

CHRISTOPHER M^cCABE

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Nationality: British
Age: 29

IPPP, Physics,
South Road,
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Education and Employment

- 2014-present *[From October] Postdoctoral researcher, GRAPPA Institute, University of Amsterdam*
Appointed as the GRAPPA Fellow (sole awardee)
- 2011-2014 *Postdoctoral research associate, IPPP, Durham University*
Postdoctoral researcher in astroparticle physics working under Dr. Celine Boehm
- 2007-2011 *Theoretical Physics, University of Oxford*
D.Phil in Theoretical Particle Physics under the supervision of Prof. John March-Russell
Thesis title: *Aspects of Dark Matter Phenomenology*
- 2003-2007 *Worcester College, University of Oxford*
MPhys (Physics) with First Class Honours
- 1996-2003 *Wallace High School, Lisburn, Northern Ireland*
A Levels: Mathematics, Further Mathematics, Physics, Chemistry (all grade A)

Publications

- [18] O. Buchmueller, M.J. Dolan, S.A. Malik, C. McCabe, *Characterising dark matter searches at colliders and direct detection experiments: Vector mediators*, submitted to *JHEP*, arXiv:1407.8257
- [17] C. Boehm, J.H. Davis, C. McCabe, *Quantifying the evidence for dark matter in CoGeNT data*, *JCAP* **1408**, 014 (2014), arXiv:1405.0495
- [16] C. Boehm, M.J. Dolan, C. McCabe, *Interpretation of the Galactic Center excess of gamma rays with heavier dark matter particles*, *Phys. Rev. D* **90**, 023531 (2014), arXiv:1404.4977; Preprint title: *A weighty interpretation of the Galactic Centre excess*
- [15] V.V. Khoze, C. McCabe, G. Ro, *Higgs vacuum stability from the dark matter portal*, *JHEP* **1408**, 026 (2014), arXiv:1403.4953
- [14] C. Boehm, M.J. Dolan, C. McCabe, M. Spannowsky, C.J. Wallace, *Extended gamma-ray emission from Coy Dark Matter*, *JCAP* **1405**, 009 (2014), arXiv:1401.6458
- [13] C. McCabe, *The Earth's velocity for direct detection experiments*, *JCAP* **1402**, 027 (2014), arXiv:1312.1355
- [12] O. Buchmueller, M.J. Dolan, C. McCabe, *Beyond effective field theory for dark matter searches at the LHC*, *JHEP* **1401**, 025 (2014), arXiv:1308.6799
- [11] M.T. Frandsen, F. Kahlhoefer, C. McCabe, S. Sarkar, K. Schmidt-Hoberg, *The unbearable lightness of being: CDMS versus XENON*, *JCAP* **1307**, 023 (2013), arXiv:1304.6066
- [10] C. Boehm, M.J. Dolan, C. McCabe, *A lower bound on the mass of cold thermal dark matter from Planck* *JCAP* **1308**, 041 (2013), arXiv:1303.6270
- [9] G. Chalons, M.J. Dolan, C. McCabe, *Neutralino dark matter and the Fermi gamma-ray lines*, *JCAP* **1302**, 016 (2013), arXiv:1211.5154

- [8] C. Boehm, M.J. Dolan, C. McCabe, *Increasing N_{eff} with particles in thermal equilibrium with neutrinos*, *JCAP* **1212**, 027 (2012), arXiv:1207.0497
- [7] M.T. Frandsen, F. Kahlhoefer, C. McCabe, S. Sarkar, K. Schmidt-Hoberg, *Resolving astrophysical uncertainties in dark matter direct detection*, *JCAP* **1201**, 024 (2012), arXiv:1111.0292
- [6] A. Brown, S. Henry, H. Kraus, C. McCabe, *Extending the CRESST-II commissioning run limits to lower masses*, *Phys. Rev. D* **85**, 021301 (2012), arXiv:1109.2589
- [5] C. McCabe, *DAMA and CoGeNT without astrophysical uncertainties*, *Phys. Rev. D* **84**, 043525 (2011), arXiv:1107.0741
- [4] M.T. Frandsen, F. Kahlhoefer, J. March-Russell, C. McCabe, M. McCullough, K. Schmidt-Hoberg, *On the DAMA and CoGeNT modulations*, *Phys. Rev. D* **84**, 041301(R) (2011), arXiv:1105.3734
- [3] C. McCabe, *Astrophysical uncertainties of dark matter direct detection experiments*, *Phys. Rev. D* **82**, 023530 (2010), arXiv:1005.0579
- [2] J. March-Russell, C. McCabe, M. McCullough, *Neutrino-flavoured sneutrino dark matter*, *JHEP* **03**, 108 (2010), arXiv:0911.4489
- [1] J. March-Russell, C. McCabe, M. McCullough, *Inelastic dark matter, non-standard halos and the DAMA/LIBRA results*, *JHEP* **05**, 071 (2009), arXiv:0812.1931

