

SRON Netherlands
Institute for Space
Research

Niels Bohrweg 4
2333CA Leiden
+1 65 765 2362

d.huppenkothen@sron.nl

huppenkothen.org

dhuppenkothen

Daniela Huppenkothen

Curriculum Vitae

Experience

Staff Scientist SRON Netherlands Institute for Space Research, Leiden	Nov 2020 – present
Associate Director and DIRAC Fellow DIRAC Institute, University of Washington, USA	Oct 2017– Oct 2020
James Arthur Postdoctoral Fellow Center for Cosmology and Particle Physics & Center for Data Science, New York University, USA	Oct 2016– Oct 2017
Moore-Sloan Data Science Postdoctoral Fellow Center for Data Science, New York University, USA	Oct 2014 – Oct 2017

Affiliate Positions

Visiting Scientist Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste, Italy	Sep 2023 – present
Guest Researcher Anton Pannekoek Institute for Astronomy, University of Amsterdam	Nov 2021 – present
Affiliate Faculty DXArts Department, University of Washington, USA	Sep 2021 – present
Senior Data Science Fellow eScience Institute, University of Washington, USA	Sep 2020 – present

Education

PhD Astronomy & Astrophysics Anton Pannekoek Institute for Astronomy, University of Amsterdam	Oct 2010– Oct 2014
MSc Astronomy & Astrophysics Anton Pannekoek Institute for Astronomy, University of Amsterdam	Sep 2008– Sep 2010
BSc Geosciences & Astrophysics Jacobs University Bremen, Germany	Sep 2005– Jun 2008

Publications

59 refereed; 9 non-refereed; 2 in press; 2 under review. List attached.

Presentations

28 invited, 39 seminars and 17 contributed. List attached.

External Grants

Co-PI: Sloan Foundation Hack the Hackathon, Vol 2 €50,000	2022
Co-PI: Sloan Foundation Hack the Hackathon: Shaping the Future of Hackathon Research and Practice €50,000	2021
Co-I: Lorentz Centre Leiden Hack the Hackathon: Shaping the Future of Hackathon Research and Practice €25,000	2021

	<p>Co-PI: Sloan Foundation Grant 2020 Moving Participant-Driven Data-Enabled Hackweeks Online \$ 65,000</p> <p>Co-PI: Call for 7th and 8th Cambridge Astronomy Kavli Workshops 2018 Astro Hack Week: Data Science for Next-Generation Astronomy £15,000</p> <p>PI: NASA Astrophysics Data Analysis Program 2017-present Accurate Black Hole Spin Measurements with ABC \$385,000</p> <p>Co-PI: Astro Hack Week Funding Proposal to Google Inc. 2017-2018 Astro Hack Week: Enabling Young Astronomers to Develop Data Science Skills \$20,000</p> <p>PI; Fermi Guest Investigator Program 2016 Unravelling Solar Flare Variability with Fermi/GBM \$55,000</p> <p>PI; LSSTC Enabling Science Program 2015 Astro Hack Week: Enabling Young Astronomers to Develop Data Science Skills \$5,000</p> <p>PI: Astro Hack Week Funding Proposal to GitHub Inc. 2015 Astro Hack Week: Enabling Young Astronomers to Develop Data Science Skills \$5,000</p>
Honours and Awards	<p>Elected Fellow, the International Astrostatistics Association 2020</p> <p>Third prize, SciPy John Hunter Excellence in Plotting Contest 2018</p> <p>HSP Huygens scholarship covering tuition and a living stipend 2008-2010</p> <p>Scholarship awarded by “Studienstiftung des Deutschen Volkes” (German National Academic Foundation) 2005-2010</p> <p>Merit-based scholarship awarded by Jacobs University Bremen 2005-2008 €7500 per year for tuition costs</p>
Software	<p>Stingray Lead developer of open-source Python time series methods library for astronomy: http://github.com/StingraySoftware/stingray</p> <p>Entrofy Lead developer of open-source Python package for cohort selection: http://github.com/dhuppenkothen/entrofy</p> <p>Magnetron Bayesian Hierarchical Inference for X-ray light curves: http://ascl.net/1502.014</p> <p>BayesPSD Bayesian time series methods for detection of periodic signals: https://github.com/dhuppenkothen/BayesPSD</p>
Professional Development	<p>Leadership Academy, German Scholars Organization 2018 Two 5-day intensive workshops on leadership and management practices</p>

