

NICHOLAS L. RODD

CONTACT	LBNL Theory Office: 50A-5125A Berkeley, CA, USA	✉ nrodd@lbl.gov 🏡 nickrodd.com 🔗 github.com/nickrodd
POSITIONS	Lawrence Berkeley National Laboratory Divisional Fellow	2024-present
	CERN LD Staff Member	2021-2023
	University of California, Berkeley Miller Research Fellow	2018-2021
EDUCATION	Massachusetts Institute of Technology Ph.D. Physics Advisor: Tracy Slatyer Thesis: <i>Listening to the Universe through Indirect Detection</i> 🔗	2013-2018
	Melbourne University M.Sc. (Distinction) Physics Advisor: Raymond Volkas and Elisabetta Barberio Thesis: <i>Analysis of neutrino mass effective operators and testing their signatures at the Large Hadron Collider</i> 🔗	2011-2012
	Melbourne University B.Sc. & LL.B. (Hons)	2006-2010
SELECT AWARDS	APS DAP Cecilia Payne-Gaposchkin Thesis Award 🔗 J. J. and Noriko Sakurai Dissertation Award in Theoretical Particle Physics 🔗 Price Prize in Cosmology and AstroParticle Physics 🔗 Andrew M. Lockett III Memorial Fund Award, MIT 🔗 Fulbright Postgraduate Scholarship (declined) 🔗 Australian Students Prize 🔗	2020 2019 2017 2016 2013 2005
SELECT PRESENTATIONS [‡]	<i>A Quantum Description of Wave Dark Matter</i> , KITP <i>Lectures on Dark Matter</i> , TRISEP Summer School <i>Searching for the heaviest and lightest particles in the Universe</i> , Public Talk for Dark Matter Day <i>Looking Beyond the Dark Matter in Axion Haloscopes</i> , Aspen Center for Physics Colloquium	February 2025 June 2023 October 2022 August 2022
SELECT PUBLICATIONS	<ul style="list-style-type: none">○ D. Y. Cheong, N. L. Rodd, L. Wang <i>A Quantum Description of Wave Dark Matter</i>○ V. Domcke, S. A. R. Ellis, N. L. Rodd <i>Magnets are Weber Bar Gravitational Wave Detectors</i>○ K. Langhoff, N. J. Outmezguine, N. L. Rodd <i>The Irreducible Axion Background</i>○ C. W. Bauer, N. L. Rodd, B. R. Webber <i>Dark Matter Spectra from the Electroweak to the Planck Scale</i>○ F. List, N. L. Rodd, G. F. Lewis, I. Bhat <i>The GCE in a New Light: Disentangling the γ-ray Sky with Bayesian Graph Convolutional Neural Networks</i>○ G. N. Remmen, N. L. Rodd <i>Flavor Constraints from Unitarity and Analyticity</i>	Phys.Rev. D111 (2024) 015028 arXiv:2408.04696
		Phys.Rev.Lett. 134 (2025) 231401 arXiv:2408.01483
		Phys.Rev.Lett. 129 (2022) 241101 arXiv:2209.06216
		JHEP 06 (2021) 121 arXiv:2007.15001
		Phys.Rev.Lett. 125 (2020) 241102 arXiv:2006.12504
		Phys.Rev.Lett. 125 (2020) 081601 arXiv:2004.02885

