

Dr. Andrei Igoshev

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Research positions

2019 – present	University of Leeds (UK) Research fellow in Applied Mathematics (supported by STFC grant ST/S000275/1)
2017 – 2019	Technion – Israel Institute of Technology (Israel) Postdoctoral fellow in Department of Physics
2011 - 2013	Saint Petersburg State University (Russia) Research engineer at School of Mathematics and Mechanics

Education

2013 - 2017	Radboud University Nijmegen (the Netherlands) PhD in Sciences (Astronomy) defended on 21/12/2017 Advised by Prof. Frank Verbunt Thesis: “Neutron stars as fragmentary records of supernova explosions”
2007 - 2012	Saint Petersburg State University, School of Mathematics and Mechanics (Russia) Specialist Diploma with Distinction in Astronomy (Combined BA and MA; UK equiv. of first class degree classification)

Funding

2021	STFC Astronomy Grant , 2021, PI R. Hollerbach, named co-investigator A. Igoshev, 200,000 £
2019	Research funding , PI S. Hernandez, co-investigator A. Igoshev, STSI, 109,220\$
2013	Travel grant , Saint Petersburg State University, 980 Euro
2012	Travel grant , Saint Petersburg State University, 730 Euro

Awards and prizes

2018	Prize for early PhD defence (Rappe Promotie Premie) , Radboud University Nijmegen
2013 - 2017	Nova PhD funding , Radboud University Nijmegen
2012	Best Diploma Thesis , Saint Petersburg State University
2008 - 2009	Leonhard Euler Scholarship , Saint Petersburg University

Invited seminars and colloquia

Jan. 2022	“Magnetic fields shape observational manifestations of neutron stars”, University of Columbia, USA
Nov. 2021	“Natal kicks of neutron stars”, Moscow State University, Russia
Mar. 2021	“Magnetic fields shape observational manifestations of neutron stars”, SPINS UK seminar series, University of Oxford, UK
Nov. 2020	“Distances, velocities and ages of neutron stars”, Monash University, Australia
Oct. 2020	“Magnetic fields shape observational manifestations of neutron stars”, Mullard Space Science Laboratory, University College London, UK

Oct. 2020	“Magnetic fields shape observational manifestations of neutron stars”, DAMTP, University of Cambridge, UK
Dec. 2019	“Magneto-thermal evolution of neutron stars”, Radboud University Nijmegen, the Netherlands
Feb. 2018	“Distances and velocities of neutron stars”, Technion – Israel Institute of Technology, Israel

Top 10 selected talks at conferences

Aug. 2021	Invited talk: common envelope physics and outcomes conference, Haifa, Israel
Dec. 2021	Talk: International Astronomical Union symposium 363, virtual meeting
Jun. 2021	Talk: EAS conference, University of Leiden, virtual meeting
May 2021	Talk: UK MHD, University of Newcastle, UK, virtual meeting
Jul. 2020	Talk: EAS conference, University of Leiden, virtual meeting
Apr. 2019	Talk: Pharos conference, Barcelona, Spain
Jul. 2017	Talk: conference Physics of neutron stars, conference, Saint Petersburg, Russia
Nov. 2016	Talk: workshop “Formation and evolution of neutron stars”, Bonn, Germany
May 2013	Talk: XMM-Newton Science Workshop, ESA, Madrid, Spain
Apr. 2012	Talk: conference “Electromagnetic radiation from Pulsars and magnetars”, Zielona Gora, Poland

Community service

Peer reviewer for NICER Guest Observer Program
Referee for MNRAS, ApJ, Universe, New Astronomy
Fellow of the Royal Astronomical Society and European Astronomical Society
External Reviewer for Research Grants Council of Hong Kong

Conference, workshop and seminars organisation

2020 - 2022	Organiser for bi-weekly <i>Binary Stellar Evolution Seminar Series</i>
2020 - 2021	Co-chair, member of SOC and LOC for symposium <i>S5 Neutron stars and fast radio bursts: a magnetised connection</i> .
2019 - 2020	Member of organisational committee for <i>AstroHackWeek</i> , University of Cambridge
2016 - 2017	Member of LOC for <i>Dutch Astronomy Conference</i>