Benjamin Ricketts, PhD student, SRON/API	2022 - present
Project Title: "Simulation-Based Inference and Bayesian hierarchical modeling for black hole population inference"	
Vysakh Anilkumar Puthusseril, MSc student, API	2023 - present
Project Title: "Searching for periodic signals from supermassive black holes with Gaussian processes"	
Dirk Kuiper, MSc student, API	2023 - present
Project Title: "Representation learning for Fast Radio Burst time-frequency data"	
David Krejčík, MSc student, API	2023 - present
Project Title: "Precise FRB Localization with Machine Learning and Simulation-Based Inference"	
Konstantinos Tsalapatas, MSc student, Leiden	2023 - present
Project Title: "X-raying the stellar wind in Cygnus X-1 using machine learning"	
Gaurav Joshi, Google Summer of Code	2023
Project Title: "Accurate Searches for Quasi-Periodic Oscillations in Astronomical Transients with Gaussian Processes"	
Tess Tangney, MSc student, API	2022 - 2023
Project Title: "Studying Variability in Fast Radio Bursts with Variational Autoencoders"	
Mariska Hoogkamer, MSc student, API	2022 - 2023
Project Title: "Bayesian Hierarchical Modeling of Fast Radio Burst Variability"	
Jip Matthijsse, MSc student, API	2022 - 2023
Project Title: "A Neural Network Emulator for SPEX"	
Caspar Bruenech, MSc student, UvA Computational Sciences	2021 - 2022
Project Title: "Optimizing Semi-Analytical Jet Models: Locating New Solutions using Nonlinear Minimization"	
Amogh Desai, Google Summer of Code (Co-Mentor)	2020
Project Title: "A lightning-fast stingray: Parallelizing stingray operations to analyze larger-than-memory datasets"	
Christina Lindberg, post-bacchalaureate student (University of Washington)	2018-2021
Project title: "Precise Measurements of Asteroid Periods using Gaussian Processes"	
Leah Fulmer, graduate student (University of Washington)	2018-2020
Project title: "Unsupervised Machine Learning for Irregularly Sampled Astronomical Time Series from the ZTF Survey"	
Margaret Lazzarini, graduate student (University of Washington)	2018-2019
Project title: "Accurate Black Hole Spin Measurements through ABC"	
Swapnil Sharma, Google Summer of Code (Co-Mentor)	2018
Project Title: "Phase-resolved oscillations"	
Chris Ick, Fermi Guest Investigator Programme student (New York University)	2017-2019
Project title: "Unravelling Solar Flare Variability with Fermi/GBM"	
Himanshu Mishra, Google Summer of Code	2016
Project title: "A Library of Time Series methods"	

	Viviana Meerstra, BSc student, API	2012
	Project title: “Timing analysis of gamma-ray bursts using Bayesian statistics”	
	Oliver Gurney-Champion, MSc student, API	2011
	Project title: “Modeling of the ionizing effects of black holes on their environment”	
<i>Mentoring and Outreach</i>	various talks at outreach events	2018 – present
	including Astronomy on Tap and the Haus der Astronomy (Heidelberg, Germany)	
	NYAS Project <i>1000 Girls, 1000 Futures</i>	2016-2017
	mentored a female high school student interested in the natural sciences	
	Project <i>CyberMentor</i>	2011-2012
	mentored two female high school students interested in the natural sciences	
Teaching	Certified Instructor for Software Carpentry and Data Carpentry	2019-present
<i>Lectures</i>	SRON Data Science Tutorial Series	2021–present
	Designing and leading a series of half-day workshops on open-source software, statistics, machine learning and visualization	
	Lectures and tutorials at numerous international conferences and workshops	2014–present
	including the AAS Winter Meeting, Astro Hack Week and the LSST Data Science Fellowship Program	
	Deutsche Schülerakademie	2012
	Developed and implemented a ten-day course in astronomy for gifted high-school students	
Skills		
<i>Programming</i>	<ul style="list-style-type: none"> ● <i>Python</i> plus scientific stack (<i>Numpy</i>, <i>SciPy</i>, <i>AstroPy</i>, <i>pandas</i>, etc). ● Machine learning tools, including <i>scikit-learn</i>, <i>PyTorch</i>, <i>sbi</i> etc. ● Code management (<i>git</i>), issue tracking (<i>GitHub</i>), continuous integration (<i>GitHub Actions</i>). ● Code examples: http://github.com/dhuppenkothen 	
<i>Methods</i>	<ul style="list-style-type: none"> ● Bayesian inference, frequentist statistics, model comparison, hierarchical modeling ● Time series analysis methods: Fourier analysis and (quasi-)periodicity detection. ● Machine learning for time series applications, simulation-based inference, surrogate models 	
<i>Management</i>	<ul style="list-style-type: none"> ● Hiring processes, community management, team facilitation with <i>Liberating Structures</i> ● Code management and open-source project management (project <i>stingray</i>). ● Facilitation and community building for numerous hackathons, hack weeks and unconferences 	
<i>Languages</i>	<ul style="list-style-type: none"> ● German (native), English (fluent), Dutch (intermediate), French (intermediate) 	

