

NICHOLAS L. RODD

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POSITIONS	University of California, Berkeley Miller Research Fellow	2018-present
EDUCATION	Massachusetts Institute of Technology Ph.D. Physics Advisor: Tracy Slatyer Thesis: Listening to the Universe through Indirect Detection 	2013-2018
	Melbourne University M.Sc. (Distinction) Physics Advisor: Raymond Volkas and Elisabetta Barberio Thesis: Analysis of neutrino mass effective operators and testing their signatures at the Large Hadron Collider	2011-2012
	Melbourne University B.Sc. & LL.B. (Hons)	2006-2010
SELECTED AWARDS	APS DAP Cecilia Payne-Gaposchkin Thesis Award J. J. and Noriko Sakurai Dissertation Award in Theoretical Particle Physics Miller Research Fellowship Price Prize in Cosmology and AstroParticle Physics Andrew M. Lockett III Memorial Fund Award, MIT Acevedo Fellowship, MIT Kerman Fellowship, MIT Fulbright Postgraduate Scholarship (declined) Henry James Williams Scholarship, Melbourne University Bryan Scholarship in Natural Science, Melbourne University Raynes Dickson Memorial Exhibition in Deals, Melbourne University Australian Students Prize	2020 2019 2018 2017 2016 2015 2013 2013 2012 2011 2010 2005
PUBLICATIONS	37. G. N. Remmen, N. L. Rodd <i>Signs, Spin, SMEFT: Positivity at Dimension Six</i> 36. J. W. Foster, Y. Kahn, R. Nguyen, N. L. Rodd, B. R. Safdi <i>Dark Matter Interferometry</i> 35. L. Rinchiuso, O. Macias, E. Moulin, N. L. Rodd, T. R. Slatyer <i>Prospects for Heavy WIMP Dark Matter with CTA: the Wino and Higgsino</i> 34. C. W. Bauer, N. L. Rodd, B. R. Webber <i>Dark Matter Spectra from the Electroweak to the Planck Scale</i> 33. I. Baldes, F. Calore, K. Petraki, V. Poireau, N. L. Rodd <i>Indirect searches for dark matter bound state formation and level transitions</i> 32. F. List, N. L. Rodd, G. F. Lewis, and I. Bhat <i>The GCE in a New Light: Disentangling the γ-ray Sky with Bayesian Graph Convolutional Neural Networks</i> 31. C. Dessert, N. L. Rodd, B. R. Safdi <i>Response to a comment on Dessert et al. "The dark matter interpretation of the 3.5 keV line is inconsistent with blank-sky observations"</i> 30. G. N. Remmen, N. L. Rodd <i>Flavor Constraints from Unitarity and Analyticity</i>	arXiv:2010.04723 arXiv:2009.14201 arXiv:2008.00692 arXiv:2007.15001 SciPost Phys. 9 (2020) 068 arXiv:2007.13787 Phys.Rev.Lett. 125 (2020) 241102 arXiv:2006.12504 Phys.Dark Univ. 30 (2020) 100656 arXiv:2006.03974 Phys.Rev.Lett. 125 (2020) 081601 arXiv:2004.02885

