

# VLADISLAV LOKTEV

## PERSONAL DATA

NAME: Vladislav Loktev  
CITIZENSHIP: Finnish , Russian  
CURRENT RESIDENCE: Ylioppilaskylä 34 A 11, 20540, Turku, Finland  
PHONE: +358 46 5292117  
EMAIL: [vllokt@utu.fi](mailto:vllokt@utu.fi)  
WEBPAGE: [belliavesha.github.io](https://belliavesha.github.io)

## CURRENT POSITION

since 09/2018 | Doctoral student, University of Turku, Department of Physics and Astronomy Prof. Juri Poutanen

## EDUCATION

06/2018 | MSc IN ASTROPHYSICS,  
Saint Petersburg State University  
Grade: 5.0/5.0, summa cum laude  
09/2013–06/2018 | Faculty of Mathematics and Mechanics, Department of Astronomy

## SKILLS AND EXPERIENCE

LANGUAGES: English (fluent), Russian (native), Finnish (conversant)  
PROGRAMMING AND SOFTWARE: Python (incl. pytorch), FunC, Julia, Fortran, C/C++,  
LaTeX, bash, MPI, OpenMP, git  
PEER REVIEW EXPERIENCE: MNRAS

## PUBLICATIONS

"ARTPOL: Analytical ray-tracing method for spectro-polarimetric properties of accretion disks around Kerr black holes", **Astronomy & Astrophysics**, DOI: 10.48550/arXiv.2308.15159  
Loktev V., Veledina A., Poutanen J., Nättilä J., Suleimanov, V. F., 2023

"Polarized radiation from an accretion shock in accreting millisecond pulsars using exact Compton scattering formalism"  
DOI: 10.48550/arXiv.2309.02329  
Bobrikova, A., Loktev V., Salmi, T., Poutanen J., 2023

"Complex variations of X-ray polarization in the X-ray pulsar LS V +44 17/RX J0440.9+4431", DOI: 10.48550/arXiv.2306.02116  
Doroshenko, V., ... Loktev V. (among 112 authors), ..., 2023

"The X-ray polarisation of the Seyfert 1 galaxy IC 4329A", DOI: 10.48550/arXiv.2305.13028  
Ingram, A.,... Loktev V. (among 108 authors) ,..., 2023

"The high polarisation of the X-rays from the Black Hole X-ray Binary 4U 1630-47 challenges standard thin accretion disc scenario" DOI: 10.48550/arXiv.2304.12752  
Ratheesh, A.,... Loktev V. (among 115 authors) ,..., 2023

"Uncovering the geometry of the hot X-ray corona in the Seyfert galaxy NGC4151 with IXPE",  
DOI: 10.48550/arXiv.2303.12541  
Gianolli, V. E., ... Loktev V. (among 109 authors) ,..., 2023

"Astronomical puzzle Cyg X-3 is a hidden Galactic ultraluminous X-ray source", DOI: 10.48550/arXiv.2303.01174  
Veledina A., ... Loktev V. (among 130 authors) ,..., 2023

"Timing Analysis of the 2022 Outburst of the Accreting Millisecond X-Ray Pulsar SAX J1808.4-3658: Hints of an Orbital Shrinking", **The Astrophysical Journal Letters**, DOI: 10.3847/2041-8213/acad81  
Illiano, G., ... Loktev V. (among 22 authors) ,..., 2023

"Polarized x-rays constrain the disk-jet geometry in the black hole x-ray binary Cygnus X-1", **Science**, DOI: 10.1126/science.add5399  
Krawczynski, H., ... Loktev V. (among 114 authors) ,..., 2022

*"Analytical techniques for polarimetric imaging of accretion flows in Schwarzschild metric", Astronomy & Astrophysics, DOI: 10.1051/0004-6361/202142360*

**Loktev V., Veledina A., Poutanen J., 2022**

*"Oblate Schwarzschild approximation for polarized radiation from rapidly rotating neutron stars", Astronomy & Astrophysics, DOI: 10.1051/0004-6361/202039134*

**Loktev V., Salmi T., Nättälä J., Poutanen J., 2020**

*"Neutron star parameter constraints for accretion-powered millisecond pulsars from the simulated IXPE data", Astronomy & Astrophysics, DOI: 10.1051/0004-6361/202039470*

**Salmi T., Loktev V., Korsman K., Baldini L., Tsygankov S. S., Poutanen J., 2021**

**Master's thesis, 2018,**

*Polarization properties of radiation from millisecond X-ray pulsars.*

## GRANTS AND AWARDS

2022	26000 EUR	<b>grant awarded by Jenny and Antti Wihuri Foundation</b> for PhD project work
2020	25000 EUR	<b>granted scholarship</b> for PhD studies from the Vilho, Yrjö and Kalle Väisälä Fund
2020	24000 EUR	<b>grant awarded by Jenny and Antti Wihuri Foundation</b> for PhD project work
2022	41 TON	for participating in <i>TON Smart Challenge # 2</i> to get <b>placed 147th</b> of 181
2022	150 TON	for participating in <i>TON Smart Challenge # 4</i> to get <b>placed 44th</b> of 220
2013	<b>Winner</b>	All-Russian Astronomical Olympiad for high school students
2013	<b>Winner</b>	Saint Petersburg Astronomy Olympiad, international personal competition

## MISC. RESEARCH EXPERIENCE

### South Bohemian X-ray polarisation workshop

*"Efficient Polarimetric Analysis of Accretion Disks around Kerr Black Holes",* contributed talk,  
29 - 31 August, 2023, Cesky Krumlov, Czechia

### Pre-Doctoral Program participation in the Center for Computational Astrophysics (CCA) at Flatiron Institute

*"Microphysics of Macroscopic Accretion Flows",* Computational astrophysics research project  
30 January - 30 June, 2023, Simons Foundation, New York, USA

### 44th COSPAR Scientific Assembly

*"Fast track: polarimetric images of black hole accretion disks",* oral presentation

*"Obtaining neutron star parameters from X-ray polarimetric data on accreting millisecond pulsars",* oral presentation substitute speaker

16-24 July, 2022, Athens, Greece

### 1st Mondragone Frontiers of Astronomy Series *"Fast polarimetric imaging of Kerr black holes using a Schwarzschild approximation",* oral presentation

Monte Porzio Catone (Rome), Italy

18 - 20 May 2022

### 9th Microquasar Workshop: Celebrating over 50 years of discovery *"Signatures of strong gravity and fast motions in the polarization: exact analytical treatment"*

poster

20 - 24 September 2021, Cagliari, Italy

### Third Science Collaboration Meeting *"Rotation of polarization plane in Schwarzschild metric: complete analytical approach"*

remote oral presentation

1-3 June 2021

### CSC Summer School in High-Performance Computing participant,

Espoo, Finland

25 June - 4 July 2019

**internship in the University of Tübingen**

Tübingen, Germany

November 2018 and October 2019

**14th Summer School on Modern Astrophysics** participant

MIPT, Moscow, Russia 2-13 July 2018

**HEA conference**, poster

IKI RAN, Moscow, Russia

18 - 21 December 2018

**internship in Tuorla Observatory,**

University of Turku, Finland 2017 and 2018 for total 4 months.