

Oliver Newton

Curriculum Vitæ

Center for Theoretical Physics
Polish Academy of Sciences
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Employment & voluntary work

Vocational

- 2022– **Postdoctoral Fellow**, *Center for Theoretical Physics, Polish Academy of Sciences*, Warsaw, Poland.
- 2022 **PDRA (short-term)**, *Astrophysics Research Institute, Liverpool John Moores University*, Liverpool, UK.
- 2019–2021 **Postdoctoral researcher**, *Institut de Physique des Deux Infinis*, Lyon, France.
- 2014–2015 **Graduate Trading Platform Engineer**, *Fidessa*, Woking, UK.

Volunteering

- 2014–2020 **Founding trustee & Treasurer**, *UniBrass Foundation* (charity number: 1159359), UK.

Education

- 2015–2019 **PhD**, *Institute for Computational Cosmology*, Durham, UK.
[Probing the nature of dark matter with small-scale cosmology](#)
Supervisors: Prof. Adrian Jenkins and Prof. Carlos Frenk
- 2010–2014 **BSc MPhys**, *University of Warwick*, Coventry, UK, *1st Class (Hons)*.
Masters project: *Determining the fundamental properties of Higgs candidates at the LHC*

Awards and scholarships

- 2023 **International Office co-financing scheme**, Polish Academy of Sciences, Warsaw, Poland.
- 2019 **ICC Research Scholarship**, Institute for Computational Cosmology, Durham, UK.
- 2015–2019 **STFC Postgraduate Studentship**, Institute for Computational Cosmology, Durham, UK.

Invited talks and seminars

- Jan 2024 **CFT seminar**, Center for Theoretical Physics, Polish Academy of Sciences, Warsaw, Poland.
Exploring the Local Group using constrained simulations
- Nov 2022 **Observatory seminar**, Astronomical Observatory, University of Warsaw, Poland.
[Exploring the Local Group using constrained simulations](#)
- Oct 2022 **Astrophysics group seminar**, Lancaster University, UK.
Exploring the Local Group using constrained simulations
- Nov 2021 **Astronomy seminar**, DTU Space, Copenhagen, Denmark.
Hermeian haloes: Field haloes that interacted with the Milky Way and M31
- June 2021 **Small-scale structure seminar (online)**, Durham, UK.
Hermeian dark matter haloes of the Local Group
- May 2021 **Stars, galaxies and cosmology café club (online)**, LAM Marseilles, France.
Hermeian dark matter haloes of the Local Group
- Nov 2020 **Local Group (online)**, Durham, UK.
Constraining the properties of WDM using the satellite galaxies of the Milky Way