29. M. Buschmann, N. L. Rodd, B. R. Safdi, L. J. Chang, S. Mishra-Sharma, M. Lisanti, O. Macias
Foreground Mismodeling and the Point Source Explanation of the Fermi Galactic Center Excess
Phys.Rev. **D102** (2020) 023023
arXiv:2002.12373
28. IceCube Collaboration
A Search for Neutrino Point-Source Populations in 7 Years of IceCube Data with Neutrino-count Statistics
Astrophys.J. **893** (2020) 102
arXiv:1909.08623
27. L. J. Chang, S. Mishra-Sharma, M. Lisanti, M. Buschmann, N. L. Rodd, B. R. Safdi
Characterizing the Nature of the Unresolved Point Sources in the Galactic Center
Phys.Rev. **D101** (2020) 023014
arXiv:1908.10874
26. G. N. Remmen, N. L. Rodd
Consistency of the Standard Model Effective Field Theory
JHEP **1912** (2019) 032
arXiv:1908.09845
25. The ABRACADABRA Collaboration
Design and Implementation of the ABRACADABRA-10 cm Axion Dark Matter Search
Phys.Rev. **D99** (2019) 052012
arXiv:1901.10652
24. C. Dessert, N. L. Rodd, B. R. Safdi
The dark matter interpretation of the 3.5-keV line is inconsistent with blank-sky observations
Science **367** (2020) 6485
arXiv:1812.06976
23. The ABRACADABRA Collaboration
First Results from ABRACADABRA-10 cm: A Search for Sub- μ eV Axion Dark Matter
Phys.Rev.Lett. **122** (2018) 121802
arXiv:1810.12257
22. M. Baumgart, T. Cohen, E. Moulin, I. Mould, L. Rinchuso, N. L. Rodd, T. R. Slatyer, I. W. Stewart, V. Vaidya
Precision Photon Spectra for Wino Annihilation
JHEP **1901** (2019) 036
arXiv:1808.08956
21. L. Rinchuso, N. L. Rodd, I. Mould, E. Moulin, M. Baumgart, T. Cohen, T. R. Slatyer, I. W. Stewart, V. Vaidya
Hunting for Heavy Winos in the Galactic Center
Phys.Rev. **D98** (2018) 123014
arXiv:1808.04388
20. M. Baumgart, T. Cohen, I. Mould, N. L. Rodd, T. R. Slatyer, M. P. Solon, I. W. Stewart, V. Vaidya
Resummed Photon Spectra for WIMP Annihilation
JHEP **1803** (2018) 117
arXiv:1712.07656
19. J. W. Foster, N. L. Rodd, B. R. Safdi
Revealing the Dark Matter Halo with Axion Direct Detection
Phys.Rev. **D97** (2018) 123006
arXiv:1711.10489
18. The HAWC Collaboration
A Search for Dark Matter in the Galactic Halo with HAWC
JCAP **1802** (2018) 049
arXiv:1710.10288
17. R. Bartels, D. Hooper, T. Linden, S. Mishra-Sharma, N. L. Rodd, B. R. Safdi, T. R. Slatyer
Comment on “Characterizing the population of pulsars in the Galactic bulge with the Fermi Large Area Telescope” [arXiv:1705.00009v1]
Phys.Dark Univ. **20** (2016) 88
arXiv:1710.10266
16. R. E. Keeley, S. N. Abazajian, A. Kwa, N. L. Rodd, B. R. Safdi
What the Milky Way’s Dwarfs tell us about the Galactic Center extended excess
Phys.Rev. **D97** (2018) 103007
arXiv:1710.03215
15. M. Lisanti, S. Mishra-Sharma, N. L. Rodd, B. R. Safdi, R. H. Wechsler
Mapping Extragalactic Dark Matter Annihilation with Galaxy Surveys: A Systematic Study of Stacked Group Searches
Phys.Rev. **D97** (2018) 063005
arXiv:1709.00416
14. M. Lisanti, S. Mishra-Sharma, N. L. Rodd, B. R. Safdi
A Search for Dark Matter Annihilation in Galaxy Groups
Phys.Rev.Lett. **120** (2018) 101101
arXiv:1708.09385
13. P. Ilten, N. L. Rodd, J. Thaler, M. Williams
Disentangling Heavy Flavor at Colliders
Phys.Rev. **D96** (2017) 054019
arXiv:1702.02947
12. T. Cohen, K. Murase, N. L. Rodd, B. R. Safdi, Y. Soreq
Gamma-ray Constraints on Decaying Dark Matter and Implications for IceCube
Phys.Rev.Lett. **119** (2017) 021102
arXiv:1612.05638

11. G. Ovanessian, N. L. Rodd, T. R. Slatyer, I. W. Stewart Phys.Rev. **D95** (2017) 055001
arXiv:1612.05638
The One-Loop Correction to Heavy Dark Matter Annihilation
10. S. Mishra-Sharma, N. L. Rodd, B. R. Safdi Astron.J. **153** (2017) 253
arXiv:1612.03173
NPTFit: A code package for Non-Poissonian Template Fitting
9. T. Linden, N. L. Rodd, B. R. Safdi, T. R. Slatyer Phys.Rev. **D94** (2016) 103013
arXiv:1604.01026
The High-Energy Tail of the Galactic Center Gamma-Ray Excess
8. G. Elor, N. L. Rodd, T. R. Slatyer, W. Xu JCAP **1606**, 024 (2015)
arXiv:1511.08787
Model-Independent Indirect Detection Constraints on Hidden Sector Dark Matter
7. G. Elor, N. L. Rodd, T. R. Slatyer Phys.Rev. **D91** (2015) 103531
arXiv:1503.01773
Multi-Step Cascade Annihilations of Dark Matter and the Galactic Center Excess
6. T. Daylan, D. P. Finkbeiner, D. Hooper, T. Linden, Phys.Dark Univ. **12** (2016)
arXiv:1402.6703
S. K. N. Portillo, N. L. Rodd, T. R. Slatyer
The Characterization of the Gamma-Ray Signal from the Central Milky Way: A Case for Annihilating Dark Matter
5. P. W. Angel, Y. Cai, N. L. Rodd, M. A. Schmidt, R. R. Volkas JHEP **1310** (2013) 118
arXiv:1308.0463
Testable two-loop radiative neutrino mass model based on an $LLQd^c Qd^c$ effective operator
4. A. Kobakhidze, N. L. Rodd Int.J.Theor.Phys. **52** (2013) 2636
arXiv:1307.5126
Time-symmetric quantization in spacetimes with event horizons
3. P. W. Angel, N. L. Rodd, R. R. Volkas Phys.Rev. **D87** (2013) 073007
arXiv:1212.6111
Origin of neutrino masses at the LHC: $\Delta L = 2$ effective operators and their ultraviolet completions
2. The ATLAS Collaboration JHEP **12** (2012) 7
arXiv:1210.4538
Search for anomalous production of prompt like-sign lepton pairs at $\sqrt{s} = 7$ TeV with the ATLAS detector
1. The ATLAS Collaboration Eur.Phys.J. **C72** (2012) 2244
arXiv:1210.5070
Search for doubly charged Higgs bosons in like-sign dilepton final states with the ATLAS detector
(Only listed as internal author on this paper due to ATLAS regulations allowing a maximum of one publication before service work has been completed.)

