

REBECCA K. LEANE



SLAC National Accelerator Laboratory
Stanford University
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RESEARCH
INTERESTS Theoretical Particle and Astroparticle Physics, Physics Beyond the Standard Model
Expertise: Indirect Dark Matter Detection, New Dark Matter and Astroparticle Search
Strategies, Intersection of Theory and Astrophysical Data for Dark Matter

CURRENT
APPOINTMENTS **SLAC National Accelerator Laboratory** 2021–Present
Stanford University

SLAC Particle Theory Group
Associate Staff Scientist

Kavli Institute for Particle Astrophysics and Cosmology (KIPAC)
Senior Member

PREVIOUS
APPOINTMENTS **SLAC National Accelerator Laboratory, Stanford University** 2020–2021
SLAC Particle Theory Group
Postdoctoral Research Associate

Massachusetts Institute of Technology 2017–2020
MIT Center for Theoretical Physics
Postdoctoral Research Associate

EDUCATION **University of Melbourne** 2013–2017
Centre of Excellence for Particle Physics at the Terascale (CoEPP)
Ph.D. in Theoretical Particle Physics
Thesis Advisor: Prof. Nicole Bell

University of Cambridge 2012–2013
Department of Applied Mathematics and Theoretical Physics (DAMTP)
Master of Advanced Study in Mathematics (Part III of the Mathematical Tripos)
Essay Advisor: Prof. Ben Allanach

Monash University 2008–2011
Bachelor of Science Advanced with Honours
Majors: Physics and Mathematics. High Distinction.
Thesis Advisor: Prof. Csaba Balazs

FUNDED GRANTS	KIPAC Innovation Grant, \$42,000 USD <i>Detecting Dark Matter in Exoplanets</i> Leane and Macintosh	2022
	NASA Fermi Guest Investigator Program, Cycle 12, \$70,000 USD <i>Characterizing Unresolved Point-Source Populations in the Inner Galaxy</i> Grant No. 80NSSC19K1515, Leane and Slatyer	2019–2020
PRIZES, AWARDS & SCHOLARSHIPS	Chancellor’s Prize for Excellence in the PhD Thesis, U. Melbourne	2018
	Dean’s Award for Excellence in Graduate Research, U. Melbourne	2018
	Australian Government Research Training Program Scholarship	2017
	Royal Society of Victoria Young Scientist Research Prize	2016
	Science Abroad Travelling Scholarship	2016
	Laby Foundation Early Career Researcher Travel Scholarship	2015
	Australian Postgraduate Award (APA)	2012–2016
	Monash Jubilee Honours Scholarship	2011
	J. L. William Honours Scholarship	2011
PUBLICATIONS	INSPIRE profile and ARXIV publication list h-index: 22, total citations: 1,284 (from INSPIRE, 10/19/22) Asterisk indicates alphabetical order list (as per convention in theoretical particle physics).	
	<u>Journal Articles:</u>	
	36. A. Das, N. Kurinsky, R. K. Leane* Dark Matter Induced Power in Quantum Devices To be submitted, [arXiv: 2210.09313 [hep-ph]] [0 citations]	2022
	35. R. K. Leane* and J. Smirnov Floating Dark Matter in Celestial Bodies To be submitted, [arXiv: 2209.09834 [hep-ph]] [3 citations]	2022
	34. M. Collier, D. Croon, R. K. Leane* Tidal Love Numbers of Novel and Admixed Celestial Objects Submitted to PRD, [arXiv: 2205.15337 [gr-qc]] [3 citations]	2022
	33. R. K. Leane* and T. Linden, First Analysis of Jupiter in Gamma Rays and a New Search for Dark Matter Submitted to PRL, [arXiv: 2104.02068 [astro-ph.HE]] [22 citations]	2021

32. **R. K. Leane***, T. Linden, P. Mukhopadhyay, N. Toro, 2021
 Celestial-Body Focused Dark Matter Annihilation Throughout the Galaxy
 Phys. Rev. D 103, 075030 (2021), [arXiv:[2101.12213](#) [astro-ph.HE]]
 [34 citations]

31. **R. K. Leane*** and J. Smirnov 2020
 Exoplanets as Sub-GeV Dark Matter Detectors
 Phys. Rev. Lett. 126, 161101 (2021), [arXiv:[2010.00015](#) [hep-ph]]
Selected as PRL Editor's Suggestion, Featured in APS Physics
 [42 citations]