[‡] Talks listed in blue contain a link to a recording

PUBLICATIONS

66. Y. Bao, D. Y. Cheong, N. L. Rodd, J. Takach, L. Wang, K. Zhou
Intrinsically Quantum Effects of Axion Dark Matter are Undetectable arXiv:2510.05198
65. F. List, Y. Park, N. L. Rodd, E. Schoen, F. Wolf
On the Energy Distribution of the Galactic Center Excess' Sources arXiv:2507.17804
64. M. Baumgart, S. Bottaro, D. Redigolo, N. L. Rodd, T. R. Slatyer
Testing Real WIMPs with CTAO arXiv:2507.15937
63. S. Abe, T. Inada, E. Moulin, N. L. Rodd, B. R. Safdi, W. L. Xu
Discovering the Higgsino at CTAO-North within the Decade arXiv:2506.08084
62. C. Beadle, S. A. R. Ellis, J. M. Leedom, N. L. Rodd
Dark Matter Nuclear Magnetic Resonance is Sensitive to Dark Photons and the Axion-Photon Coupling Phys.Rev. **D113** (2026) L031702 arXiv:2505.15897
61. The ABRACADABRA Collaboration
High-Frequency Gravitational Wave Search with ABRACADABRA-10 cm arXiv:2505.02821
60. G. N. Remmen, N. L. Rodd
Positively Identifying HEFT or SMEFT arXiv:2412.07827
59. G. Durieux, G. N. Remmen, N. L. Rodd, O. J. P. Éboli, M. C. Gonzalez-Garcia, D. Kondo, H. Murayama, R. Okabe
LHC EFT WG Note: Basis for Anomalous Quartic Gauge Couplings SciPost Phys. Comm. Rep. **6** (2025) arXiv:2411.02483
58. D. Y. Cheong, N. L. Rodd, L. Wang
A Quantum Description of Wave Dark Matter Phys.Rev. **D111** (2024) 015028 arXiv:2408.04696
57. V. Domcke, S. A. R. Ellis, N. L. Rodd
Magnets are Weber Bar Gravitational Wave Detectors Phys.Rev.Lett. **134** (2025) 231401 arXiv:2408.01483
56. N. L. Rodd, B. R. Safdi, W. L. Xu
CTA and SWGO can Discover Higgsino Dark Matter Annihilation Phys.Rev. **D110** (2024) 043003 arXiv:2405.13104
55. M. Baumgart, N. L. Rodd, T. R. Slatyer, V. Vaidya
The Quintuplet Annihilation Spectrum JHEP **01** (2024) 158 arXiv:2309.11562
54. D. Carney, V. Domcke, N. L. Rodd
Graviton detection and the quantization of gravity Phys.Rev. **D109** (2024) 044009 arXiv:2308.12988
53. V. Domcke, C. Garcia-Cely, S. M. Lee, N. L. Rodd
Symmetries and Selection Rules: Optimising Axion Haloscopes for Gravitational Wave Searches JHEP **03** (2024) 128 arXiv:2306.03125
52. C. Dessert, O. Ning, N. L. Rodd, B. R. Safdi
Limits from the grave: resurrecting Hitomi for decaying dark matter and forecasting leading sensitivity for XRISM Phys.Rev.Lett. **132** (2024) 211002 arXiv:2305.17160
51. The ADMX Collaboration
Search for the Cosmic Axion Background with ADMX Phys.Rev.Lett. **131** (2023) 101002 arXiv:2303.06282
50. The VERITAS Collaboration
Search for Ultraheavy Dark Matter from Observations of Dwarf Spheroidal Galaxies with VERITAS Astrophys.J. **945** (2023) 101 arXiv:2302.08784
49. M. Freytsis, S. Kumar, G. N. Remmen, N. L. Rodd
Multifield Positivity Bounds for Inflation JHEP **09** (2023) 041 arXiv:2210.10791
48. J. A. Dror, S. Gori, J. M. Leedom, N. L. Rodd
On the Sensitivity of Spin-Precession Axion Experiments Phys.Rev.Lett. **130** (2023) 181801 arXiv:2210.06481
47. A. Montanari, E. Moulin, N. L. Rodd
Towards the ultimate reach of current Imaging Atmospheric Cherenkov Telescopes to TeV Dark Matter Phys.Rev. **D107** (2023) 043028 arXiv:2210.03140
46. K. Langhoff, N. J. Outmezguine, N. L. Rodd
The Irreducible Axion Background Phys.Rev.Lett. **129** (2022) 241101 arXiv:2209.06216
45. D. Tak, M. Baumgart, N. L. Rodd, E. Pueschel
Current and future γ -ray searches for dark-matter annihilation beyond the unitarity limit Astrophys.J. **938** (2022) L4 arXiv:2208.11740

PUBLICATIONS
(CONT.)