Institutional responsibilities

2020 - current	Member of organisational committee for <i>Fluid Talks</i> at University of Leeds
2016 - 2017	Organiser of Journal club, Radboud University Nijmegen

Supervision, teaching of students and course development

2021 - 2022	Tutor for “Probability and Statistics II”, University of Leeds
2021	Tutor for “Computational Mathematics”, University of Leeds
2020 - 2021	Supervision of MSc thesis (two students), University of Leeds
2019	Co-supervision of MSc thesis, Saint Petersburg State University/Technion

2019	Laboratory instructor for undergraduate course “Physics Lab I”, Technion
2018	Guest lecturer for undergraduate course “Introduction to Astrophysics”, Technion
2014 - 2016	Tutor for postgraduate course “Cosmic magnetism”, Radboud University Nijmegen
2014 - 2016	Tutor for postgraduate course “Binary stars”, Radboud University Nijmegen
2014 - 2016	Tutor for undergraduate course “Introduction to General relativity”, Radboud University Nijmegen
2014 - 2016	Tutor for undergraduate course “Programming in Python”, Radboud University Nijmegen

Press release

Oct. 2020	“Modelling temperature variations on distant stars”, University of Leeds
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Outreach

2021	Invited talk with Saint Petersburg undergraduate students about working in astronomy
2020	Speaker at Astronomy Olympiad in Ecuador
2015 - 2017	Regular outreach activities at Radboud University Nijmegen focused at the general public

Observational proposals

2019	HST ID 15799, co-investigator
2018	XMM Obs ID 0804240201, PI

Skills

Languages	English (fluent), Russian (Native), German (B2), Dutch (B1)
MHD codes	Parody (user), Dedalus (user)
Programming	C++, Fortran, Python, Shell, MPI
Data analysis	ADQL, SQL, R

Publications

I have published 27 articles which earned more than 485 citations, h-index 13 according to NASA ADS. Full list is available: <https://ui.adsabs.harvard.edu/user/libraries/h3TE1Ib-RvCInKx3E-Fe9w>

First author publications

27	A.P. Igoshev , M. Chruslinska, A. Dorozsmai & S. Toonen “Combined analysis of neutron star natal kicks using proper motions and parallax measurements for radio pulsars and Be X-ray binaries”, MNRAS, 2021, 508, 3, 3345
26	A.P. Igoshev , S.B. Popov & R. Hollerbach “Evolution of neutron star magnetic fields”, Universe, 2021, 7, 9, 351
25	A.P. Igoshev , K. Gourgouliatos, R. Hollerbach & T. Wood “3D magneto-thermal simulations of tangled crustal magnetic field in central compact objects”, ApJ 2021, 909, 2
24	A.P. Igoshev , R. Hollerbach, T. Wood & K.N. Gourgouliatos “Strong toroidal magnetic fields required by quiescent X-ray emission of magnetars”, Nature Astronomy 2021, 5, 145
23	A.P. Igoshev & S.B. Popov “Braking indices of young radio pulsars: theoretical perspective”, MNRAS 2020, 499, 2, 2826
22	A.P. Igoshev “The observed velocity distribution of young pulsars II. Analysis of complete PSR π ”, MNRAS 2020, 494, 3, 3663

21 **A.P. Igoshev**, H.B. Perets & E. Michaely “Inferred timescales for common envelope ejection using wide astrometric companions”, MNRAS 2020, 494, 1, 1448

20 **A.P. Igoshev** & H. Perets “Wide binary companions to massive stars and their use in constraining natal kicks” MNRAS 2019, 486, 3, 4098-4113

19 **A.P. Igoshev** “Ages of radio pulsar: long-term magnetic field evolution” MNRAS 2019, 482, 3, 3415-3425

18 **A.P. Igoshev**, S. Tsygankov, M. Rigoselli, S. Mereghetti, S. Popov, J. Elfritz, & A. Mushtukov “Discovery of X-rays from the old and faint pulsar J1154–6250” ApJ 2018, 865, 2, 116

