSDC) for the INTEGRAL project), Space Research Institute, Moscow, Russia

**Extended visits to foreign institutes**

2025	2-weeks visit to the Institute of High Energy Physics (IHEP), China
2023	3-weeks visit to University of Oxford, UK
2015, -17, -19, -22, -25	2-weeks visits to DIAS and DCU, Ireland
2016, -18	3- and 2-weeks visits to Anton Pannekoek Institute for Astronomy, Amsterdam, Netherlands
2019-21	several 2-weeks visits to the Leiden University, Netherlands
2017	2 weeks at Nordita, Stockholm, Sweden
2015	2 weeks at UC Berkeley, USA
2013-2025	multiple several-weeks visits to the Institute of Astronomy and Astrophysics, Tuebingen University, Germany

2017-22	multiple visits to Space Research Institute, Moscow, Russia
2005, 2006, 2007	multiple 3-months visits to the Max-Planck Institute for Astrophysics (MPA), Garching, Germany
2004–2005	2 months at the INTEGRAL Science Data Centre, Versoix, Switzerland

### **Memberships**

2019–now	European Astronomical Society (EAS)
2015–now	Finnish Astronomical Society (FAS)
2014–now	Turku Collegium for Science and Medicine
2012–now	International Astronomical Union

### **Awards and recognitions**

2026	Visiting Professor, President’s International Fellowship Initiative (PIFI), Chinese Academy of Sciences; Institute of High Energy Physics (IHEP), Beijing, China
2024	Bruno Rossi Prize of the High Energy Astrophysics Division of the American Astronomical Society (as part of the IXPE science team)
2023	Friedrich Wilhelm Bessel Research Award from the Alexander von Humboldt Foundation
2023	Distinguished Science Award, National Space Club, Huntsville, USA (as part of the IXPE science team)
2014	Fellowship awarded by The Turku Collegium for Science and Medicine
2008	The Medal of Russian Academy of Sciences in the Field of Physics for young scientists
2004, -05, -07, -09, -21	The Annual Prize of Space Research Institute (Moscow, Russia) for the best publication
2005	The Moscow government prize to the best PhD students

### **Research-related professional service**

2026	Chair of ISSI program ”Polarimetric Insights into Extreme Magnetism”
2026	Chair of LOC for the first eXTP scientific workshop, Turku, Finland, September 2026
2025	Panel member on compact objects, XMM-Newton time allocation committee (AO25)
2025–now	Member of the NewAthena working group on Compact objects (WG4)
2025–now	Core Team member for ESA M-8 Enhanced X-ray Polarimetry Explorer (EXPO)
2025–now	Finnish representative, EU COST Action CA23130, “Bridging high and low energies in search of quantum gravity”
2024–now	Leader of the Working Group on X-ray pulsars in eXTP consortium
2024	Member of the evaluation committee for the future High Energy Astrophysics mission led by IHEP beyond 2030 (China)
2024	SOC member at the COSPAR event ”High Mass X-ray Binaries: A new view on Accretion and Reprocessing” (Busan, 2024)
2023	Section editor in the ”Handbook of X-ray and Gamma-ray Astrophysics” (Editors in chief: C. Bambi and A. Santangelo)
2022–now	Scientific Collaborator for IXPE project
2022–now	Member of European Consortium for Astroparticle Theory (EuCAPT)
2021–now	Member of eXTP consortium
2020	Referee for the M.Sc. thesis of Sergey Bykov at HSE, Moscow (June 2020)
2020	SOC member of EAS-2020, Leiden, The Netherlands, June 2020
2019–now	Member of the Son of XShooter (SOXS) consortium
2019–now	Member of working groups 2,3,5,6 in THESEUS mission
2019	Opponent for the Licentiate thesis defence of PhD student Dennis Alp at KTH, Stockholm (14.02.2019)

