

Martina Veresvarska

PHD STUDENT

Centre for Extragalactic Astronomy, Department of Physics, Durham University, South Road, Durham, DH1 3LE

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Education

Durham University

South Road, Durham, DH1 3LE,
UK

PHD ASTRONOMY - ACCRETION PHYSICS IN CATAclysmic VARIABLES

September 2021 - present

- Supervisor: Dr Simone Scaringi
- 2nd Supervisor: Prof Chris Done

University of Southampton

Highfield, Southampton SO17
1BJ, UK

MPHYS ASTROPHYSICS WITH A YEAR IN RESEARCH

2017 - 2021

- Thesis: Modelling of the inner geometry of AGN through UV/optical and X-ray variability
- Supervisor: Prof Ian McHardy

Publications

1st AUTHOR PUBLICATIONS

- M. Veresvarska**, M. Imbrogno, R. Amato, G. L. Israel, S. Scaringi, P. Casella, D. de Martino, F. Fürst, A. Gúrpide Lasheras, C. Knigge, M. J. Middleton; Wobbling around the clock: magnetically-driven quasi-periodic oscillations in pulsating ultra-luminous X-ray sources, submitted to MNRAS, eprint arXiv:2505.05557 <https://arxiv.org/abs/2505.05557>
- M. Veresvarska**, S. Scaringi, C. Littlefield, D. de Martino, C. Knigge, J. Paice, D. Altamirano, A. Castro, R. Michel, N. Castro Segura, J. Echevarría, P. J. Groot, J. V. Hernández Santisteban, Z.A. Irving, L. Altamirano-Dévora, A. Sahu, D.A.H. Buckley, F. Vincentelli; DW Cnc: a micronova with a negative superhump and a flickering spin, MNRAS, Volume 539, May 2025, Pages 2424-2434, <https://doi.org/10.1093/mnras/staf412>
- M. Veresvarska**, S. Scaringi, C. Knigge, J. A. Paice, D. A. H. Buckley, N. Castro Segura, D. De Martino, P. J. Groot, A. Ingram, Z. A. Irving, P. Szkody; Discovery of Persistent Quasi-Periodic Oscillations in Accreting White Dwarfs: A New Link to X-ray Binaries, MNRAS, Volume 534, November 2024, Pages 3087-3103, <https://doi.org/10.1093/mnras/stae2279>
- M. Veresvarska**, S. Scaringi, S. Hagen, D. De Martino, C. Done, K. Ilkiewicz, C. Knigge, C. Littlefield; The peculiar bursting nature of CP Pup, MNRAS, Volume 518, March 2024, Pages 664-672, <https://doi.org/10.1093/mnras/stae573>
- M. Veresvarska**, S. Scaringi; Outer disc edge: properties of low-frequency aperiodic variability in ultracompact interacting binaries, MNRAS, Volume 529, February 2023, Pages 5576-5589, <https://doi.org/10.1093/mnras/stac3470>

CO-AUTHOR PUBLICATIONS

- N. Castro Segura, N., Z. A. Irving, F. M. Vincentelli, D. Altamirano, Y. Tampo, C. Knigge, I. Pelisoli, D. L. Coppejans, N. Rawat, A. Castro, A. Sahu, J. V. Hernández Santisteban, M. Kimura, **M. Veresvarska**, R. Michel, S. Scaringi, M. Najera, M.; Bridging the Gap: OPTICAM Reveals the Hidden Spin of the WZ Sge Star GOTO 065054.49+593624.51, submitted to MNRAS, <https://ui.adsabs.harvard.edu/abs/2025arXiv250111669C/abstract>
- M. Kimura, T. Hayashi, Y. Wada, W. Iwakiri, S. Sako, **M. Veresvarska**, S. Scaringi, N. Castro-Segura, C. Knigge, K. C. Gendreau, Z. Arzoumanian; Evolution of the inner accretion flow and the white-dwarf spin pulse during the 2023 outburst in GK Persei, accepted for publication in ApJ, eprint arXiv:2504.21313 <https://arxiv.org/abs/2504.21313>
- Z. A. Irving, D. Altamirano, S. Scaringi, **M. Veresvarska**, C. Knigge, N. Castro Segura, D. De Martino, K. Ilkiewicz; Burst-induced spin variations in the accreting magnetic white dwarf PBC J0801.2-4625, MNRAS, Volume 530, June 2024, Issue 4, pp.3974-3985, <https://academic.oup.com/mnras/article/530/4/3974/7657819>
- J. A. Paice, S. Scaringi, N. Castro Segura, A. Sahu, K. Ilkiewicz, D. L. Coppejans, D. De Martino, C. Knigge, **M. Veresvarska**; Evolution of spin in the intermediate polar CC sculptoris, MNRAS, Volume 531, Issue 1, pp.L82-L86, <https://academic.oup.com/mnrasl/article/531/1/L82/7659363>
- P. J. Groot, S. Bloemen, P. Vreeswijk, J. van Roestel, P. G. Jonker, G. Nelemans, M. Klein-Wolt, R. Le Poole, D. Pieterse, M. Rodenhuis, W. Boland, M. Haverkorn, C. Aerts, R. Bakker, H. Balster, M. Bekema, E. Dijkstra, P. Dolron, E. Elswijk, A. van Elteren, A. Engels, M. Fokker, M. de Haan, F. Hahn, R. ter Horst, D. Lesman, J. Kragt, J. Morren, H. Nillissen, W. Pessemier, A. de Rijke, G. Raskin, L. H. A. Scheers, M. Schuil, S. T. Timmer, I. Arcavi, N. Blagorodnova, S. Biswas, R. Breton, H. Dawson, P. Dayal, S. De Wet, C. Duffy, S. Faris, M. Fausnaugh, A. Gal-Yam, S. Geier, A. Horesh, C. Johnston, R. A. D. Wijnands, D. Modiano, G. Katusiime, C. Kelley, A. Kosakowski, T. Kupfer, G. Leloudas, O. Mogawana, J. Munday, J. A. Paice, F. Patat, I. Pelisoli, G. Ramsay, P. T. Ranaivomanana, R. Ruiz-Carmona, V. Schaffenroth, S. Scaringi, F. Stoppa, H. Tranin, M.