Service to Profession

Elected Council member, International Astrostatistics Association	2023 - present
Member, Steering Committee of the AAS Working Group Astrostatistics & Astroinformatics	2020 - present
Scientific Organizing Committee, Hack the Hackathon (co-chair in 2020 and 2021) <i>https://hackthackathon.github.io</i>	2020-present
Scientific Organizing Committee, Astro Hack Week (chair in 2015, 2017, and 2018) <i>http://astrohackweek.org/2018/</i>	2014-present
Invited referee for Nature, ApJ, MNRAS, A&A	2013-present
Chair, SRON Working Group for Communication and Feedback	2021 - 2022
Active member, SRON Working group for Positive Workplace Environment	2021-2022
Member, Steering Committee of the AAS Working Group Time Domain Astronomy	2018-2022
Scientific Advisory Committee, ASTRON, The Netherlands	2018-2021
Co-Chair, Advancing Theoretical Astrophysics Summer School <i>Amsterdam, The Netherlands</i>	2018
Chair, DIRAC Postdoctoral Fellows Hiring Committee	2017-2020
Mini-Symposium Chair, SciPy <i>https://scipy2018.scipy.org/</i>	2018
Scientific Organizing Committee, Python in Astronomy <i>http://openastronomy.org/pyastro/2018/</i>	2017-2018
Program Committee, JupyterCon	2017
Organizer, NYU Center for Data Science Lunch Seminar Series	2016

Daniela Huppenkothen

Publications

Lead Author

Constructing Impactful Machine Learning Research for Astronomy: Best Practices for Researchers and Reviewers

Huppenkothen, D., Ntampaka, M., Ho, M. et al.; *Bulletin of the American Astronomical Society* (under review).

Quasi-Periodic Oscillations in the Kilonova-Associated Gamma-Ray Burst, GRB230307A

Huppenkothen, D., et al.; *Nature* (under review).

The Sonified Hertzsprung-Russell Diagram

Huppenkothen, D., Pampin, J., Davenport, J.R.A., Wenlock, J.; *International Conference on Auditory Display*; *arXiv:2401.00488* (2023).

Accurate X-ray Timing in the Presence of Systematic Biases With Simulation-Based Inference

Huppenkothen, D., Bachetti, M.; *Mon. Not. R. Astron. Soc.* **511**, 4 pp.5689-5708 (2022).

Entropy Your Cohort: A Data Science Approach to Candidate Selection

Huppenkothen, D., McFee, B., Norén, L.; *PLOS One* **7**, e0231939 (2020).

Stingray: A Modern Python Package for Spectral Timing

Huppenkothen, D. et al.; *Astrophys. J.* **881**, 1 14pp. (2019).

Stingray: A Modern Python Package for Spectral Timing

Huppenkothen, D. et al.; *Journal of Open Source Software* (2019)

Hack Weeks as a Model for Data Science Education and Collaboration

Huppenkothen, D. et al.; *Proceedings of the National Academy of Sciences* **115**, 36 8872-8877 (2018)

On the Statistical Properties of Cospectra

Huppenkothen, D. & Bachetti, M.; *Astrophys. J. Sup.* **236** p.11pp (2018)

Exploring the Long-Term Evolution of GRS 1915+105

Huppenkothen, D. et al.; *Mon. Not. R. Astron. Soc.* **466** p.2364-2377. (2017)

Detection of Very Low-Frequency Quasi-Periodic Oscillations in the 2015 Outburst of V404 Cygni

Huppenkothen, D. et al.; *Astrophys. J.* **834** 17 pp. (2017)

Dissecting magnetar variability with Bayesian hierarchical models

Huppenkothen, D. et al.; *Astrophys. J.* **810** 22 pp. (2015)

Quasi-periodic Oscillations in Short Recurring Bursts of Magnetars SGR 1806-20 and SGR 1900+14 Observed with RXTE

Huppenkothen, D. et al.; *Astrophys. J.* **795** 114 pp. (2014)

Intermittency and Lifetime of the 625 Hz Quasi-periodic Oscillation in the 2004 Hyperflare from the Magnetar SGR 1806-20 as Evidence for Magnetic Coupling between the Crust and the Core

Huppenkothen, D. et al.; *Astrophys. J.* **793** 129 pp. (2014)

Quasi-Periodic Oscillations in the Short Recurring Bursts of the Soft Gamma Repeater J1550-5418

Huppenkothen, D. et al.; *Astrophys. J.* **787** 128 pp. (2014)

Quasi-Periodic Oscillations and Broadband Variability in Short Magnetar Bursts

Huppenkothen, D. et al.; *Astrophys. J.* **768** 87 pp. (2013)

The Future of Hackathon Research and Practice

Falk, J., Nolte, A., Huppenkothen, D. et al.; *IEEE Access* **arXiv:2211.08963** (under review)

Discovery of spin-phase dependent QPOs in the super-critical accretion regime from the X-ray pulsar RX J0440.9+4431

Malacaria, C., Huppenkothen, D. et al.; *Astron. & Astroph.* (in press)

An updated mass-radius analysis of the 2017-2018 NICER data set of PSR J0030+0451

Vinciguerra, S. et al, incl. Huppenkothen, D. et al.; *Astrophys. J. Letters* (in press)

Dense forests of microshots in bursts from FRB 20220912A

Hewitt, D. et al., incl. Huppenkothen, D.; *Mon. Not. R. Astron. Soc.* **526**, 2 2039-2057 (2023)