2018–now	Scientific Participant for IXPE project
2018	SOC member in “ULX pulsars” workshop at ESAC, Madrid, 3-6 June 2018
2018	LOC member in the “Astronomers Days 2018” conference, Kuusamo, Finland, 28-30 May 2018
2017–2022	Finnish representative, EU COST Action CA16214, “The multi-messenger physics and astrophysics of neutron stars”
2017–2021	Finnish representative, EU COST Action CA16104, “Gravitational waves, black holes and fundamental physics”
2017–2023	Organizer of the Astronomy seminars at the Tuorla Observatory
2016–2020	Member of the XIPE working group “Magnetic fields in compact objects”
2015–2017	Organizer of the Journal Club at the Tuorla Observatory
2016	LOC member in the “Astronomers Days 2016”, Tampere, Finland, May 2016
2015–2019	Vice-president of the Finnish Astronomical Society
2015	LOC member of the Workshop on Relativistic Astrophysics, Turku, Finland, August 2015
2015	Panel member on stellar evolution, ESO Observing Programmes Committee (Periods 96-97)
2014–2017	Substitute of Finnish representative, EU COST Action MP1304, “Exploring fundamental physics with compact stars”
2014	OPTICON time allocation committee - external reviewer
2013	Co-organizer of Symposium on the physics of neutron stars, EWASS 2013, Turku, Finland
2011–2012	Panel member on compact objects, INTEGRAL observatory time allocation committee
2008–now	Referee for a number of articles in MNRAS, Science, Nature Astronomy, Astronomy & Astrophysics, Astrophysical Journal, New Astronomy, Astronomy Letters, Astrophysics and Space Science, Advances in Space Research, Discover Space, SIAM Undergraduate Research Online

## **Mentoring / Teaching related service**

### **Teaching**

*Courses prepared from scratch and given at University of Turku:* (i) Nuclear and particle physics (FFYS7091); (ii) Observational X-ray and gamma-ray astrophysics (TÄHT7057, TÄHT7058), (iii) Statistical methods (TÄHT7023)

*Courses (or parts) given at Universities of Oulu and Turku:* Stellar structure and evolution, High energy astrophysics, Introduction to astronomy, Observational astrophysics and data analysis, Astronomical data analysis with computers.

*Summer/winter schools:* (i) Summer school on Instruments and detection techniques in high-energy astrophysics (Course on imaging in X-ray astronomy; August 2012, Savonlinna, Finland); (ii) Summer school on “Relativistic astrophysics” (lectures on observations, magnetized NSs, practical works; August 2018, Turku, Finland); (iii) Summer school on “Astronomy from space” (April 2023, Petnica, Serbia).

### **Supervised doctoral, master’s and bachelor’s dissertations**

*PhD dissertations:*

2025–present	Hua Xiao, University of Turku (ST as the <b>main supervisor</b> )
2024–present	Alexander Salganik, University of Turku (ST as the <b>main supervisor</b> )
2022–present	Sofia Forsblom, University of Turku (ST as the <b>main supervisor</b> )
2021–present	Anna Bobrikova, University of Turku (ST as a co-supervisor)
2019–present	Vadim Kravtsov, University of Turku (ST as a co-supervisor)
2017– <b>11.2022</b>	Armin Nabizadeh, University of Turku (ST as the <b>main supervisor</b> ; Väisälä prize 2024 for the best Finnish Astronomy thesis)
2017– <b>10.2022</b>	Juhani Mönkkönen, University of Turku (ST as the <b>main supervisor</b> )

2016–**10.2021** Ilia Kosenkov, University of Turku (ST as a co-supervisor)  
 2017–**2020** Tuomo Salmi, University of Turku (ST as a co-supervisor)  
 2015–**09.2019** Anna Chashkina, University of Turku (ST as a co-supervisor)  
**10.2015** Alexander Mushtukov, University of Turku (ST as a co-supervisor; best thesis prize of the UTU grad. school in physics and chemistry PCS)

*MSc dissertations:*

**06.2024** Alexander Salganik, St Petersburg University (ST as the **main supervisor**)  
**06.2024** Andis Polaks, Uppsala University (ST as a co-supervisor)  
**06.2022** Sofia Forsblom, University of Turku (ST as the **main supervisor**)  
**04.2022** Julien Abou, University of Turku (ST as the **main supervisor**)  
**05.2017** Juhani Mönkkönen, University of Turku (ST as the **main supervisor**)  
**12.2014** Teppo Heikkilä, University of Turku (ST as a co-supervisor)

*BSc dissertations:*

10.2025– Salla Kiviranta, University of Turku (ST as the **main supervisor**)  
**04.2025** Rasmus Hyvärinen, University of Turku (ST as the **main supervisor**)  
**03.2024** Vilho Virtanen, University of Turku (ST as the **main supervisor**)  
**04.2023** Silja Kanto, University of Turku (ST as the **main supervisor**)  
**05.2020** Linda Kallio-Kujala, University of Turku (ST as the **main supervisor**)  
**05.2014** Miika Pursiainen, University of Oulu (ST as the **main supervisor**)

