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	2020
	J. J. and Noriko Sakurai Dissertation Award in Theoretical Particle Physics	2019
	Miller Research Fellowship	2018
	Price Prize in Cosmology and AstroParticle Physics	2017
	Andrew M. Lockett III Memorial Fund Award, MIT	2016
	Acevedo Fellowship, MIT	2015
	Kerman Fellowship, MIT	2013
	Fulbright Postgraduate Scholarship (declined)	2013
	Henry James Williams Scholarship, Melbourne University	2012
	Bryan Scholarship in Natural Science, Melbourne University	2011
	Raynes Dickson Memorial Exhibition in Deals, Melbourne University	2010
	Australian Students Prize	2005

Publications

39. J. W. Foster, M. Kongsore, C. Dessert, Y. Park, N. L. Rodd, K. Cranmer, B. R. Safdi
A deep search for decaying dark matter with XMM-Newton blank-sky observations
arXiv:2101.09287

38. J. A. Dror, H. Murayama, N. L. Rodd
The Cosmic Axion Background
arXiv:2102.02207

37. G. N. Remmen, N. L. Rodd
Signs, Spin, SMEFT: Positivity at Dimension Six
arXiv:2010.04723

36. J. W. Foster, Y. Kahn, R. Nguyen, N. L. Rodd, B. R. Safdi
Dark Matter Interferometry
arXiv:2009.14201

35. L. Rinchiuso, O. Macias, E. Moulin, N. L. Rodd, T. R. Slatyer
Prospects for Heavy WIMP Dark Matter with CTA: the Wino and Higgsino
Phys.Rev. **D103** (2021) 023011
arXiv:2008.00692

34. C. W. Bauer, N. L. Rodd, B. R. Webber
Dark Matter Spectra from the Electroweak to the Planck Scale
arXiv:2007.15001

33. I. Baldes, F. Calore, K. Petraki, V. Poireau, N. L. Rodd
Indirect searches for dark matter bound state formation and level transitions
SciPost Phys. **9** (2020) 068
arXiv:2007.13787

32. F. List, N. L. Rodd, G. F. Lewis, and I. Bhat
The GCE in a New Light: Disentangling the γ-ray Sky with Bayesian Graph Convolutional Neural Networks
Phys.Rev.Lett. **125** (2020) 241102
arXiv:2006.12504

31. C. Dessert, N. L. Rodd, B. R. Safdi
Phys.Dark Univ. **30** (2020) 100656
arXiv:2006.03974
Response to a comment on Dessert et al. "The dark matter interpretation
of the 3.5 keV line is inconsistent with blank-sky observations"

30. G. N. Remmen, N. L. Rodd
Phys.Rev.Lett. **125** (2020) 081601
arXiv:2004.02885
Flavor Constraints from Unitarity and Analyticity

29. M. Buschmann, N. L. Rodd, B. R. Safdi, L. J. Chang,
S. Mishra-Sharma, M. Lisanti, O. Macias
Phys.Rev. **D102** (2020) 023023
arXiv:2002.12373
Foreground Mismodeling and the Point Source Explanation
of the Fermi Galactic Center Excess

28. IceCube Collaboration
Astrophys.J. **893** (2020) 102
arXiv:1909.08623
A Search for Neutrino Point-Source Populations in 7 Years
of IceCube Data with Neutrino-count Statistics

27. L. J. Chang, S. Mishra-Sharma, M. Lisanti,
M. Buschmann, N. L. Rodd, B. R. Safdi
Phys.Rev. **D101** (2020) 023014
arXiv:1908.10874
Characterizing the Nature of the Unresolved Point Sources
in the Galactic Center

26. G. N. Remmen, N. L. Rodd
JHEP **1912** (2019) 032
arXiv:1908.09845
Consistency of the Standard Model Effective Field Theory

25. The ABRACADABRA Collaboration
Phys.Rev. **D99** (2019) 052012
arXiv:1901.10652
Design and Implementation of the ABRACADABRA-10 cm
Axion Dark Matter Search

24. C. Dessert, N. L. Rodd, B. R. Safdi
Science 367 (2020) 6485
arXiv:1812.06976
The dark matter interpretation of the 3.5-keV line is
inconsistent with blank-sky observations

23. The ABRACADABRA Collaboration
Phys.Rev.Lett. **122** (2018) 121802
arXiv:1810.12257
First Results from ABRACADABRA-10 cm:
A Search for Sub-μeV Axion Dark Matter

22. M. Baumgart, T. Cohen, E. Moulin, I. Moult, L. Rinchiuso,
N. L. Rodd, T. R. Slatyer, I. W. Stewart, V. Vaidya
JHEP **1901** (2019) 036
arXiv:1808.08956
Precision Photon Spectra for Wino Annihilation