The Swift Deep Galactic Plane Survey (DGPS) Phase I Catalog

O'Connor, B. et al., incl. Huppenkothen, D.; *Astrophys. J. Sup.* **269**, 2 20 pp. (2023)

Swift Deep Galactic Plane Survey classification of Swift J170800-402551.8 as a candidate intermediate polar cataclysmic variable

O'Connor, B. et al., incl. Huppenkothen, D.; *Mon. Not. R. Astron. Soc.* **525**, 4 5015-5024 (2023)

Identification of iRXS J165424.6-433758 as a Polar Cataclysmic Variable

O'Connor, B. et al., incl. Huppenkothen, D.; *Astrophys. J.* **957**, 2 16 pp. (2023)

Quasiperiodic Peak Energy Oscillations in X-Ray Bursts from SGR J1935+2154

Roberts, O.J., Baring, M.G., Huppenkothen, D. et al.; *Astrophys. J. Letters* **956**, 1 9 pp. (2023)

Mapping the X-ray variability of GRS1915+105 with machine learning

Ricketts, B. et al., incl. Huppenkothen, D.; *Mon. Not. R. Astron. Soc.* **523**, 2 1946-1966 (2023)

Fermi-GBM Discovery of GRB 221009A: An Extraordinarily Bright GRB from Onset to Afterglow

Lesage, S. et al., incl. Huppenkothen, D.; *Astrophys. J. Letters* **952**, 2 20 pp. (2023)

X-PSI: A Python package for neutron star X-ray pulse simulation and inference

Riley, T.E. et al., incl. Huppenkothen, D.; *J. of Open Source Software* **8**, 82 4977 (2023)

Fourier Domain

Bachetti, M., Huppenkothen, D.; *Bambi, C., Santangelo, A. (eds) Handbook of X-ray and Gamma-ray Astrophysics* (2023)

Orbital Decay in M82 X-2

Bachetti, M. et al., incl. Huppenkothen, D.; *Astrophys. J.* **937**, 2 12 pp. (2022)

Searching for Quasi-periodic Oscillations in Astrophysical Transients Using Gaussian Processes

Huebner, M., Huppenkothen, D. et al; *Astrophys. J.* **936**, 1 19 pp. (2022)

Pitfalls of Periodograms: The Nonstationarity Bias in the Analysis of Quasiperiodic Oscillations

Huebner, M., Huppenkothen, D., Lasky, P. D., Inglis, A. R.; *Astrophys. J. Sup.* **259**, 2 17 pp. (2022)

Phase-resolved spectroscopy of a quasi-periodic oscillation in the black hole X-ray binary GRS 1915+105 with NICER and NuSTAR

Nathan, E., et al., incl. Huppenkothen, D.; *Mon. Not. R. Astron. Soc.* **511**, 1 pp.255-279 (2022)

Identification of an X-Ray Pulsar in the BeXRB System IGR J18219-1347

O'Connor, B., Göğüş, E., Huppenkothen, D. et al.; *Astrophys. J.* **927**, 2 13 pp. (2022)

Light-curve fingerprints: an automated approach to the extraction of X-ray variability patterns with feature aggregation - an example application to GRS 1915+105

Orwat-Kapola, J. K., et al., incl. Huppenkothen, D.; *Mon. Not. R. Astron. Soc.* **509**, 1 pp.1269-1290 (2022)

Characterizing Sparse Asteroid Lightcurves with Gaussian Processes

Lindberg, C.W., Huppenkothen, D. et al.; *Astronom. J.* **163**, 1 23 pp. (2022)

Extending the Z_n^2 and H Statistics to Generic Pulsed Profiles

Bachetti, M., Pilia, M., Huppenkothen, D. et al.; *Astrophys. J.* **909**, 1 33, 10pp. (2021)

Photometric Classifications of Evolved Massive Stars: Preparing for the Era of Webb and Roman with Machine Learning

Dorn-Wallenstein, T.Z., Davenport, J.R.A., Huppenkothen, D., Levesque, E.M.; *Astrophys. J.* (in press)

Rapid spectral variability of a giant flare from a magnetar in NGC 253

Roberts, O. J. et al.; including Huppenkothen, D.; *Nature* **589**, 7841 207-210 (2021)

Simultaneous Magnetic Polar Cap Heating during a Flaring Episode from the Magnetar 1RXS J170849.0-400910

Younes, G. et al.; including Huppenkothen, D.; *Astrophys. J. Letters* **889**, 2 8 pp. (2020)

Discovery and Identification of MAXI J1621-501 as a Type I X-Ray Burster with a Super-orbital Period

Gorgone, N.M. et al.; including Huppenkothen, D.; *Astrophys. J.* **884**, 2, 168 19 pp. (2019)

The Zwicky Transient Facility: Science Objectives

Graham, M. et al.; including Huppenkothen, D.; *Publications of the Astronomical Society of the Pacific* **131** 1001 (2019).