## External research funding

Finnish National Agency for Education	17100 Eur (grant to hire a PhD student; 2024)
Humboldt Foundation	45000 Eur (award; 2023)
Academy of Finland	11000 Eur (visiting grant; 2022-2023)
AHEAD (Integrated Activities in the High Energy Astrophysics Domain)	2000 Eur (visiting grant; 2022)
Academy of Finland	13000 Eur (visiting grant; 2020-2021)
European Cooperation in Science and Technology	1850 Eur (visiting grant; 2019)
Academy of Finland	9000 Eur (visiting grant; 2019-2020)
Väisälä Foundation	7300 Eur (visiting grants; 2019-2023)
European Cooperation in Science and Technology	900 Eur (visiting grant; 2018)
Academy of Finland	9000 Eur (visiting grant; 2017-2018)
European Cooperation in Science and Technology	1000 Eur (visiting grant; 2017)
AHEAD (Integrated Activities in the High Energy Astrophysics Domain)	2000 Eur (visiting grant; 2017)
European Cooperation in Science and Technology	1700 Eur (visiting grant; 2016)
European Cooperation in Science and Technology	1300 Eur (visiting grant; 2015)
Turku Collegium for Science and Medicine	20kEur (research grant; 2014-2017)

## Accepted observational proposals during last 7 years

- PI of SOXS (4 hrs) observations of transient XRP (2025-2027)
- PI of IXPE (400 ks) observations of transient XRP (2025)
- Co-I of HXMT (300 ks) proposal for transient X-ray pulsars (2024)
- PI of NICER (72 ks) observations of V 0332+53 or 4U 0115+63 (2023) + 72 ks in 2024
- Co-I of INTEGRAL (750 ks) monitoring of PSR B1259-63 (2024)
- Co-I of IXPE (360 ks) observations of 4U 1538-52 (2024)
- Co-I of IXPE (250 ks) observations of 4U 1907+09 (2024)
- Co-I of IXPE (300 ks) observations of Cyg X-1 (2024)
- PI of IXPE (150 ks) observations of EXO 2030+375 (2022)
- PI of IXPE (85+100 ks) observations of GRO J1008-57 (2022)
- PI of IXPE (70+170 ks) observations of Cen X-3 (2022)
- PI of ~ 40 SWIFT/XRT TOO proposals (2013-2022)
- PI of the NOT proposal "Unveiling the nature of Galactic HMXBs. Towards the complete sample".

Total granted time is 8.5 h (2021)

- PI of XMM-Newton (375 ks) proposal “Quiescent state of accretion-powered magnetized neutron stars” (2021)
- Co-I of XMM-Newton (44 ks) proposal “Unveiling the nature of optically-selected X-ray transients revealed by ART-XC” (2021)
- PI of NuSTAR (40 ks) and XMM-Newton (25 ks) TOO observations of XRP SXP1062 (2019)
- PI of the joint INTEGRAL+XMM-Newton proposal for studies of the accreting millisecond pulsars. Total granted time is 390 ks (2018)
- PI of the NuSTAR proposals for studies of A 0535+262. Total granted time is 60 ks (2018)
- PI of the NuSTAR proposals for studies of IGR J19294+1816. Total granted time is 40 ks (2018)
- Co-I of the XMM-Newton proposal for studies of RX J0812.4+3114. Total granted time is 63 ks (2018)
- Co-I of the XMM-Newton proposal for studies of GRO J1744-28. Total granted time is 52 ks (2018)
- PI of the NOT proposal “Monitoring of PSR J2032+4127 during periastron passage”. Total granted time is 19 h (2017)
- PI of the joint INTEGRAL+NusTAR+XMM-Newton proposal for studies of the accreting millisecond pulsars. Total granted time is 300 ks (2017)
- PI of the NuSTAR proposals for studies of GS 1843-02. Total granted time is 35 ks (2017)
- PI of the NOT proposal “Multiwavelength campaign on Gamma-Ray Loud Binaries”. Total granted time is 3 nights (2017)