Conference contributions

Contributed talks

- Oct 2023 **LSST-Poland meeting**, Warsaw, Poland.
The undiscovered ultra-diffuse galaxies of the Local Group
- Sep 2023 **Polish Astronomical Society Meeting**, Toruń, Poland.
The undiscovered ultra-diffuse galaxies of the Local Group
- June 2023 **CLUES Collaboration meeting**, Munich, Germany.
The importance of major mergers for the formation & disruption of globular clusters in present-day L^* galaxies
- May 2023 **CACTUS workshop**, London, UK.
Cosmic Web effects on small scales
- Sep 2022 **2nd Roman Juskiewicz Symposium**, Nicolaus Copernicus Astronomical Center, Warsaw, Poland.
The undiscovered ultra-diffuse galaxies of the Local Group
- July 2022 **VIRGO Consortium meeting**, MPA Garching, Munich, Germany.
Globular clusters as tracers of galaxy mergers
- July 2022 **CLUES Collaboration meeting (online)**, Madrid, Spain.
The undiscovered ultra-diffuse galaxies of the Local Group
- Oct 2021 **Świeradów-Zdrój cosmology workshop**, Świeradów-Zdrój, Poland.
Hermeian haloes: Field haloes that interacted with the Milky Way and M31
- July 2021 **CLUES Collaboration meeting (online)**, AIP Potsdam, Germany.
Hermeian dark matter haloes of the Local Group
- July 2020 **European Astronomical Society meeting (online)**, Leiden, Netherlands.
Constraining the properties of WDM using the satellite galaxies of the Milky Way
- Jan 2020 **VIRGO Consortium meeting**, Durham, UK.
Constraining the properties of WDM using the satellite galaxies of the Milky Way
- Sep 2019 **CLUES Collaboration meeting**, IN2P3, Lyon, France.
Constraints on thermal relic WDM from satellites of the Local Group
- July 2019 **Small Galaxies, Cosmic Questions**, Durham, UK.
Constraints on the mass of the thermal relic warm dark matter particle
- Jan 2019 **DEX XV**, Edinburgh, UK.
Constraints on the mass of the thermal relic warm dark matter particle
- Dec 2018 **VIRGO Consortium meeting**, Leiden, Netherlands.
Constraints on the mass of the thermal relic warm dark matter particle
- Aug 2018 **XXX IAU General Assembly**, Vienna, Austria.
Constraining the mass of the WDM particle using estimates of the total satellite population of the Milky Way
- Jan 2018 **DEX XIV**, Durham, UK.
The total satellite population of the Milky Way
- Dec 2017 **VIRGO Consortium meeting**, MPA Garching, Munich, Germany.
The total satellite population of the Milky Way
- July 2017 **National Astronomy Meeting**, Hull, UK.
The total satellite population of the Milky Way
- Dec 2016 **VIRGO Consortium meeting**, Durham, UK.
MW satellite galaxies: how many could there be?

Posters

- July 2022 **European Astronomical Society meeting**, Valencia, Spain.
The undiscovered ultra-diffuse galaxies of the Local Group
- June 2019 **EWASS**, Lyon, France.
Constraints on the mass of the thermal relic warm dark matter particle
- Aug 2018 **XXX IAU General Assembly**, Vienna, Austria.
Constraining the mass of the WDM particle using estimates of the total satellite population of the Milky Way

Supervising experience

PhD supervision

Sep 2022– Co-supervising Feven M. Hunde
Center for Theoretical Physics, Polish Academy of Sciences

Master's supervision

2017–2019 Co-supervised two 4th year undergraduate student's theses
Durham University

Internships

Sep 2023– Szymon Bagiński: *The importance of cosmic web environment for the formation & evolution of dark matter haloes*
Center for Theoretical Physics, Polish Academy of Sciences

Teaching experience

Sep 2022 Delivered a workshop entitled 'Working with simulation outputs in PYTHON' to postgraduate students
Center for Theoretical Physics, Polish Academy of Sciences

Professional service

Peer review

2022– The Astrophysical Journal (ApJ)
2021– Journal of Cosmology and Astroparticle Physics (JCAP)

Institution

Nov 2022– **CCG Group meeting**, *Convener*, CFT-PAN, Poland.
2021 **CLUES discussion meeting**, *Convener*, IP2I Lyon, France.
2016–2017 **Postgraduate Journal Club**, *Co-convener*, Durham, UK.

Conferences and meetings

2023– **CLUES Collaboration meeting 2024**, *Chair of the LOC*, Warsaw, Poland.
Oct 2023 **LSST Poland meeting**, *Session chair*, Warsaw, Poland.
Jun 2023 **CLUES Collaboration meeting**, *Session chair*, Munich, Germany.
2018–2019 **Small Galaxies, Cosmic Questions**, *Member*, Durham, UK.

Memberships

Jun 2022– Junior Member of the International Astronomical Union
Oct 2019– Member CLUES Collaboration
May 2017– Fellow of the Royal Astronomical Society, UK
Oct 2015– Member Virgo Consortium

Outreach

Events & talks

May 2023 **Invited talk**, Caterham School (Online), UK.
Introduction to Dark Matter
Oct 2018 **Celebrate Science**, Durham, UK.
Galaxy Makers
Apr 2018 **Schools Science Festival**, Durham, UK.
Galaxy Makers
Oct 2017 **Celebrate Science**, Durham, UK.
Galaxy Makers
Apr 2017 **Schools Science Festival**, Durham, UK.
Galaxy Makers
Jul 2016 **Royal Society Summer Science Exhibition**, London, UK.
Galaxy Makers

Activity development

2015–2016 **Galaxy Makers**, Durham, UK.