The Next Decade of Astroinformatics and Astrostatistics

Siemiginowska. et al.; including Huppenkothen, D.; *Bulletin of the American Astronomical Society* **51**, 3 355 (2019).

Introducing Bayesian analysis with M&Ms: An active-learning exercise for undergraduates

Eadie, G.; Huppenkothen, D. et al.; *The Journal of Statistics Education* (2019).

Physics and astrophysics of strong magnetic field systems with eXTP

Santangelo, A. et al; including Huppenkothen, D.; *Science China Physics, Mechanics & Astronomy* **62** 2 (2019).

The first tidal disruption flare in ZTF: from photometric selection to multi-wavelength characterization

van Velzen, S. et al.; incl. Huppenkothen, D. et al.; *Astrophys. J.* **82** 2 (2019).

The Zwicky Transient Facility: System Overview, Performance, and First Results

Bellm, E. et al.; incl. Huppenkothen, D. et al.; *Publications of the Astronomical Society of the Pacific* **131** 995 (2019).

NuStar Hard X-Ray View of Low-luminosity Active Galactic Nuclei: High-energy Cutoff and Truncated Thin Disk

Younges, G. et al; incl. Huppenkothen, D. et al.; *Astrophys. J.* **870** 2 (2019).

Constraining the limiting brightness temperature and Doppler factors for the largest sample of radio bright blazars

Lioudakis, I.; Hovatta, T.; Huppenkothen, D. et al.; *Astrophys. J.* **866** 2 (2018).

Detection of non-thermal X-ray emission in the lobes and jets of Cygnus A

de Vries, M.; Wise, M. W.; Huppenkothen, D. et al.; *Mon. Not. R. Astron. Soc.* **478** p.4010-4029 (2018).

No Time for Dead Time: Use the Fourier Amplitude Differences to Normalize Dead-time-affected Periodograms

Bachetti, M. & Huppenkothen, D.; *Astrophys. J.* **853** 6 pp. (2018)

The rotational phase dependence of magnetar bursts

Elenbaas, C.; Watts, A.L.; Huppenkothen, D.; *Mon. Not. R. Astron. Soc.* **476** p.1271-1285 (2018)

APO Time-resolved Color Photometry of Highly Elongated Interstellar Object 1I/'Oumuamua

Bolin, B. et al.; including Huppenkothen, D.; *Astrophys. J.* **852** 10 pp. (2018)

Magnetar giant flare high-energy emission

Elenbaas, C.; Huppenkothen, D. et al.; *Mon. Not. R. Astron. Soc.* **471** p.1856-1872 (2017)

X-ray and radio observations of the magnetar SGR J1935+2154 during its 2014, 2015, and 2016 outbursts

Younes, G. et al, including Huppenkothen, D.; *Astrophys. J.* **847** 15 pp. (2017)

Burst and Outburst Characteristics of Magnetar 4U 0142+61

Gögüs, E. et al., including Huppenkothen, D.; *Astrophys. J.* **835** 8 pp. (2017)

Magnetar-like X-Ray Bursts from a Rotation-powered Pulsar, PSR J1119-6127

Gögüs, E. et al., including Huppenkothen, D.; *Astrophys. J. Letters* **829** 7 pp. (2016)

False periodicities in quasar time-domain surveys

Vaughan, S. et al., including Huppenkothen, D.; *Mon. Not. R. Astron. Soc.* **461** 3145 pp. (2016)

The wind nebula around magnetar Swift J1834.9-0846

Younes, G. et al., including Huppenkothen, D.; *Astrophys. J.* **824** 12 pp. (2016)

The Five Year Fermi/GBM Magnetar Burst Catalog

Collazzi, A.C. et al., including Huppenkothen, D.; *Astrophys. J. Sup.* **218** 11 pp. (2015)

Time Resolved Spectroscopy of SGR J1550-5418 for the Fermi/GBM Bursts

Younes, G. et al., including Huppenkothen, D.; *Astrophys. J.* **785** 52 pp. (2014)

The Outflow History of Two Herbig-Haro Jets in RCW 36: HH1042 and HH1043

Ellerbroek, A.M. et al., including Huppenkothen, D.; *Astron. Astrophys.* **551** A5 pp. (2013)

Detection of Spectral Evolution in the Bursts Emitted During the 2008-2009 Active Episode of SGR J1550-5418

von Kienlin, A. et al., including Huppenkothen, D.; *Astrophys. J.* **755** 150 pp. (2012)

Using the X-ray Morphology of Young Supernova Remnants to Constrain Type, Ejecta Distribution and Chemical Mixing

Lopez, L.A. et al., including Huppenkothen, D.; *Astrophys. J.* **732** 114 pp. (2011)

Typing Supernova Remnants Using X-ray Line Emission Morphologies

Lopez, L.A. et al., including Huppenkothen, D.; *Astrophys. J.* **706** 106 pp. (2009)

Practical Guidance for Bayesian Inference in Astronomy

Eadie, G. et al.; including **Huppenkothen, D.**; *arXiv:2302.04703* (2023).