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| 44. | G. N. Remmen, N. L. Rodd
<i>Spinning Sum Rules for the Dimension-Six SMEFT</i> | JHEP 09 (2022) 030
arXiv:2206.13524 |
| 43. | V. Domcke, C. Garcia-Cely, N. L. Rodd
<i>A novel search for high-frequency gravitational waves with low-mass axion haloscopes</i> | Phys.Rev.Lett. 129 (2022) 041101
arXiv:2202.00695 |
| 42. | F. List, N. L. Rodd, G. F. Lewis
<i>Dim but not entirely dark: Extracting the Galactic Center Excess' source-count distribution with neural nets</i> | Phys.Rev. D104 (2021) 123022
arXiv:2107.09070 |
| 41. | G. H. Collin, N. L. Rodd, T. Erjavec, K. Perez
<i>A Compound Poisson Generator approach to Point-Source Inference in Astrophysics</i> | Astrophys.J. 260 (2022) 29
arXiv:2104.04529 |
| 40. | The ABRACADABRA Collaboration
<i>The search for low-mass axion dark matter with ABRACADABRA-10cm</i> | Phys.Rev.Lett. 127 (2021) 081801
arXiv:2102.06722 |
| 39. | J. W. Foster, M. Kongsore, C. Dessert, Y. Park,
N. L. Rodd, K. Cranmer, B. R. Safdi
<i>A deep search for decaying dark matter with XMM-Newton blank-sky observations</i> | Phys.Rev.Lett. 127 (2021) 051101
arXiv:2102.02207 |
| 38. | J. A. Dror, H. Murayama, N. L. Rodd
<i>The Cosmic Axion Background</i> | Phys.Rev. D103 (2021) 115004 [†]
arXiv:2101.09287 |
| 37. | G. N. Remmen, N. L. Rodd
<i>Signs, Spin, SMEFT: Sum Rules at Dimension Six</i> | Phys.Rev. D105 (2022) 036006
arXiv:2010.04723 |
| 36. | J. W. Foster, Y. Kahn, R. Nguyen, N. L. Rodd, B. R. Safdi
<i>Dark Matter Interferometry</i> | Phys.Rev. D103 (2021) 076018 [†]
arXiv:2009.14201 |
| 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> | Phys.Rev. D103 (2021) 023011
arXiv:2008.00692 |
| 34. | C. W. Bauer, N. L. Rodd, B. R. Webber
<i>Dark Matter Spectra from the Electroweak to the Planck Scale</i> | JHEP 06 (2021) 121
arXiv:2007.15001 |
| 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> | SciPost Phys. 9 (2020) 068
arXiv:2007.13787 |
| 32. | F. List, N. L. Rodd, G. F. Lewis, I. Bhat
<i>The GCE in a New Light: Disentangling the γ-ray Sky with Bayesian Graph Convolutional Neural Networks</i> | Phys.Rev.Lett. 125 (2020) 241102
arXiv:2006.12504 |
| 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> | Phys.Dark Univ. 30 (2020) 100656
arXiv:2006.03974 |
| 30. | G. N. Remmen, N. L. Rodd
<i>Flavor Constraints from Unitarity and Analyticity</i> | 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
<i>Foreground Mismodeling and the Point Source Explanation of the Fermi Galactic Center Excess</i> | Phys.Rev. D102 (2020) 023023
arXiv:2002.12373 |
| 28. | The IceCube Collaboration
<i>A Search for Neutrino Point-Source Populations in 7 Years of IceCube Data with Neutrino-count Statistics</i> | 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
<i>Characterizing the Nature of the Unresolved Point Sources in the Galactic Center</i> | Phys.Rev. D101 (2020) 023014
arXiv:1908.10874 |
| 26. | G. N. Remmen, N. L. Rodd
<i>Consistency of the Standard Model Effective Field Theory</i> | JHEP 12 (2019) 032
arXiv:1908.09845 |

[†] Editors' Suggestion

PUBLICATIONS
(CONT.)

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. Moult, L. Rinchiuso, N. L. Rodd, T. R. Slatyer, I. W. Stewart, V. Vaidya
Precision Photon Spectra for Wino Annihilation
JHEP **01** (2019) 036
arXiv:1808.08956
21. L. Rinchiuso, N. L. Rodd, I. Moult, 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. Moult, N. L. Rodd, T. R. Slatyer, M. P. Solon, I. W. Stewart, V. Vaidya
Resummed Photon Spectra for WIMP Annihilation
JHEP **03** (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. 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

PUBLICATIONS
(CONT.)

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) 1-23
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 **10** (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.)

