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Oliver Newton

Curriculum Vitæ

Employment & voluntary work

Vocational

2019– **Postdoctoral Researcher**, *Institut de Physique des Deux Infinis*, Lyon, France.

2014–2015 **Graduate Trading Platform Engineer**, *Fidessa*, Woking, UK.

Implemented, configured, tested and deployed trading platform software for customers. Investigated and resolved technical issues as they arose.
Detailed achievements:

- Coordinated a team of 20 people in the successful roll-out of a high impact, technically complex project;
- Developed, maintained and integrated customer-specific software customisations;
- Gained experience using TCL and SQL.

Charity Board of Trustees

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

Manage an annual budget of $\sim$£30 k in support of the annual University Brass Band Championships of Great Britain and Northern Ireland. Ensure charity is compliant with all legal obligations.

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

- Produced code implementing a Bayesian inference method to estimate the total satellite population of the Milky Way from incomplete data.
- Used these and predictions of substructure from the Extended Press-Schechter formalism to constrain alternative dark matter models.
- Analysed simulations ranging in scale from Local Group to cosmological volumes. These include Aquarius, APOSTLE, and COCO.
- Experience running GALFORM and analysing its output.

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

2019 **ICC Research Scholarship**, Institute for Computational Cosmology, Durham, UK.

2015–2019 **STFC Postgraduate Studentship**, Institute for Computational Cosmology, Durham, UK.

Conference contributions

Contributed talks

July 2020 **EAS (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 meeting**, IN2P3, Lyon, France.
Constraints on thermal relic WDM from satellites of the LG

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

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

Teaching/supervising experience

2017–2019 Co-supervising two 4th year undergraduate student masters theses

Committees

2018–2019 **Small Galaxies, Cosmic Questions LOC**, *Member*, Durham, UK.
Member of the Local Organising Committee for the "Small Galaxies, Cosmic Questions" conference held in August 2019

2016–2017 **Postgraduate Journal Club**, *Co-convener*, Durham, UK.
Coordinated a weekly meeting of postgraduate students to discuss recent papers and share knowledge.

Professional memberships

May 2017– Fellow of the Royal Astronomical Society

Outreach

Events

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.

Computer skills

Python, LaTeX, TCL, SQL, Microsoft Office suite

Interests

Music Orchestral percussion, piano, clarinet

Hiking

Experiencing new cultures and places

Publications

2020 **Oliver Newton**, Matteo Leo, Marius Cautun, et al. Constraints on the properties of warm dark matter using the satellite galaxies of the Milky Way. *ArXiv e-prints*, November 2020.

Wolfgang Enzi, Riccardo Murgia, **Oliver Newton**, et al. Joint constraints on thermal relic dark matter from a selection of astrophysical probes. *ArXiv e-prints*, October 2020.

2018 **Oliver Newton**, Marius Cautun, Adrian Jenkins, et al. The total satellite population of the Milky Way. *MNRAS*, 479(3):2853–2870, September 2018.

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.

Oliver Newton and Marius Cautun. MW Satellite LF: V1.0.0 release. Zenodo, March 2018.