Magnetar giant flare in NGC 253 seen by Fermi-GBM

Bissaldi, E. et al.; including **Huppenkothen, D.**; *37th International Cosmic Ray Conference* (2022).

STROBE-X: X-ray Timing and Spectroscopy on Dynamical Timescales from Microseconds to Years

Ray, P. et al.; including **Huppenkothen, D.**; *Probe class mission concept study report submitted to NASA for Astro2020 Decadal Survey* (2019).

ZTF Bright Transient Survey Classifications

Graham, M.L. et al., including **Huppenkothen, D.**; *Astronomer's Telegram* **11745** (2018)

The LOFT mission concept: a status update

Feroci, M et al., including **Huppenkothen, D.**; *Proceedings of the SPIE* **9905** 20 pp. (2016)

eXTP – enhanced X-ray Timing and Polarimetry Mission

Zhang, S.N. et al., including **Huppenkothen, D.**; *Proceedings of the SPIE* **9905** 16 pp. (2016)

Python in Astronomy 2016 Unproceedings

Robitaille, T. et al., including **Huppenkothen, D.**; DOI: 10.5281/zenodo.56793

FERMI/Gamma-ray Burst Monitor upper limits assuming a magnetar origin for the repeating Fast Radio Burst source, FRB 121102

Younes, G. et al., including **Huppenkothen, D.**; *Astronomer's Telegram*, 8781

New Methods for Timing Analysis of Transient Events, Applied to Fermi/GBM Magnetar Bursts

Huppenkothen, D. et al.; *Proceedings of the 4th International Fermi Symposium*, 2013, arXiv: 1303.1370

Daniela Huppenkothen

Presentations

Invited

- Studying black holes and neutron stars with Artificial Intelligence** 2023
AI4Science Symposium, University of Amsterdam
- Opportunities for New Methods in Black Hole Astrophysics** 2023
Lorentz Center Workshop: “Overcoming Disconnects in our Understanding of Accreting Black Holes”
- How do we Accelerate the Impact of Machine Learning in Astrophysics?** 2022
Machine Learning for Astrophysics Workshop (Panel), International Conference on Machine Learning
- Data Science for High-Energy Astrophysics: A (personal) perspective** 2022
API100 Conference
- Neural Networks supporting inference in High-Energy Astrophysics** 2022
“Likelihood-Free Inference in Paris”, Paris, France,
- Spectral timing of X-ray sources** 2021
Statistical Challenges in Modern Astronomy (virtual)
- Inferring Black Hole and Neutron Star Properties Using Astronomical Time Series** 2021
ASA Joint Statistical Meeting (virtual)
- Machine Learning In Astronomy: An (Incomplete) Overview** 2021
European Astronomical Society Annual Meeting (virtual)
- Using Simulations and Neural Networks to Improve Astrophysical Inference** 2021
European Astronomical Society Annual Meeting (virtual)
- Rethinking Academic Hiring: Experiences from Three Years of Hiring for a Postdoctoral Fellowship** 2021
European Astronomical Society Annual Meeting (virtual)
- Machine Learning in High-Energy Astrophysics and Beyond** 2021
ML 4 Astro Meeting, Leiden, The Netherlands
- Teaching Data Science Ethics to Astronomers** 2021
AAS Splinter Meeting: Education in Astrostatistics and Astroinformatics, virtual meeting
- Spectral Timing in the Era of Data Science: Bayesian Statistics and Machine Learning for Variability Studies** 2019
The Future of X-ray Timing, Amsterdam, The Netherlands
- Data Science Challenges in Time Domain Astronomy: Building Methods, Tools and Communities** 2019
The Annual Conference on Astronomical Data Analysis and Software Systems, Groningen, The Netherlands
- Astrophysical Inference in the Era of Machine Learning** 2019
Inference for Multi-Messenger Astronomy, Berkeley, CA, USA
- Astronomy in the Age of Data Science** 2018
NASA Science Mission Directorate Workshop on Maximizing the Scientific Return of NASA Data, Washington D.C., USA