WHITE PAPERS

8. M. Baumgart, N. L. Rodd, et al.
Snowmass Theory Frontier: Effective Field Theory
arXiv:2210.03199
7. D. Green, N. L. Rodd, et al.
Snowmass Theory Frontier: Astrophysics and Cosmology
arXiv:2209.06854
6. K. K. Boddy, M. Lisanti, S. D. McDermott, N. L. Rodd,* C. Weniger, et al.
Astrophysical and Cosmological Probes of Dark Matter
JHEAp **35** (2022) 112
arXiv:2203.06380
5. D. Carney, N. L. Rodd, et al.
Ultraheavy particle dark matter
SciPost Phys.Core **6** (2023) 075
arXiv:2203.06508
4. S. Ando, N. L. Rodd, et al.
Synergies between dark matter searches and multiwavelength/multimessenger astrophysics
arXiv:2203.06781
3. R. Leane, N. L. Rodd, et al.
Puzzling Excesses in Dark Matter Searches and How to Resolve Them
arXiv:2203.06859
2. K. Engel, N. L. Rodd, et al.
The Future of Gamma-Ray Experiments in the MeV-EeV Range
arXiv:2203.07360
1. M. Baumgart, N. L. Rodd, et al.
Effective Field Theories for Dark Matter Phenomenology
arXiv:2203.08204

PLENARIES &
COLLOQUIA

- University of California, Santa Cruz
San Francisco State University
TeV Particle Astrophysics 2024, Chicago
LNS Colloquium, MIT
University of Toronto
Max Planck Institute for Physics, Munich
Oskar Klein Center, Stockholm University
Progress on Old and New Themes in cosmology (PONT) 2023, Avignon, France
Novel approaches to characterise the Galactic Centre Excess, Annecy
University of California, Davis
Aspen Center for Physics
University of Amsterdam GRAPPA
Exploring the Dark Universe 33rd Rencontres de Blois, Blois, France
Snowmass Theory Frontier Conference, Santa Barbara, USA

November 2024
September 2024
August 2024
May 2024
March 2024
November 2023
October 2023
May 2023
March 2023
March 2023
August 2022
June 2022
May 2022
February 2022

* Editor

PLENARIES &
COLLOQUIA
(CONT.)

XIX International Workshop on Neutrino Telescopes, Virtual
Melbourne University
Next Frontiers in the Search for Dark Matter, Florence, Italy
In Pursuit of New Particles and Paradigms, Aspen, USA

February 2021
December 2019
September 2019
March 2019

CONFERENCE
TALKS

Spec-S5 Dark Matter Meeting 2025, Chicago, USA
SMEFT meets ChEFT, TRIUMF, Canada
Windows into New Physics in the Sky, MITP, Germany
Quantum Sensing meets Ultra-high Frequency Gravitational Waves, MITP, Germany
No Stone Unturned, Salt Lake City, USA
[What is Particle Theory?](#) Santa Barbara, USA
8th General Meeting of the LHC EFT Working Group, Geneva, Switzerland
Fundamental physics and gravitational wave detectors, Pollica, Italy
2024 Seoul Particle Theory Workshop, Seoul, South Korea
The Mitchell Conference 2024, College Station, USA
Axions 2024, Gainesville, USA
Dark Wave Lab Workshop, Batavia, USA
Ultra-high frequency gravitational waves: where to next? Geneva, Switzerland
CERN EP Physics Workshop, Crozat, France
LHC EFT Working Group: positivity constraints, Geneva, Switzerland
[Axions across boundaries](#), Florence, Italy
Novel approaches to characterise the Galactic Centre Excess, Annecy, France
17th IAXO Collaboration Meeting, DESY
19th Rencontres du Vietnam, Quy Nhon, Vietnam
Particle Avenues in the Dark Universe Arena (PADUA), Padua, Italy
CERN-CKC workshop, Jeju Island, South Korea
[Novel Hidden Sectors: From Colliders to Cosmology](#), Munich, Germany
Computational Tools for High Energy Physics and Cosmology, Virtual
[New Physics from The Sky](#), Florence, Italy
PANIC 2021 Lisbon Portugal, Virtual
CMB-S4 collaboration meeting, Virtual
Electroweak effects at high energy, Virtual
DM Radio Collaboration Meeting, Virtual
APS April Meeting, Virtual
New Techniques for Dark Matter Discovery, Vancouver, Canada
TeV Particle Astrophysics 2019, Sydney, Australia
NEPLES-2019, Seoul, South Korea
APS April Meeting, Denver, USA
Berkeley week at IPMU, Kashiwa, Japan
TeV Particle Astrophysics 2018, Berlin, Germany
TeV Particle Astrophysics 2017, Columbus, USA
Cosmic Rays, Pulsars & Dark Matter, Santa Fe, USA
CosPA 2016, Sydney, Australia
TeV Particle Astrophysics 2016, Geneva, Switzerland
LoopFest XV, Buffalo, USA
Gamma Rays & Dark Matter, Obergurgl, Austria
Intense Electron Beams Workshop, Ithaca, USA
CIPANP 2015, Vail, USA
Astroparticle Physics 2014, Amsterdam, Netherlands
Strings and Super Yang Mills, Melbourne, Australia
Australian-Italian Symposium, Melbourne, Australia
CoEPP Workshop, Lorne, Australia