Uzundag, S. Valenti, **M. Veresvarska**, H. C. I. Wichern, R. A. M. J. Wijers, E. Zimmerman, E. ; The BlackGEM telescope array I: Overview, eprint arXiv:2405.18923, <https://ui.adsabs.harvard.edu/abs/2024arXiv240518923G/abstract>

K. Ikiewicz, S. Scaringi, **M. Veresvarska**, D. De Martino, C. Littlefield, C. Knigge, J. A. Paice, A. Sahu; Classifying Optical (Out)bursts in Cataclysmic Variables: The Distinct Observational Characteristics of Dwarf Novae, Micronovae, Stellar Flares, and Magnetic Gating, ApJL, Volume 519, March 2023, Pages 3366–3382, <https://iopscience.iop.org/article/10.3847/2041-8213/ad243c>

S. Scaringi, K. Breivik, T.B. Littenberg, C. Knigge, P.J. Groot, **M. Veresvarska**; Cataclysmic variables are a key population of gravitational wave sources for LISA, MNRAS, Volume 525, March 2023, L50, <https://doi.org/10.1093/mnrasl/slad093>

I. M. McHardy, M. Beard, E. Breedt, J. H. Knapen, F. M. Vincentelli, **M. Veresvarska**, V. S. Dhillon, T. R. Marsh, S. P. Littlefair, K. Horne, R. Glew, M. R. Goad, E. Kammoun, D. Emmanoulopoulos; First detection of the outer edge of an AGN accretion disc: very fast multiband optical variability of NGC 4395 with GTC/HiPERCAM and LT/IO:O, MNRAS, Volume 962, March 2023, L34, <https://doi.org/10.1093/mnras/stac3651>

J. Šilha, Z. Matej, T. Hrobár, P. Jevčák, **M. Verešvárska**; Light curves application to space debris characterization and classification, 2021spde.confE.116S, <https://ui.adsabs.harvard.edu/abs/2021spde.confE.116S/abstract>

Research Experience

- 2021-2023 **Visiting Researcher**, School of Physics and Astronomy, University of Southampton, UK
- 2021 **Undergraduate Research Assistant**, School of Physics and Astronomy, University of Southampton, UK
- 2020 **Undergraduate Research Assistant**, Department of Astronomy, Physics of the Earth, and Meteorology, Comenius University Bratislava, Slovakia
- 2019 **Undergraduate Research Assistant**, Department of Astronomy, Physics of the Earth, and Meteorology, Comenius University Bratislava, Slovakia

Observing Experience

February 2024 **TESS** DDT for increased cadence of a *TESS* target for joint campaign with *XMM-Newton*

December 2024 **XMM-Newton** secured 44ks observations for a joint *TESS* and *XMM-Newton* proposal as a PI scheduled for summer 2025

August 2024 **TESS** ~ 1000 targets awarded in cycle 7 as Co-PI

January 2024 **INT - La Palma** 7 nights on the IDS Spectrograph at the INT at La Palma as Co-PI

August 2023 **TESS** ~ 1000 targets awarded in cycle 6 as Co-PI

June 2023 **INT - La Palma** 6 nights on the IDS Spectrograph at the INT at La Palma

April 2023 **BlackGEM** 2 weeks during the commissioning of BlackGEM

March 2023 **OPTICAM** 3 night of observing nights awarded as Co-PI

February 2023 **INT - La Palma** 4 nights on the IDS Spectrograph at the INT at La Palma as Co-PI

November 2021 **Swift ToO** 10 observations of a cataclysmic variable MV Lyr after entering low state

April 2019 **Teide Observatory** 1 week on the IAC80 & MONS as part of a Design and Observation in Astronomy module