Hack Weeks as a Model for Data Science Education and Collaboration <i>Keynote Presentation, Moore-Sloan Data Science Summit, Park City, UT, USA</i>	2018
Bayesian Inference for X-ray Timing <i>42nd COSPAR Scientific Assembly, Pasadena, CA, USA</i>	2018
Data Science: Notes from an Emerging Field <i>Open Questions in Astrophysics, Copenhagen, Denmark</i>	2018
Machine Learning in the Age of Survey Astronomy <i>XMM-Newton 2018 Science Workshop, Madrid, Spain</i>	2018
From Asteroids to Black Holes: Data Science in Time Domain Astronomy <i>University of Washington Data Science Summit, Seattle, WA, USA</i>	2018
Classifying Black Hole States: Lessons Learned in Machine Learning <i>231st Meeting of the American Astronomical Society</i>	2018
The Whole is Greater than the Sum of its Parts: Better Inference Through Bayesian Hierarchical Modelling <i>16th Meeting of the High-Energy Astrophysics Division of the American Astronomical Society</i>	2017
Time Series Analysis for a Multiwavelength Future <i>HAP Workshop: Monitoring the Non-Thermal Universe, Cochem, Germany</i>	2016
Timing V404 Cygni during its 2015 outburst <i>11th INTEGRAL Conference, Amsterdam, The Netherlands</i>	2016
Ripples in a Stormy Sea: Quasi-Periodic Oscillations in the Fermi Gamma-Ray Burst Monitor <i>6th International Fermi Symposium, Arlington, VA, USA</i>	2015
Probing Neutron Star Physics with Quasi-Periodic Oscillations in Magnetar Bursts <i>Spring Meeting of the American Physical Society, Baltimore, MD, USA</i>	2015
Magnetars, QPOs and the Neutron Star Crust <i>FUSTIPEN Topical Meeting "Structure of the neutron star crust: experimental and observational signatures", Caen, France</i>	2014

Harnessing Machine Learning to Probe the High-Energy Sky: From Data to Discoveries	2023
<i>Data Science Colloquium, SISSA, Trieste, Italy</i>	
Data Science for High-Energy Astrophysics	2022
<i>Colloquium, George Washington University, Washington D.C., USA</i>	
Spectral Timing, Bayesian Inference and You	2021
<i>Colloquium, School of Physics and Astronomy, Southampton University</i>	
Data Science Challenges in Time Domain Astronomy: Building Methods, Tools and Communities	2021
<i>Colloquium, Kapteyn Institute, University of Groningen</i>	
Unravelling the Physics of Black Holes Using Astronomical Time Series	2021
<i>STAMPS Seminar, Carnegie-Mellon University, Pittsburgh, PA, USA</i>	
From Asteroids to Black Holes: Data Science for Next-Generation Time Domain Astronomy	2021
<i>KIPAC Seminar, Stanford University, Stanford, CA, USA</i>	
From Asteroids to Black Holes: Data Science for Next-Generation Time Domain Astronomy	2021
<i>Astrophysics Seminar, University of Oxford, UK</i>	
From Asteroids to Black Holes: Data Science for Next-Generation Time Domain Astronomy	2021
<i>Astrophysics Seminar, Fermilab, Chicago, IL, USA</i>	
Data Science Challenges in Time Domain Astronomy: Building Methods, Tools and Communities	2021
<i>Data Science Seminar Series, SISSA, International School of Advanced Studies, Trieste, Italy</i>	
Data Science Challenges in Time Domain Astronomy: Building Methods, Tools and Communities	2019
<i>Colloquium, Albert Einstein Institute for Gravitational Physics, Hannover, Germany</i>	
Turning Data Into Knowledge: Data Science for Astronomy and Beyond	2019
<i>Colloquium, Anton Pannekoek Institute for Astronomy, University of Amsterdam, The Netherlands</i>	
Data Science Challenges in Time Domain Astronomy: Building Methods, Tools and Communities	2019
<i>Joint Steward/NOAO Colloquium, University of Arizona, AZ, USA</i>	
Astrophysical Inference with Complex, Stochastic Time Series	2019
<i>Colloquium, Center for Statistics and Machine Learning, Princeton University, NJ, USA</i>	
From Asteroids to Black Holes: Data Science for Next-Generation Time Domain Astronomy	2019
<i>Astronomy Seminar, Princeton University, NJ, USA</i>	
From Asteroids to Black Holes: Data Science for Next-Generation Time Domain Astronomy	2019
<i>Colloquium, Physics Department, Carnegie Mellon University, PA, USA</i>	
From Asteroids to Black Holes: Data Science for Next-Generation Time Domain Astronomy	2019
<i>Colloquium, Physics Department, University of Pittsburgh</i>	
From Asteroids to Black Holes: Data Science in Time-Domain Astronomy	2019
<i>Astronomy Seminar, University of Tübingen, Germany</i>	
From Asteroids to Black Holes: Data Science in Time-Domain Astronomy	2019
<i>Astronomy Colloquium, Pennsylvania State University</i>	