### **Talks (invited or contributed) during last 8 years**

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|---------|---|
| 04.2025 | Seminar “Polarized emission from accreting neutron stars as seen by the IXPE observatory” at the Dublin City University (Dublin, Ireland)                 |
| 02.2025 | Seminar “Polarized emission from accreting neutron stars as seen by the IXPE observatory” at Institute of High Energy Physics (IHEP, Beijing, China)      |
| 06.2024 | Seminar “Polarized emission from accreting neutron stars as seen by the IXPE observatory” at the Max Planck Institute for Radio Astronomy (Bonn, Germany) |
| 06.2024 | Conference “Continuous Gravitational Waves and Neutron Stars”, Hannover, Germany ( <b>invited</b> )   |
| 02.2024 | Seminar “Polarized emission from X-ray pulsars as seen by the IXPE observatory” at the Hebrew University of Jerusalem                                     |
| 01.2024 | Conference “Unveiling the Dynamic and Energetic Universe with Insight-HXMT for Six Years and Beyond”, Zhuhai, China ( <b>invited</b> )                    |
| 07.2023 | Seminar “Polarized emission from X-ray pulsars as seen by the IXPE observatory” at the University of Tübingen   |
| 06.2023 | Several seminars at the University of Tel-Aviv, University of Beer Sheva, Hebrew University   |
| 11.2022 | Seminar “Polarized emission from X-ray pulsars as seen by the IXPE observatory” at the University of Southampton ( <b>invited</b> )                       |
| 10.2022 | “X-ray pulsars at low mass accretion rates”, Darmstadt, conference “INTEGRAL 20 years”  |
| 10.2021 | Tuorla-Tartu annual meeting 2021, Turku ( <b>invited</b> )  |
| 06.2020 | Seminar at Tel Aviv University ( <b>invited</b> )   |
| 06.2019 | EWASS, “From X-ray pulsars to pulsating ULXs: Accretion onto highly magnetized neutron stars”, Lyon ( <b>invited</b> )                                    |
| 04.2019 | “X-ray topics in Astronomy: from history to the future”, Tübingen ( <b>invited</b> )  |
| 02.2019 | Seminar at the Leiden University, The Netherlands   |
| 09.2018 | “Stars, planets and their magnetic fields”, St. Petersburg ( <b>invited</b> )   |
| 08.2018 | “Time for accretion”, Sigtuna ( <b>invited</b> )  |
| 05.2018 | Astronomers’ Days, Kuusamo  |
| 03.2018 | “Physical Days 2018”, Turku   |

12.2017	“High Energy Astrophysics - 2017”, Moscow ( <b>invited</b> )
09.2017	“Be/X-ray binary workshop (BEXRB2017)”, Heraklion
08.2017	“Joint Workshop on Compact Objects (JWCO)”, Istanbul ( <b>invited</b> )
07.2017	“Physics of Neutron Stars – 2017”, St. Petersburg
03.2017	Annual NewCompStar Conference, Warsaw
02.2017	Seminar at the Stockholm University, Stockholm
12.2016	“High Energy Astrophysics - 2016”, Moscow
10.2016	“Gamma-Ray Astrophysics in Multi-Wavelength Perspective”, Amsterdam
07.2016	”Astrophysikalisches Kolloquium” at the Institute of Astronomy and Astrophysics, Tübingen
05.2016	Astronomers’ Days, Tampere
04.2016	Annual NewCompStar Conference, Istanbul
03.2016	Nordita workshop on accretion onto magnetized neutron stars, Stockholm

### **Public outreach**

06.2023	INTEGRAL picture of the month on RX J0440.9+4431. ESA portal
10.2022	Getting grips on a strongly magnetized neutron star geometry. Mass media
12.2019	Discovery of a Pulse-phase-transient Cyclotron Line in the X-Ray pulsar GRO J2058+42. Mass media
11.2016	X-ray pulsars fade as propeller effect sets in. Mass media
11.2016	Public lecture for schoolkids at the Tuorla Planetarium
01.2016	Kaksoisjärjestelmästä paljastui magnetar. Tähdet ja avaruus
10.2012	Supernova synnytti radioaktiivista titaania. Tähdet ja avaruus
10.2012	Radioactive decay of titanium powers supernova remnant. ESA press release
08.2012	The INTEGRAL view of the Galaxy. Integral Picture of the Month; HEASARC Picture of the week; A&A cover page; press-releases at the Universities of Oulu and Turku
04.2012	Discovery of a cyclotron absorption line in the persistent Be/X-ray pulsar RX J0440.9+4431. Integral Picture of the Month
05.2011	Annihilating Positrons in the Galactic Centre Region. Integral Picture of the Month
08.2010	INTEGRAL completes the deepest all-sky survey in hard X-rays. ESA Science & Technology
07.2010	The Hard X-ray Milky Way. Integral Picture of the Month

### **Publications**

*ORCID: 0000-0002-9679-0793*

330 scientific publications (240 refereed, 25 of which as the first author) including several in Nature, Science and Nature Astronomy, with around 9100 citations, and resulting *H-index of 50* on January 1, 2026, according to the NASA ADS.