October 2025
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INVITED SEMINARS	UC Davis	2026
	UC Davis, Harvard, Cornell, University of Oregon, Brigham Young University, Perimeter Institute, Fermilab, University of Melbourne, Copernicus Webinar, Arizona State University, University of Chicago , University of Wisconsin–Madison, Wisconsin IceCube Particle Astrophysics Center	2025
	University of Melbourne, ARC Centre of Excellence for Dark Matter, Sydney CPPC , UC San Diego, Caltech, JPL, McGill	2024
	Tel Aviv University, Weizmann, ICTP, EPFL, LAPTh, Boston University, The University of British Columbia, UC Davis, Chung-Ang University, Cambridge University, Sapienza University of Rome, CERN Quantum Technology Initiative, Universitat Autònoma de Barcelona, Copernicus Webinar	2023
	UIUC, Stanford, UC Berkeley, LBNL, University of Victoria and TRIUMF (joint), University of Florida and Florida State University (joint), DESY, University of Geneva (Cosmology department), University of Geneva (Particle Physics department), Technion, Hebrew University Miller Lunch Talk , University of Cambridge, University of Michigan, Rutgers University,	2022
	CERN, University of Sydney , Kavli IPMU, ARC Centre of Excellence for Dark Matter, University of Melbourne, KASI , McGill University , UC Santa Cruz	2021
	LHC Results Forum, UC Santa Cruz, INPA LBNL, UC Davis , University of Maryland, BSM PANDEMIC , Brown University, KICP, University of Minnesota , Technical University of Munich, Korea Institute for Advanced Study, University of Padua	2020
	UC San Diego, UC Davis , University of Washington, UC Santa Cruz, SLAC	2019
	Stanford, University of Melbourne, UC Berkeley	2018
	Harvard, University of Michigan, Princeton, The Ohio State University (Price Prize Seminar), UC Berkeley, UC Irvine, University of Oregon, Fermilab, New York University, The Ohio State University, Perimeter Institute, Virginia Tech, Pennsylvania State University	2017
	Monash University, University of Melbourne, McGill University	2016
TEACHING	Schools and Lectures	
	* 2023 Tri-Institute Summer School on Elementary Particles (TRISEP)	June 2023
	* BCVSPIN-2021: Probing the Mysteries of the Universe	January 2022
	* IPMU Pedagogical Seminar Series	November 2021
	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.)	
STUDENTS	Joey Takach	2024-present
	Eve Schoen	2024-present
MENTORING	Dhong Yeon Cheong (graduate)	2023
	Yunha Lee (graduate)	2022-2024
	Sung Mook Lee (graduate)	2022-2023
	Gongjun Choi (postdoc)	2021-2023
	Florian List (graduate)	2020-2021
	Chris Dessert (graduate)	2018-2019
	Josh Foster (graduate)	2017-2018
	Michael Toomey (undergraduate)	2017-2018

