

Andrew Fowlie

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Born: 15 July, 1987

Nationality: British

Previous experience

- 2015- POST-DOCTORAL RESEARCHER, MONASH UNIVERSITY, AUSTRALIA
Working in phenomenology with Prof. Balázs.
- 2014-2015 POST-DOCTORAL RESEARCHER, KBFI, TALLINN
Working in phenomenology with Prof. Raidal.

Areas of specialization

Beyond the Standard Model physics, including dark matter, supersymmetry, Higgs and collider phenomenology. Bayesian statistical analysis, including parameter fitting, model selection and software.

Publications

h -index of 10, over 400 citations, and several single author papers — see <http://inspirehep.net/author/profile/A.Fowlie.1>

JOURNAL ARTICLES

- 2017 *Halo-independence with quantified maximum entropy at DAMA/LIBRA*, A. Fowlie, (2017), [arXiv:1708.00181](#)
- Minimal flavor-changing Z' models and muon $g - 2$ after the R_{K^*} measurement*, S. Di Chiara, A. Fowlie, S. Fraser, C. Marzo, L. Marzola, M. Raidal, and C. Spethmann, (2017), [arXiv:1704.06200](#)
- 2016 *Gravitational waves at aLIGO and vacuum stability with a scalar singlet extension of the Standard Model*, C. Balazs, A. Fowlie, A. Mazumdar, and G. White, *Phys. Rev. D* 95 (2017), p. 043505, [arXiv:1611.01617](#)
- Bayes factor of the ATLAS diphoton excess: Using Bayes factors to understand anomalies at*

the LHC, A. Fowlie, *Eur. Phys. J. Plus*, 132 (2017), p. 46, [arXiv:1607.06608](#)

Reconstruction of the Higgs mass in events with Higgs bosons decaying into a pair of τ leptons using matrix element techniques, L. Bianchini, B. Calpas, J. Conway, A. Fowlie, L. Marzola, C. Veelken, and L. Perrini, *Nucl. Instrum. Meth.*, A862 (2017), pp. 54–84, [arXiv:1603.05910](#)

Superplot: a graphical interface for plotting and analysing MultiNest output, A. Fowlie and M. H. Bardsley, *Eur. Phys. J. Plus*, 131 (2016), p. 391, [arXiv:1603.00555](#)

Naturalness of the relaxion mechanism, A. Fowlie, C. Balazs, G. White, L. Marzola, and M. Raidal, *JHEP*, 08 (2016), p. 100, [arXiv:1602.03889](#)

2015 *Testing quark mixing in minimal left–right symmetric models with b -tags at the LHC*, A. Fowlie and L. Marzola, *Nucl. Phys.*, B889 (2014), pp. 36–45, [arXiv:1408.6699](#)

2014 *Testing quark mixing in minimal left–right symmetric models with b -tags at the LHC*, A. Fowlie and L. Marzola, *Nucl. Phys.*, B889 (2014), pp. 36–45, [arXiv:1408.6699](#)

Is the CNMSSM more credible than the CMSSM?, A. Fowlie, *Eur. Phys. J.*, C74 (2014), p. 3105, [arXiv:1407.7534](#)

CMSSM, naturalness and the “fine-tuning price” of the Very Large Hadron Collider, A. Fowlie, *Phys. Rev.*, D90 (2014), p. 015010, [arXiv:1403.3407](#)

Prospects for constrained supersymmetry at $\sqrt{s} = 33$ TeV and $\sqrt{s} = 100$ TeV proton-proton super-colliders, A. Fowlie and M. Raidal, *Eur. Phys. J.*, C74 (2014), p. 2948, [arXiv:1402.5419](#)

2013 *Dark matter and collider signatures of the MSSM*, A. Fowlie, K. Kowalska, L. Roszkowski, E. M. Sessolo, and Y.-L. S. Tsai, *Phys. Rev.*, D88 (2013), p. 055012, [arXiv:1306.1567](#)

2012 *The CMSSM Favoring New Territories: The Impact of New LHC Limits and a 125 GeV Higgs*, A. Fowlie, M. Kazana, K. Kowalska, S. Munir, L. Roszkowski, E. M. Sessolo, S. Trojanowski, and Y.-L. S. Tsai, *Phys. Rev.*, D86 (2012), p. 075010, [arXiv:1206.0264](#)

2011 *Bayesian Implications of Current LHC and XENON100 Search Limits for the Constrained MSSM*, A. Fowlie, A. Kalinowski, M. Kazana, L. Roszkowski, and Y. L. S. Tsai, *Phys. Rev.*, D85 (2012), p. 075012, [arXiv:1111.6098](#)

Reconstructing ATLAS SU_3 in the CMSSM and relaxed phenomenological supersymmetry models, A. Fowlie and L. Roszkowski, (2011), [arXiv:1106.5117](#)

Talks & presentations

INVITED

2017 *Forthcoming invited talk*, Fundamental Physics, Symmetry and Life, Sydney.