PLENARIES & COLLOQUIA	Melbourne University	December 2019
	Next Frontiers in the Search for Dark Matter, Florence, Italy	September 2019
	In Pursuit of New Particles and Paradigms, Aspen, USA	March 2019
SEMINARS	LHC Results Forum, UC Santa Cruz, INPA LBNL, UC Davis, University of Maryland,	2020
	BSM PANDEMIC, Brown University, KICP, University of Minnesota,	
	Technical University of Munich, Korea Institute for Advanced Study, University of Padua	
	UC San Diego, UC Davis, University of Washington, UC Santa Cruz, SLAC	2019
	Stanford, Melbourne University, UC Berkeley	2018
	Harvard, University of Michigan, Princeton, The Ohio State University (Price Prize Seminar),	2017
	UC Berkeley, UC Irvine, University of Oregon, Fermilab, New York University,	
	The Ohio State University, Perimeter Institute, Virginia Tech, Pennsylvania State University	
CONFERENCE TALKS	Monash University, Melbourne University, McGill University	2016
	Electroweak effects at high energy, Virtual	September 2020
	DM Radio Collaboration Meeting, Virtual	August 2020
	APS April Meeting, Virtual	April 2020
	New Techniques for Dark Matter Discovery, Vancouver, Canada	March 2020
	TeV Particle Astrophysics 2019, Sydney, Australia	December 2019
	NEPLES-2019, Seoul, South Korea	September 2019
	APS April Meeting, Denver, USA	April 2019

	Berkeley week at IPMU, Kashiwa, Japan	January 2019
	TeV Particle Astrophysics 2018, Berlin, Germany	August 2018
	TeV Particle Astrophysics 2017, Columbus, USA	August 2017
	Cosmic Rays, Pulsars & Dark Matter, Santa Fe, USA	March 2017
	CosPA 2016, Sydney, Australia	November 2016
	TeV Particle Astrophysics 2016, CERN, Switzerland	September 2016
	LoopFest XV, Buffalo, USA	August 2016
	Gamma Rays & Dark Matter, Obergurgl, Austria	December 2015
	Intense Electron Beams Workshop, Ithaca, USA	June 2015
	CIPANP 2015, Vail, USA	May 2015
	Astroparticle Physics 2014, Amsterdam, Netherlands	June 2014
	Strings and Super Yang Mills, Melbourne, Australia	April 2013
	Australian-Italian Symposium, Melbourne, Australia	April 2012
	CoEPP Workshop, Lorne, Australia	February 2012
CONFERENCE POSTERS	Sixth International Fermi Symposium, Arlington, USA	November 2015
	Debates on the Nature of Dark Matter, Cambridge, USA	May 2014
	CoEPP Workshop, Cairns, Australia	July 2013
TEACHING EXPERIENCE	Quantum Field Theory 1 (TA and delivered 4 lectures), MIT (6.3/7)	Spring 2018
	Relativity (TA), MIT (6.0/7)	Fall 2017
	Relativity (TA), MIT	Fall 2014
	Quantum Field Theory (TA), Melbourne University	2013
	Physics for Biomed (Recitation Instructor), Melbourne University	2012
	Introductory physics laboratory (Demonstrator), Melbourne University	2011
	(Student evaluation scores are given in parentheses where available.)	
MENTORING	Florian List (graduate)	2020-present
	Michael Toomey (undergraduate)	2017-2018
SERVICE	Referee: Physical Review Letters, Physical Review D, Journal of High Energy Physics, Physics Letters B, Computer Physics Communication	
	Dark matter convener for TeVPA 2019, Sydney, Australia	December 2019
	Co-organizer of mini-workshop on the Galactic Center excess, Columbus, OH	August 2017
	Organizer of summer school on the NPTF, MIT	June 2017
	LBNL Particle Seminar Organizer, Lawrence Berkeley National Laboratory	2019-2020
	Beyond the Standard Model Journal Club Organizer, MIT	2015-2017
OUTREACH	Adopt-a-Physicist	2020
	Presentation at El Cerrito High School	2020
	Presentation to PHYS 153 transfer students, UC Berkeley	2020
REFERENCES	Tracy Slatyer Massachusetts Institute of Technology	tslatyer@mit.edu
	Benjamin Safdi University of Michigan	bsafdi@umich.edu
	Christian Bauer Lawrence Berkeley National Laboratory	cwbauer@lbl.gov
	Hitoshi Murayama University of California, Berkeley	hitoshi@berkeley.edu
	Iain Stewart Massachusetts Institute of Technology	iains@mit.edu
	Christoph Weniger University of Amsterdam	c.weniger@uva.nl
	Marco Cirelli Laboratoire de Physique Théorique et Hautes Énergies	marco.cirelli@lpthe.jussieu.fr