SERVICE	<p>Referee: Physical Review Letters, Physical Review D, Journal of High Energy Physics, Physics Letters B, SciPost, Journal of Cosmology and Astroparticle Physics, The Astrophysical Journal, Computer Physics Communication, New Astronomy, The Particle Data Group</p> <p>Organiser of LBNL AI/ML Seminar Series</p> <p>Convener for SUSY 2025</p> <p>Organised the Berkeley Axion Workshop</p> <p>Organised the Third EuCAPT Annual Symposium</p> <p>Organised 34th Rencontres de Blois</p> <p>Organised 19th Rencontres du Vietnam</p> <p>Management Committee, COST Action COSMIC WISPers in the Dark Universe</p> <p>Organised the Second EuCAPT Annual Symposium</p> <p>Organised New Methods and Ideas at the Frontiers of Particle Physics (Winter Aspen)</p> <p>Organiser of the HEP/Astro Results Forum</p> <p>Convener for COSMO'21, University of Illinois and Online</p> <p>Convener for TeVPA 2019, Sydney, Australia</p> <p>Co-organiser of mini-workshop on the Galactic Center excess, Columbus, OH</p> <p>Organised a summer school on the NPTF, MIT</p> <p>LBNL Particle Seminar Organiser, Lawrence Berkeley National Laboratory</p> <p>Beyond the Standard Model Journal Club Organiser, MIT</p> <p>Ph.D. Thesis Committee</p> <ul style="list-style-type: none"> * Carl Beadle, “Phenomenological Aspects of Feebly Interacting Physics from Axions to Gravity” (Francesco Riva & Sebastian Ellis, University of Geneva) * Harrison Ploeg, “The Galactic Millisecond Pulsar Population – Implications for the Galactic Center Excess” (Chris Gordon, University of Canterbury) 	2025 August 2025 May 2025 May 2023 May 2023 January 2023 2022-2023 May 2022 March 2022 2021- August 2021 December 2019 August 2017 June 2017 2019-2020 2015-2017 July 2025 August 2021
OUTREACH	<p>Astronomy on Tap - East Bay</p> <p>Podcast recorded for Dark Matter Day</p> <p>Presentation to the Galesville Astrophysical Society</p> <p>KITP Teachers' Conference, presentation to high school teachers</p> <p>Quarknet, presentation to visiting high school students, LBNL</p> <p>Aspen Center for Physics - Public Lecture</p> <p>Interviewed to outline the work of a theorist for the CERN Science Gateway</p> <p>Dark matter presentations to school students visiting CERN from the UK and Israel</p> <p>Public talk for Dark Matter Day at CERN – recording available here</p> <p>Interview on Radio Physics</p> <p>Interview with The Scientist Reach Out Group – recording available here</p> <p>Presentation at the Berkeley High School Physics Club – recording available here</p> <p>Organised and Presenter at “Meet a Miller Fellow,” El Cerrito High School</p> <p>Adopt-a-Physicist</p> <p>Presentation to PHYS 153 transfer students, UC Berkeley</p>	2026 2025 2025 2025 2024- 2024 2022 2022-2023 2022 2022 2022 2022 2021 2020-2021 2020 2020
GRANTS	<p>Department of Energy: Laboratory Directed Research & Development</p> <p><i>Preparing Axion Haloscopes for Discovery</i></p> <p>Templeton Foundation</p> <p><i>A Window to the Beginning of Time:</i></p> <p><i>a staged search for pre-inflationary axions and gravitational waves</i></p>	2025 \$480,000 2025 \$250,000
AWARDS	<p>APS DAP Cecilia Payne-Gaposchkin Thesis Award</p> <p>J. J. and Noriko Sakurai Dissertation Award in Theoretical Particle Physics</p> <p>Miller Research Fellowship</p> <p>Price Prize in Cosmology and AstroParticle Physics</p> <p>Andrew M. Lockett III Memorial Fund Award, MIT</p> <p>American Australian Association's ConocoPhillips Fellowship</p> <p>Acevedo Fellowship, MIT</p>	2020 2019 2018 2017 2016 2015 2015

AWARDS (CONT.)	Kerman Fellowship, MIT	2013
	Fulbright Postgraduate Scholarship (declined)	2013
	Henry James Williams Scholarship, Melbourne University	2012
	Dean's Honours List in MSc Physics, Melbourne University	2012
	Bryan Scholarship in Natural Science, Melbourne University	2011
	Master of Science National Scholarship, Melbourne University	2011
	Raynes Dickson Memorial Exhibition in Deals, Melbourne University	2010
	Dean's Honours List in BSc/LLB, Melbourne University	2008
	Dean's Honours List in BSc/LLB, Melbourne University	2006
	VCE Premiers All Round High Achiever	2005
	Australian Students Prize	2005
	Dux of Melbourne Grammar School	2005

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