

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
- Modules: Atomic Physics (95%), Theories of Matter, Space and Time (80%), Cosmology (87%), Photons in Astrophysics (78%), Computer Techniques in Physics (86%), Compulsory Formative Assessment - CFA (90%), Nuclei and Particles (mark part of CFA), Stellar Evolution (mark part of CFA), Crystalline Solids (mark part of CFA), Galaxies (85%), Physics from Evidence I (77%), Quantum Physics (74%), Wave Physics (84%), Electromagnetism (79%), Quantum Physics of Matter (92%), Classical Mechanics (87%), Programming and Data Analysis (74%), Waves, Light and Quanta (91%), Mathematical Methods for Physical Scientists 1a (87%) and 1b (81%), Physics Skills 1 (75%) and 2 (78%), Introduction to Astronomy and Space Science (83%), Energy and Matter (79%), Motion and Relativity (71%), Electricity and Magnetism (73%)

Publications

1st AUTHOR PUBLICATIONS

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>

M. Veresvarska, S. Scaringi, S. Hagen, D. De Martino, C. Done, K. Iłkiewicz, 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>

Co-AUTHOR PUBLICATIONS

Z. A. Irving, D. Altamirano, S. Scaringi, **M. Veresvarska**, C. Knigge, N. Castro Segura, D. De Martino, K. Iłkiewicz; 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. Iłkiewicz, 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/mnras/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. Hosh, 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. Iłkiewicz, 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/mnras1/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

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

EXTERNAL & INVITED TALKS

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

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

2022-present	Cakes for Good , Organiser of department charity bake sale	Durham
2023-2024	Durham Astronomy Girl's Day , Volunteer	Durham
2022-2023	Celebrate Science , Volunteer Demonstrator	Durham
2022	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

LANGUAGE SKILLS

Slovak - Mother tongue, *English* - Fluent (C2), *French* - Proficient (C1), *Russian* - Beginner (A2), *Spanish* - Beginner (A1)