17 **A.P. Igoshev**, & S.B. Popov “How to make a mature accreting magnetar” MNRAS 2018, 473, 3, 3204-3210

16 **A.P. Igoshev**, J.G. Elfritz, S.B. Popov “Post fall-back evolution of multipolar magnetic fields and radio pulsar activation” MNRAS 2016, 462, 4, 3689

15 **A.P. Igoshev**, F. Verbunt, E. Cator “Distance and luminosity probability distributions derived from parallax and flux with their measurement errors. With application to the millisecond pulsar PSR J0218+4232” A&A 2016, 591, 10

14 **A.P. Igoshev** & S.B. Popov “Magnetic field decay in normal radio pulsars” AN 2015, 336, 8-9, 831

13 **A.P. Igoshev** & S.B. Popov “Modified pulsar current analysis: probing magnetic field evolution” MNRAS 2014, 444, 1066

12 **A.P. Igoshev** & S.B. Popov “Gaussian mixture model and population synthesis of radio pulsars” MNRAS 2013, 434, 2229

11 **A.P. Igoshev** & S.B. Popov “Neutron star’s initial spin period distribution” MNRAS 2013, 432, 967

10 **A.P. Igoshev**, S.B. Popov & R. Turolla “Unifying neutron stars: getting to GUNS” AN 2014, 335, 3, 262

9 **A.P. Igoshev** & A.F. Kholtygin “Statistics of magnetic fields and fluxes of massive OB stars and the origin of neutron star magnetic fields” AN 2011, 332, 1012

Remaining journal articles

8 K.N. Gourgouliatos, D. De Grandis & **A.P. Igoshev** “Magnetic Field Evolution in Neutron Star Crusts: Beyond the Hall Effect”, Symmetry 2022, 14, 1, 130

7 E.I. Makarenko, **A.P. Igoshev** & A.F. Kholtygin “Testing the fossil field hypothesis: could strongly magnetised OB stars produce all known magnetars?”, MNRAS 2021, 504, 4, 5813

6 K. Gourgouliatos, R. Hollerbach & **A.P. Igoshev** “Powering Central Compact Objects with a Tangled Crustal Magnetic Field”, MNRAS 2020, 495, 2, 1692

5 M. Rozner, E. Grishin, Y.B. Ginat, **A.P. Igoshev** & V. Desjacques “Axion resonances in binary pulsar systems”, JCAP 2020, 3, 061

4 S. Toonen, H.B. Perets, **A.P. Igoshev**, E. Michaely & Y. Zenati “The demographics of neutron star - white dwarf mergers: rates, delay-time distributions and progenitors” A&A 2018, 619, 13

3 F. Verbunt, **A.P. Igoshev**, E. Cator “The observed velocity distribution of young pulsars” A&A 2017, 608, 15

2 S. Repetto, **A.P. Igoshev**, G. Nelemans “The Galactic distribution of X-ray binaries and its implications for compact object formation and natal kicks” MNRAS 2017, 467, 1, 298-310

1 D.J. Jones, **A.P. Igoshev**, M. Haverkorn “A new method to probe the thermal electron content of the Galaxy through spectral analysis of background sources” MNRAS 2016, 460, 3, 3298-3304

Non-refereed

A.P. Igoshev & S.B. Popov “Is PSR J0250+5854 at the Hall attractor stage?”, 2018, RNAAS, 2, 3, 171

S.B. Popov, **A.P. Igoshev**, R. Taverna & R. Turolla “Looking for Hall attractor in astrophysical sources”, 2017, JPhCS, 932, 1

A.P. Igoshev & A.F. Kholtygin “Population synthesis of young neutron stars” Proceedings of the International Astronomical Union, 2013, 291, 411

A.F. Kholtygin, S.N. Fabrika, N.A. Drake & **A.P. Igoshev** “Magnetic fluxes of massive stars: statistics and evolution” Active OB stars: structure, evolution, mass loss, and critical limits, Proceedings of the International Astronomical Union, IAU Symposium, 2011, 272, 198