Developed design ideas and ran the constituent **EAGLE** volumes that were visualised in the final exhibit.

Computing

Languages Python, HPC, \LaTeX , TCL, SQL, Microsoft Office suite
Simulations AHF, SubFind, Gadget, AREPO

Publications

- 2023 Anastasiia Osipova, Sergey Pilipenko, Stefan Gottlöber, et al., Hermeian haloes: Extreme objects with two interactions in the past, *Physics of the Dark Universe*, 42:101328, September 2023, doi: [10.1016/j.dark.2023.101328](https://doi.org/10.1016/j.dark.2023.101328)
- Oliver Newton**, Arianna Di Cintio, Salvador Cardona–Barrero, et al., The Undiscovered Ultradiffuse Galaxies of the Local Group, *ApJL*, **946**(2):L37, March 2023, doi: [10.3847/2041-8213/acc2bb](https://doi.org/10.3847/2041-8213/acc2bb)
- Oliver Newton**, HESTIA Local Group field UDG paper scripts & reduced data, Zenodo, March 2023, doi: [10.5281/zenodo.7757685](https://doi.org/10.5281/zenodo.7757685)
- 2022 **Oliver Newton**, Noam I Libeskind, Alexander Knebe, et al., Hermeian haloes: Field haloes that interacted with both the Milky Way and M31, *MNRAS*, **514**(3):3612–3625, August 2022, doi: [10.1093/mnras/stac1316](https://doi.org/10.1093/mnras/stac1316)
- Oliver Newton**, Hermeian paper plotting code, Zenodo, June 2022, doi: [10.5281/zenodo.6629724](https://doi.org/10.5281/zenodo.6629724)
- Oliver Newton**, Hermeian galaxies: Cosmic messengers between the Milky Way and Andromeda, In *High Performance Computing in Science and Engineering*, pages 38–39, Leibniz Rechenzentrum der Bayerische Akademie der Wissenschaften, Garching, 2022, <https://doku.lrz.de/display/PUBLIC/Books+with+results+on+LRZ+HPC+Systems>
- 2021 Mark R Lovell, Marius Cautun, Carlos S Frenk, et al., The spatial distribution of Milky Way satellites, gaps in streams, and the nature of dark matter, *MNRAS*, **507**(4):4826–4839, November 2021, doi: [10.1093/mnras/stab2452](https://doi.org/10.1093/mnras/stab2452)
- Wolfgang Enzi, Riccardo Murgia, **Oliver Newton**, et al., Joint constraints on thermal relic dark matter from strong gravitational lensing, the $\text{Ly}\alpha$ forest, and Milky Way satellites, *MNRAS*, **506**(4):5848–5862, October 2021, doi: [10.1093/mnras/stab1960](https://doi.org/10.1093/mnras/stab1960)
- Oliver Newton**, Matteo Leo, Marius Cautun, et al., Constraints on the properties of warm dark matter using the satellite galaxies of the Milky Way, *JCAP*, **2021**(08):062, August 2021, doi: [10.1088/1475-7516/2021/08/062](https://doi.org/10.1088/1475-7516/2021/08/062)
- 2018 **Oliver Newton**, Marius Cautun, Adrian Jenkins, et al., The total satellite population of the Milky Way, *MNRAS*, **479**(3):2853–2870, September 2018, doi: [10.1093/mnras/sty1085](https://doi.org/10.1093/mnras/sty1085)
- Oliver Newton**, Marius Cautun, Adrian Jenkins, et al., The Milky Way’s total satellite population and constraining the mass of the warm dark matter particle, *Proc. IAU*, **14**(S344):109–113, August 2018, doi: [10.1017/S1743921318006464](https://doi.org/10.1017/S1743921318006464)
- Oliver Newton** and Marius Cautun, MW Satellite LF: V1.0.0 release, Zenodo, March 2018, doi: [10.5281/zenodo.1205622](https://doi.org/10.5281/zenodo.1205622)