

## Rebecca K. Leane

CONTACT INFORMATION	Office 403, David Caro Building School of Physics, The University of Melbourne Victoria 3010, Australia	+61 439 838 547 rleane@physics.unimelb.edu.au rebecca@leane.com
EDUCATION	<b>University of Melbourne</b> <i>Centre of Excellence for Particle Physics at the Terascale (CoEPP)</i> Ph.D. in Physics (Expected 2017) Thesis Advisor: A/Prof. Nicole Bell	2013-Present
	<b>University of Cambridge</b> <i>Department of Applied Mathematics and Theoretical Physics (DAMTP)</i> Master of Advanced Study in Mathematics (Part III of the Mathematical Tripos) Essay Advisor: Prof. Ben Allanach	2012-2013
	<b>Monash University</b> Bachelor of Science Advanced with Honours Majors: Physics and Mathematics. High Distinction. Thesis Advisor: A/Prof. Csaba Balazs	2008-2011
RESEARCH EXPERIENCE	<b>Visiting Researcher</b> Center for Cosmology and AstroParticle Physics (CCAPP), Ohio State University, USA Collaborating with Prof. John Beacom.	Apr-Jun 2016
	<b>Visiting Researcher</b> Vanderbilt University, USA Collaborating with Prof. Tom Weiler.	Sep-Oct 2015
	<b>Graduate Student Researcher</b> CoEPP, University of Melbourne, Australia Under supervision of A/Prof. Nicole Bell.	2013-2017
	<b>Undergraduate Student Researcher</b> Monash University, Australia Third year research project (2010), honours year research project (2011). Both under supervision of A/Prof. Csaba Balazs.	2010-2011
AWARDS AND SCHOLARSHIPS	Best PhD Candidate Seminar of the Year in the School of Physics, Univ. of Melbourne Laby Foundation Early Career Researcher Travel Scholarship Australian Postgraduate Award (APA) Monash Jubilee Honours Scholarship J. L. William Honours Scholarship	2015 2015 2012-2016 2011 2011
PUBLICATIONS	N. F. Bell, Y. Cai and <b>R. K. Leane*</b> , “Dark Forces in the Sky: Signals from $Z'$ and the Dark Higgs”, In preparation, 2016.  N. F. Bell, Y. Cai and <b>R. K. Leane*</b> , “Mono- $W$ Dark Matter Signals at the LHC: Simplified Model Analysis”, JCAP 01 (2016) 051 [arXiv: 1512.00476 [hep-ph]].  N. F. Bell, Y. Cai, J. B. Dent, <b>R. K. Leane*</b> and T. J. Weiler, “Dark matter at the LHC: Effective field theories and gauge invariance”, Phys. Rev. D92, no. 5 053008 (2015) [arXiv:1503.07874 [hep-ph]].  N. F. Bell, Y. Cai, <b>R. K. Leane*</b> and A. D. Medina, “Leptophilic dark matter with $Z'$ interac-	

\* Author list is alphabetical

tions”, Phys. Rev. D 90, no. 3, 035027 (2014) [arXiv:1407.3001 [hep-ph]].

G. Brooijmans et al, “Les Houches 2011: Physics at TeV Colliders New Physics Working Group Report”, FERMILAB-CONF-12-924-T (2012) [arXiv:1203.1488 [hep-ph]].

(Note: Contribution 1, “DLHA: Dark Matter Les Houches Agreement”, is heavily based on my bachelor thesis.)

INVITED SEMINARS & CONFERENCE TALKS	<i>“Unitarity and Gauge Invariance in Dark Matter Models”</i>	
	CETUP Dark Matter Workshop Talk, South Dakota, USA <sup>†</sup>	Jul 2016
	Astroparticle Physics Seminar, University of Cincinnati, USA <sup>†</sup>	May 2016
	<i>“Dark Forces in the Sky: Signals from <math>Z'</math> and the Dark Higgs”</i>	
	Astroparticle Physics Seminar, CCAPP, Ohio State University, USA <sup>†</sup>	May 2016
	Astroparticle Physics Seminar, UC Riverside, USA <sup>†</sup>	May 2016
	Astroparticle Physics Seminar, UC Irvine, USA <sup>†</sup>	May 2016
	Pheno 2016 Symposium Parallel Talk, Pittsburgh, USA	May 2016
	CoEPP Particle Physics Seminar, University of Melbourne, Australia	Apr 2016
	<i>“Dark Matter at the LHC”</i>	
	Particle Theory Seminar, SLAC National Accelerator Laboratory, USA	Oct 2015
	Astroparticle Physics Seminar, CCAPP, Ohio State University, USA	Oct 2015
	Astroparticle Physics Seminar, Fermilab, USA	Sep 2015
	Astroparticle Physics Seminar, Vanderbilt University, USA	Sep 2015
	<i>“Dark Matter at the LHC: EFTs and Gauge Invariance”</i>	
	SUSY Conference Parallel Talk, Lake Tahoe, USA	Aug 2015
	<i>“Dark Matter at the LHC: EFTs, Gauge Invariance and the Mono-<math>W</math>”</i>	
	CoEPP Particle Physics Seminar, University of Melbourne, Australia	Aug 2015
	<i>“Dark Matter at the LHC: EFTs and Gauge Invariance”</i>	
	Geoff Opat Seminar Series, University of Melbourne, Australia	May 2015
	<i>“Leptophilic Dark Matter with <math>Z'</math> Interactions”</i>	
	CosPA Conference Parallel Talk, New Zealand	Dec 2014
	APCosPA Workshop Talk, University of Tokyo/RESCEU, Japan	Jul 2014
	<i>“Dark Matter and the Universe”</i>	
	St Edmund’s Academic Talks Series, University of Cambridge, UK	Jun 2013
OUTREACH	Key Scientific Researcher on International Science Documentary Series	2014-2015
	<i>“Uranium: Twisting the Dragon’s Tail”</i>	
	Worked with Emmy Award winning producer Sonya Pemberton and writer Wain Fimeri part time over 12 months. Had a key role in explaining science content and developing the script for the series. Aired in the United States, Australia, Germany, France, Middle East, Norway and Sweden. The series has been nominated for and won several film awards.	
	Public Talk, Strathcona Girls’ School, Australia	2014
	Panel Member, National Science Week: Kids Ask Questions, Australia	2013
	Panel Member, National Science Week: Ask a Scientist, Australia	2013
	Public Talk, Monash University Open Day Seminar Series, Australia	2011
	Physics Demonstrator, Monash University Open Day, Australia	2011
TEACHING	ATLAS International Masterclass Tutor, University of Melbourne	2015
	Physics Teaching Assistant (Tutorials, Grading, Office Hours), University of Melbourne	2014
	Physics Teaching Assistant (Lab Demonstrator, Grading), University of Melbourne	2012

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<sup>†</sup>Denotes upcoming talk

Physics Teaching Assistant (Lab Demonstrator, Grading), Monash University  
High School Senior Tutoring, Physics and Mathematics

2011  
2008-2010

TECHNICAL  
SKILLS

**Languages:** C++, Python, Bash, Mathematica

**Packages & Frameworks:** FeynRules, MadGraph, Pythia, ROOT, MadAnalysis,  
Fastjet, Delphes, micrOMEGAs, PP4C4DMID, FeynArts, FeynCalc, Ti~~k~~Z

**Other:** Linux OS, L<sup>A</sup>T<sub>E</sub>X