Selected awards and achievements

- 2014 ‘Physics of the Dark Universe Award’, presented at TeVPA/IDM 2014, Amsterdam
- 2007 Awarded STFC funding for D.Phil in Theoretical Physics, University of Oxford (1 of 3 awardees)
- 2007 Worcester College Society Prize for the best performance in Science subjects
- 2007 Worcester College Society Prize for performance in final exams
- 2004-2007 College Scholarship, Worcester College

Seminars and talks

- May 2014 Invited speaker (parallel session), TeVPA/IDM (conference), Amsterdam, *Interplay of dark matter searches*
- June 2014 DMUK (workshop), Durham *CoGeNT: dark matter or background?*
- May 2014 Invited speaker, Interplay and Characterisation of Dark Matter Searches at Colliders and Direct Detection Experiments (workshop), London, *Direct detection of dark matter*
- May 2014 Invited speaker, Latest results in dark matter searches (conference), Stockholm, *Interpreting dark matter searches from the LHC*
- Apr 2014 Invited speaker, Bright ideas on dark matters (workshop), Odense, *Where are the WIMPs?*
- Nov 2013 Astroparticle journal club, Durham, *LUX: results and implications*
- Nov 2013 The violent universe (conference), London, *Beyond effective field theory for DM searches at the LHC*
- July 2013 Ripples in the cosmos (conference), Durham, *The unbearable lightness of being*
- Feb 2013 Invited speaker (seminar), Cambridge, *Fitting the Fermi line with neutralino dark matter*
- Oct 2012 BSM journal club, Durham, *Nuclear decay and its role in DAMA*
- July 2012 DarkAttack (conference), Ascona, *Worried by astrophysical uncertainties?*

- June 2012 Internal seminar, Durham, *Hints of new physics from the early universe*
- Mar 2012 New paths to particle dark matter (workshop), Oxford, *Astrophysical uncertainties: New methods to compare experiments*
- Mar 2012 Invited speaker (seminar), Nottingham, *Direct detection without astro uncertainties*
- Nov 2011 BSM Journal Club, Durham, *Some thoughts on direct detection experiments*
- Jan 2011 Journal Club, Oxford, *DAMA is different*
- Sept 2010 4th UniverseNet School, Lecce, *Neutrino-flavoured sneutrino dark matter*
- Oct 2009 3rd UniverseNet School, Barcelona, *Neutrino masses and mixing angles from dark matter*
- June 2009 Journal Club, Oxford, *Neutrino mass from sneutrinos and the status of DM experiments*
- Sept 2008 BUSSTEPP (summer school), Cambridge, *Whats the matter with mu?*

Teaching and outreach

- 2011-present *Workshop tutor, Durham University*
Second year undergraduate course in Mathematical Methods. Group size: 6-10 students in 2011-13, c.60 students in 2013-14. c.30 contact hours.
- 2012 *Workshop tutor, BUSSTEPP (hosted by Durham University)*
Tutor at the annual summer school for first year Ph.D students studying particle theory in British universities. Group size: 6-12 students.
- 2011 *Private tutor*
Private tutor to a student preparing for his Open University physics exams.
- 2009-11 *External tutor, Worcester College and New College, University of Oxford*
Tutor to first, second and third year undergraduates. Courses included Classical Mechanics, Special Relativity, Electromagnetism and Circuit theory, Mathematical Methods, Waves, Quantum Mechanics, Atomic Structure, Laser physics and Classical Relativistic Electrodynamics. Group size: 2-8 students. c.150 contact hours.
- 2009-2010 *Undergraduate admissions, Worcester College and New College, University of Oxford*
Member of the interview panel for undergraduate admissions and the Worcester College nominated marker for the undergraduate entrance exam.
- 2008-2010 *Physics tutor, Uniq and Sutton Trust Summer Schools, University of Oxford*
Outreach programme to encourage pupils from a disadvantaged background to apply to read physics at university.

Other professional activities

Referee for Physical Review Letters, Physical Review D and JCAP. Organiser of the weekly IPPP astro-particle journal club and co-organiser of the bi-weekly IPPP BSM journal club.

Personal details

My wife Caroline is a chartered accountant and we have a 2 year-old son (and have another on the way). Outside of physics, I'm interested in finance, politics, photography and long-ish distance running. I also enjoy playing football and squash when the opportunity arises and captained the Worcester College MCR football team and squash B-team during my time in Oxford.

Last updated on 11th August 2014. Referee's details are available on request.