Awards, Fellowships, & Grants

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|------|---|----------|
| 2023 | Norman Richardson Postgraduate Research Fund , Ustinov College, Durham University - scholarship to visit Radboud University for a research collaboration | £1750 |
| 2023 | 2nd year PGR Physics Prize , Department of Physics, Durham University | £100 |
| 2021 | STFC Doctoral Studentship , Science and Technology Facilities Council | ~£93 000 |
| 2021 | Hercok Bursary , University of Southampton - bursary for a summer research project extending on my Masters' thesis | ~£3000 |

Presentations

SEMINARS & INVITED TALKS

September 2025, *Title TBC*. Invited talk at The Golden Age of CVs and Related Objects - VII (Palermo)

June 2025. *Understanding Accretion through Optical Variability of Accreting White Dwarfs*. Invited talk at Vasto Accretion Meeting (Vasto)

February 2025. *The Geometry of Accreting Systems Through The Eyes of Accreting White Dwarfs*. SPIMAX (Stars Planets Instrumentation Methods Accretion and eXplosions) (Oxford)

January 2025. *The Geometry of Accreting Systems Through The Eyes of Accreting White Dwarfs*. Seminar at AIP (Potsdam)

January 2025. *Unveiling the Role of Magnetic Field in Generating Quasi-Periodic Oscillations: Insights from Accreting White Dwarf Systems*. Kaffeerunde at MPE (Garching)

January 2025. *Unveiling the Role of Magnetic Field in Generating Quasi-Periodic Oscillations: Insights from Accreting White Dwarf Systems*. Lunchtime seminar at ESO (Garching)

October 2024. *Unveiling the Role of Magnetic Field in Generating Quasi-Periodic Oscillations*. Institute of Astronomy Seminar (Cambridge)

April 2024. *Quasi-periodic variability in Accreting White Dwarfs*. Radboud Astronomy Colloquium (Radboud University).

November 2023. *Aperiodic and Quasi-periodic variability in Accreting White Dwarfs*. Warwick White Dwarf Group Talk (Warwick University).

CONTRIBUTED TALKS

May 2025. *Magnetically driven QPOs: from accreting white dwarfs to pulsating ULXs*. Durham-Newcastle Accretion Alliance Workshop (Newcastle University).

September 2024. *Unveiling the Role of Magnetic Field in Generating Quasi-Periodic Oscillations: Insights from Accreting White Dwarf Systems*. New results in X-Ray Astronomy/Athena UK 2024 workshop (Brighton)

July 2024. *Unveiling the Role of Magnetic Field in Generating Quasi-Periodic Oscillations: Insights from Accreting White Dwarf Systems*. COSPAR 2024 (BEXCO, Busan)

June 2024. *Unveiling the Role of Magnetic Field in Generating Quasi-Periodic Oscillations: Insights from Accreting White Dwarf Systems*. XMM-NEWTON 2024 Science Workshop (ESA, Madrid)

March 2024. *Quasi-periodic variability in Accreting White Dwarfs*. Durham-Newcastle Accretion Alliance Workshop (Newcastle University).

July 2023. *Barking Mad: The Peculiar Nature of CP Pup*. Conference talk: National Astronomy Meeting 2023 (Cardiff).

June 2023. *Constraining outer disc edge with broad-band aperiodic variability*. Conference talk: 1st Vasto Accretion Meeting (Vasto).

September 2022. *Properties of Low Frequency Aperiodic Variability in Ultracompact Interacting Binaries*. Conference talk: 4.5 AM CVn online meeting (Armagh).

INTERNAL TALKS

October 2023. *Quasi-periodic Oscillations in Accreting White Dwarfs*. Durham FLAT.

February 2023. *Broad band variability in Accreting white dwarfs*. Durham FLAT.

May 2022. *Flickering in Accreting white dwarfs*. Durham FLAT.

Jun 2021. *Modelling of inner geometry of AGN through UV/optical and X-ray variability*. Southampton departmental seminar - Master thesis presentation.

Teaching Experience

2023/2024	Python Coding L1 Workshop , Demonstrator	Durham
2022/2023	Foundations of Physics , Tutor	Durham
2021/2022	Maths Toolkit for Scientists , Workshop Demonstrator	Durham

Mentoring

2020-2022	Kousthubha Allampalli , PhySoc Mentor, Southampton University
2020-2021	Prasant Gurung , PhySoc Mentor, Southampton University

Outreach & Professional Development

CITIZENSHIP AND OUTREACH

10/2024	Newcastle Astronomical Society , Outreach talk	Newcastle
2022-present	Cakes for Good , Organiser of department charity bake sale - https://astro.dur.ac.uk/CakesForGood	Durham
2023-2024	Durham Astronomy Girl's Day , Volunteer	Durham
2022-2023	Celebrate Science , Volunteer Demonstrator	Durham
2022-2024	Schools' Physicist of the Year , Volunteer Demonstrator	Durham

DEPARTMENTAL ORGANISATION

2022/2023	Student Journal Club , Run and organised weekly student journal club
2023/2024	Accretion/AGN Journal Club , Run and organised biweekly department-wide journal club