

Natalie B. Hogg

PhD student in cosmology at the Institute of Cosmology and Gravitation, University of Portsmouth

Education

- 10/2017 – 02/2021 **PhD in Cosmology**, University of Portsmouth
Thesis: Beyond Λ CDM cosmology: current and future constraints
Supervisors: Dr Marco Bruni, Prof David Wands, Prof Robert Crittenden
- 09/2013 – 07/2017 **MPhys Astrophysics 1st class hon.**, Aberystwyth University
with **Breen Prize** for best Master's dissertation in physics
Master's dissertation: Dynamical models of dark energy & their background cosmological evolution
Supervisor: Prof Carsten van de Bruck (University of Sheffield)
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Publications

Strongly lensed supernovae as a self-sufficient probe of the distance duality relation

Fabrizio Renzi, **Natalie B. Hogg**, Matteo Martinelli, Savvas Nesseris
arXiv: 2010.04155, submitted to Physics of the Dark Universe, 2020.

Constraints on the distance duality relation with standard sirens

Natalie B. Hogg, Matteo Martinelli, Savvas Nesseris
arXiv: 2007.14335, submitted to Journal of Cosmology and Astroparticle Physics, 2020.

Latest evidence for a late time vacuum – geodesic CDM interaction

Natalie B. Hogg, Marco Bruni, Robert Crittenden, Matteo Martinelli, Simone Peirone
arXiv: 2002.10449, Physics of the Dark Universe, 29, 100583, 2020.

Constraints on the interacting vacuum – geodesic CDM scenario

Matteo Martinelli, **Natalie B. Hogg**, Simone Peirone, Marco Bruni, David Wands
arXiv: 1902.10694, Monthly Notices of the Royal Astronomical Society, 488, 3, 2019.

Grants, awards and prizes

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| 05/2018 | Long Term Attachment
UK Science and Technology Facilities Council travel grant
Used visiting IFT Madrid, January – March 2020 | £3600 |
| 05/2018 | Santander Mobility Award
University of Portsmouth and Santander Bank travel grant
Used for ICTP Summer School on Cosmology, Trieste, June 2018 | £500 |
| 01/2018 | Short Term Scientific Missions
Two CANTATA (EU COST Action) travel grants
Used visiting Lorentz Institute, Leiden, March and November 2018 | €2150 |
| 07/2017 | Breen Prize
Best Master's dissertation in physics, Aberystwyth University | £2000 |
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Selected talks

- 06/2020 **Standard sirens and the distance duality relation**
ICG department seminar, University of Portsmouth
Delivered virtually
- 04/2020 **New constraints on beyond- Λ CDM cosmologies**
Cosmology group seminar, Queen Mary University of London
Invited talk, delivered virtually
- 12/2019 **Interacting vacuum dark energy**
TEXAS Symposium, University of Portsmouth
Best talk in session
- 12/2019 **Interacting vacuum dark energy**
Cosmology and relativity group seminar, University of Sheffield
Invited talk
- 03/2019 **Is the standard model of cosmology wrong?**
26^{ème} Congrès des Doctorants, Institut de Physique du Globe de Paris
Invited talk
- 01/2019 **Interacting vacuum dark energy**
ICG department seminar, University of Portsmouth
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Selected schools and conferences

- 04/2019 **A History of the Universe in Redshift**
University of Southampton
Member of organising committee
Session chair for "Early Universe" and networking sessions
- 09/2018 **Data Analysis Workshop**
ICIC, Imperial College London
- 06/2018 **Summer School on Cosmology**
ICTP, Trieste
- 09/2017 **CANTATA COST-Action Summer School**
NTUA (Corfu)
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Outreach and public engagement

- 04/2019 **Discover Astrophysics**
Gave two talks at this University of Portsmouth event for GCSE students
- 05/2018 **British Federation of Women Graduates annual meeting**
Gave a talk on dark energy and cosmology research to a general audience
- 01/2018, 01/2019 **Stargazing Live**
Demonstrator for various activities at this annual ICG and Portsmouth Historic Dockyard public event
- 03/2018 **Night Sky Live**
Demonstrator for various activities at this public event at Winchester Science Centre
- 12/2017 **Meet a Physicist**
Participated in this University of Portsmouth event for A Level students
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Committees

2020 Chair, local organising committee, South Coast Cosmology meeting
2019 Member, local organising committee, A History of the Universe in Redshift conference
2018/19 PhD student representative, ICG management committee, University of Portsmouth
PhD student representative, Faculty of Technology research degrees committee, University of Portsmouth

References

Dr Marco Bruni marco.bruni@port.ac.uk
Dr Matteo Martinelli matteo.martinelli@uam.es
Prof David Wands david.wands@port.ac.uk
Prof Carsten van de Bruck c.vandebruck@sheffield.ac.uk