2017 *Forthcoming invited seminar*, NTU, Taiwan.

OTHER

2016

	<i>Naturalness of the relaxion mechanism</i> , Sheffield University.
2016	<i>Naturalness of the relaxion mechanism</i> , Nottingham University.
2016	<i>The Jeffreys-Lindley's Paradox</i> , CompStats Meeting, Monash University.
2016	<i>Bayesian approach to naturalness</i> , Fine-tuning, the Multiverse and Life, Sydney.
2016	<i>Naturalness of the relaxion mechanism</i> , CosPA, Sydney.
2016	<i>Bayesian naturalness of Next-to-Minimal and Minimal Supersymmetric Models</i> , SUSY 2016, Melbourne.
2016	<i>Naturalness of the relaxion mechanism</i> , SUSY 2016, Melbourne.
2016	<i>Naturalness of the relaxion mechanism</i> , CoEPP Annual Theory Meeting, Melbourne.
2015-	<i>Several informal seminars</i> , Monash University.
2015-2016	<i>Several informal seminars</i> , KBFI.
2014	<i>Prospects for constrained supersymmetry at $\sqrt{s} = 33$ TeV and $\sqrt{s} = 100$ TeV proton-proton super-colliders</i> , Deep Inelastic Scattering, Warsaw.
2013a	<i>Bayesian reconstruction of SUSY parameters via the golden decay</i> , Theory Meets Experiment, Warsaw.
2013b	<i>Status of CMSSM after LHC Run-I</i> , HEP IOP, Liverpool.
2012a	<i>The CMSSM after 2 years of the LHC</i> , Consortium for Fundamental Physics, Sheffield.
2011a	<i>Bayesian Implications of Current LHC Limits for the Constrained MSSM</i> , YETI, Durham.
2011b	<i>Supersymmetry and the LHC</i> , Sheffield (internal).

Education

2009-2013	PH.D., UNIVERSITY OF SHEFFIELD <i>Bayesian Approach to Investigating Supersymmetric Models</i> . Supervised by Prof. Roszkowski. Viva passed with minor corrections, examined by Prof. King (University of Southampton) and Prof. van de Bruck (University of Sheffield).
2009-2010	SISSA, TRIESTE Six-month placement studying advanced topics in particle physics and related subjects.
2005-2009	M. PHYS, UNIVERSITY OF DURHAM First-class four-year undergraduate Master's in Physics. Final-year modules included Advanced Theoretical Physics (82%) and Particle Theory (90%). Master's project, <i>The Search for Dark Matter at the Linear Collider</i> , supervised by Prof. Moortgat-Pick (73%).

Relevant skills & experience

TEACHING, LECTURING & SUPERVISION

2017-	Supervising undergraduate project about the bounce equation.
2016-	Supervising (10%) Ph.D. student, Giancarlo Pozzo, including QFT tutorials.
2015-2016	Supervised undergraduate summer project about statistics, resulting in a publication.
2015	Six hours of lectures on statistics for physicists at the University of Tartu.
2012-2013	First-year physics tutor, weekly tutorials.

2010-2012 Undergraduate physics problem class assistant.

JOURNAL REFEREEING

2017- Referee for *Physical Review D* and *Journal of Physics G: Nuclear and Particle Physics*.

COLLABORATIONS

2016- GAMBIT — Statistical analyses of new physics, including powerful software, lead by Dr. Pat Scott.

2011-2013 BAYESFIT — Bayesian analyses of supersymmetric models in light of first run of LHC, lead by Prof. Roszkowski.

CONFERENCES

2017 GAMBIT workshop, Stockholm.
Patras Workshop on Axions, WIMPs and WISPs, Thessaloniki.
Connecting Astrophysical Dark Matter with Direct Detection, Melbourne.
CoEPP Annual Theory Meeting, Adelaide.

2016 CoEPP Annual Theory Meeting, Melbourne.
Fine-tuning, the Multiverse and Life, Sydney.
CosPA 2016, Sydney.
SUSY 2016, Melbourne.

2014 Deep Inelastic Scattering, Warsaw.

2013 Theory Meets Experiment, Warsaw.
HEP IOP, Liverpool.

2012 UK HEP Forum, Oxford.
SUSY12, Peking University, China.
Implications of LHC results for TeV-scale physics I & II, CERN.
YETI, Durham.

2011 Young Theorists Forum, Durham.
Statistical Methods, Institute of Nuclear Studies, Warsaw.

2012, 2011 & 2010 Annual Theory Meeting, Durham.

TECHNICAL EXPERIENCE

Fortran, Python, C++, Bash and \LaTeX , especially Python. Statistical tools, including MULTINEST and my published software, SUPERPLOT. Physics tools including GAMBIT, MICROMEAS and SOFTSUSY.

2006 & 2007 Summer placement at E.ON, numerical simulation of atmosphere with parallel computing.