21. L. Rinchiuso, N. L. Rodd, I. Moult, E. Moulin, M. Baumgart,
T. Cohen, T. R. Slatyer, I. W. Stewart, V. Vaidya
Phys.Rev. **D98** (2018) 123014
arXiv:1808.04388
Hunting for Heavy Winos in the Galactic Center

20. M. Baumgart, T. Cohen, I. Moult, N. L. Rodd,
T. R. Slatyer, M. P. Solon, I. W. Stewart, V. Vaidya
JHEP **1803** (2018) 117
arXiv:1712.07656
Resummed Photon Spectra for WIMP Annihilation

19. J. W. Foster, N. L. Rodd, B. R. Safdi
Phys.Rev. **D97** (2018) 123006
arXiv:1711.10489
Revealing the Dark Matter Halo with Axion Direct Detection

18. The HAWC Collaboration
JCAP **1802** (2018) 049
arXiv:1710.10288
A Search for Dark Matter in the Galactic Halo with HAWC

17. R. Bartels, D. Hooper, T. Linden, S. Mishra-Sharma,
N. L. Rodd, B. R. Safdi, T. R. Slatyer
Phys.Dark Univ. **20** (2016) 88
arXiv:1710.10266
Comment on "Characterizing the population of pulsars in the Galactic bulge
with the Fermi Large Area Telescope" [arXiv:1705.00009v1]

16. R. E Keeley, S. N. Abazajian, A. Kwa, N. L. Rodd, B. R. Safdi
Phys.Rev. **D97** (2018) 103007
arXiv:1710.03215
What the Milky Way's Dwarfs tell us about
the Galactic Center extended excess

15. M. Lisanti, S. Mishra-Sharma, N. L. Rodd,
B. R. Safdi, R. H. Wechsler
Phys.Rev. **D97** (2018) 063005
arXiv:1709.00416
Mapping Extragalactic Dark Matter Annihilation with Galaxy Surveys:
A Systematic Study of Stacked Group Searches

14. M. Lisanti, S. Mishra-Sharma, N. L. Rodd, B. R. Safdi
Phys.Rev.Lett. **120** (2018) 101101
arXiv:1708.09385
A Search for Dark Matter Annihilation in Galaxy Groups

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. Ovanesyan, N. L. Rodd, T. R. Slatyer, I. W. Stewart
    The One-Loop Correction to Heavy Dark Matter Annihilation
    Phys.Rev. **D95** (2017) 055001
    arXiv:1612.05638

10. S. Mishra-Sharma, N. L. Rodd, B. R. Safdi
    NPTFit: A code package for Non-Poissonian Template Fitting
    Astron.J. **153** (2017) 253
    arXiv:1612.03173

9. T. Linden, N. L. Rodd, B. R. Safdi, T. R. Slatyer
   The High-Energy Tail of the Galactic Center Gamma-Ray Excess
   Phys.Rev. **D94** (2016) 103013
   arXiv:1604.01026

8. G. Elor, N. L. Rodd, T. R. Slatyer, W. Xu
   Model-Independent Indirect Detection Constraints
   on Hidden Sector Dark Matter
   JCAP **1606**, 024 (2015)
   arXiv:1511.08787

7. G. Elor, N. L. Rodd, T. R. Slatyer
   Multi-Step Cascade Annihilations of Dark Matter
   and the Galactic Center Excess
   Phys.Rev. **D91** (2015) 103531
   arXiv:1503.01773

6. T. Daylan, D. P. Finkbeiner, D. Hooper, T. Linden,
   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
   Phys.Dark Univ. **12** (2016)
   arXiv:1402.6703

5. P. W. Angel, Y. Cai, N. L. Rodd, M. A. Schmidt, R. R. Volkas
   Testable two-loop radiative neutrino mass model
   based on an $LLQd^cQd^c$ effective operator
   JHEP **1310** (2013) 118
   arXiv:1308.0463

4. A. Kobakhidze, N. L. Rodd
   Time-symmetric quantization in spacetimes with event horizons
   Int.J.Theor.Phys. **52** (2013) 2636
   arXiv:1307.5126

3. P. W. Angel, N. L. Rodd, R. R. Volkas
   Origin of neutrino masses at the LHC:
   $\Delta L = 2$ *effective operators and their ultraviolet completions*
   Phys.Rev. **D87** (2013) 073007
   arXiv:1212.6111

2. The ATLAS Collaboration
   Search for anomalous production of prompt like-sign lepton pairs
   at $\sqrt{s} = 7$ TeV with the ATLAS detector
   JHEP **12** (2012) 7
   arXiv:1210.4538

1. The ATLAS Collaboration
   Search for doubly charged Higgs bosons in like-sign dilepton
   final states with the ATLAS detector
   Eur.Phys.J. **C72** (2012) 2244
   arXiv:1210.5070
   (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

Monash University, Melbourne University, McGill University — 2016

CONFERENCE TALKS	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