From Asteroids to Black Holes: Data Science in Time-Domain Astronomy	2019
<i>Astronomy Colloquium, University of Illinois at Urbana-Champaign</i>	
From Asteroids to Black Holes: Data Science in Astronomy	2018
<i>Computing PNNL Lecture Series, Pacific Northwest National Laboratory, Richland, WA</i>	
Fun Statistics with Fourier Spectra	2018
<i>Harvard-California Astrostatistics Collaboration Seminar, Center for Astronomy, Harvard University, USA</i>	
X-ray Astronomy in the Era of Data Science	2018
<i>Physics Colloquium, University of Delaware, USA</i>	
Data Science for X-ray Astronomy	2017
<i>Astronomy Colloquium, University of Washington, USA</i>	
Wrong But Useful: Statistics and Machine Learning for High-Energy Astrophysics	2017
<i>Physics Colloquium, Rheinisch-Technische Universität Aachen, Germany</i>	
How to Time a Black Hole: Time series Analysis for the Multi-Wavelength Future	2017
<i>Astronomy Seminar, Technical University Dortmund, Germany</i>	
Improving Candidate Selection for Academic Conferences and Beyond	2017
<i>Seminar at the European Space Research and Technology Centre (ESTEC), The Netherlands</i>	
Exploring the Long-Term Evolution of Black Holes with Machine Learning	2017
<i>Leiden Faculty colloquium</i>	
How to Time a Black Hole: Unravelling fundamental physics with X-ray variability	2017
<i>Chodera Lab Seminar, Memorial Sloan-Kettering Cancer Center, USA</i>	
How to Time a Black Hole: Time Series Analysis for the Multi-Wavelength Future	2017
<i>Astronomy Seminar, University of Würzburg, Germany</i>	
Why your field needs a hack week	2016
<i>BIDS Data Science Lecture Series, University of California Berkeley, USA</i>	
Exploring the Violent Universe: A Data Science Approach to X-ray Astronomy	2016
<i>The 4th Annual DC/VA/MD Summer Astrophysics Meeting, George Washington University, Washington, DC, USA</i>	
Timing Black Holes: Unravelling Fundamental Physics with X-ray Variability	2016
<i>Statistics colloquium, University of Auckland, New Zealand</i>	
Exploring the Violent Universe: A Data-Driven Approach to X-ray Astronomy	2015
<i>Physics colloquium, George Washington University, Washington, DC, USA</i>	
Are magnetar short bursts caused by star quakes? Using burst variability to constrain magnetar physics	2015
<i>HEAD lunch seminar, Center for Astrophysics, Harvard University, Cambridge, MA, USA</i>	
Unravelling Magnetar Variability: A data-driven approach to X-ray timing	2015
<i>Chandra X-ray Telescope Group, MIT, Cambridge, MA, USA</i>	
Searching the Haystack of Magnetar Bursts	2014
<i>SPIMAX Seminar, University of Oxford, Oxford, UK</i>	
A Zoo of Magnetar Bursts: Understanding Magnetar Variability	2013
<i>Monash University, Melbourne, Australia</i>	
Assessing the Impact of UV/X-ray Emission from Accreting Black Holes on the ISM	2010
<i>Colloquium, Dr. Karl Remeis-Sternwarte Bamberg, Germany</i>	

The Sonified Hertzsprung-Rusell Diagram	2023
<i>International Conference on Auditory Display (ICAD) Norrköping, Sweden</i>	
Teaching the Foundations of Machine Learning with Candy	2022
<i>European Conference on Machine Learning 2020, Ghent, Belgium</i>	
Using Simulation-Based Inference to mitigate instrumental biases in X-ray telescopes	2021
<i>2021 Symposium for Data Science and Statistics (Virtual)</i>	
Hack Weeks as a Model for Data Science Education and Collaboration	2019
<i>2019 Symposium for Data Science and Statistics, Bellevue, WA, USA</i>	
Here Be Dragons: Effective (X-ray) Timing with the Cospectrum	2018
<i>231st Meeting of the American Astronomical Society, Washington DC, USA</i>	
Entropy your Cohort	2017
<i>Moore-Sloan Data Science Summit</i>	
Using Python to Study Black Holes	2016
<i>PyGotham 2016, New York, USA</i>	
Detection of Low-Frequency Quasi-Periodic Oscillations in the 2015 Outburst of V404 Cygni	2016
<i>15th Meeting of the High Energy Astrophysics Division of the American Astronomical Society, Naples, FL, USA</i>	
Entropy: Participant Selection Made Easy	2016
<i>Python in Astronomy 2016, University of Washington, Seattle, USA</i>	
Quasi-periodic Oscillations in V404 Cygni	2015
<i>Time Domain Astrophysics with Swift, Clemson, SC, USA</i>	
New Statistical Tools for Studying Variability in Transient Light Curves	2015
<i>Hot-Wiring the Transient Universe IV, Santa Barbara, CA, USA</i>	
New Methods To Understand Variability in Astrophysical Transients	2013
<i>Maximum Entropy and Bayesian Inference, Canberra, Australia</i>	
Timing Transients: New Methods To Understand Transient Variability	2013
<i>Astroinformatics 2013, Sydney, Australia</i>	
Timing Transients: Understanding Magnetar Variability	2013
<i>Explosive Transients, Lighthouses of the Universe, Santorini, Greece</i>	
Understanding Magnetar Variability: A Magnetar Burst Zoology	2013
<i>NS2013: Latest Results from the Neutron-Star Laboratory, Amsterdam, The Netherlands</i>	
New Methods for Timing Analysis of Transient Events	2012
<i>NOVA Network 3 Meeting, Nijmegen, The Netherlands</i>	
New Methods for Timing Analysis of Transient Events	2012
<i>4th International Fermi Symposium, Monterey, CA, USA</i>	