30. D. Croon, G. Elor, **R. K. Leane***, S. McDermott 2020
 Supernova Muons: New Constraints on Z' Bosons, Axions, and ALPs
 JHEP 01 (2021) 107, [arXiv:[2006.13942](#) [hep-ph]]
 [63 citations]

29. **R. K. Leane** and T. R. Slatyer 2020
 Spurious Point Source Signals in the Galactic Center Excess
 Phys. Rev. Lett. 125, 121105 (2020), [arXiv:[2002.12370](#) [astro-ph.HE]]
 [41 citations]

28. **R. K. Leane** and T. R. Slatyer 2020
 The Enigmatic Galactic Center Excess:
 Spurious Point Sources and Signal Mismodeling
 Phys. Rev. D 102, 063019 (2020), [arXiv:[2002.12371](#) [astro-ph.HE]]
 [37 citations]

27. D. Hooper, **R. K. Leane***, Y. Tsai, S. Wegsman, S. Witte 2019
 A Systematic Study of Hidden Sector Dark Matter:
 Application to the Gamma-Ray and Antiproton Excesses
 JHEP 07 (2020) 163, [arXiv:[1912.08821](#) [hep-ph]]
 [23 citations]

26. J. Acevedo, J. Bramante, **R. K. Leane***, N. Raj 2019
 Cooking Pasta with Dark Matter:
 Kinetic and Annihilation Heating of Neutron Star Crusts
 JCAP 03 (2020) 038, [arXiv:[1911.06334](#) [hep-ph]]
 [54 citations]

25. **R. K. Leane** and T. R. Slatyer 2019
 Dark Matter Strikes Back at the Galactic Center
 Phys. Rev. Lett. 123 (2019) 241101, [arXiv:[1904.08430](#) [astro-ph.HE]]
Selected as PRL Editor's Suggestion, Featured in APS Physics
 [90 citations]

24. HAWC Collaboration and J.F. Beacom, **R. K. Leane***, T. Linden, K. C.Y. Ng, A. Peter, B. Zhou
Constraints on Spin-Dependent Dark Matter Scattering
with Long-Lived Mediators from TeV Observations of the Sun with HAWC
Phys. Rev. D 98 (2018), 123012, [arXiv:[1808.05624](#) [hep-ph]].
[51 citations] 2018

23. HAWC Collaboration and J.F. Beacom, **R. K. Leane***, T. Linden, K. C.Y. Ng, A. Peter, B. Zhou
First HAWC Observations of the Sun Constrain Steady TeV Gamma-Ray Emission
Phys. Rev. D 98 (2018), 123011, [arXiv:[1808.05620](#) [astro-ph.HE]]
[26 citations] 2018

22. **R. K. Leane**, T. R. Slatyer, J. F. Beacom, K. C.Y. Ng
GeV-Scale Thermal WIMPs: Not Even Slightly Dead
Phys. Rev. D98 (2018), 023016 [arXiv:[1805.10305](#) [hep-ph]]
[128 citations] 2018

21. N. F. Bell, Y. Cai, J. B. Dent, **R. K. Leane***, T. J. Weiler
Enhancing Dark Matter Annihilation Rates with Dark Bremsstrahlung
Phys. Rev. D96 (2017), 023011 [arXiv:[1705.01105](#) [hep-ph]]
[32 citations] 2017

20. **R. K. Leane**, K. C.Y. Ng, J. F. Beacom
Powerful Solar Signatures of Long-Lived Dark Mediators
Phys. Rev. D95 (2017), 123016 [arXiv:[1703.04629](#) [astro-ph.HE]]
[73 citations] 2017

19. N. F. Bell, Y. Cai, **R. K. Leane***
Impact of Mass Generation for Spin-1 Mediator Simplified Models
JCAP 01 (2017) 039 [arXiv:[1610.03063](#) [hep-ph]]
[51 citations] 2016

18. N. F. Bell, Y. Cai, **R. K. Leane***
Dark Forces in the Sky: Signals from Z' and the Dark Higgs
JCAP 08 (2016) 001 [arXiv:[1605.09382](#) [hep-ph]]
[37 citations] 2016

17. N. F. Bell, Y. Cai, **R. K. Leane***
Mono- W Dark Matter Signals at the LHC: Simplified Model Analysis
JCAP 01 (2016) 051 [arXiv:[1512.00476](#) [hep-ph]]
[53 citations] 2015

16. N. F. Bell, Y. Cai, J. B. Dent, **R. K. Leane***, T. J. Weiler 2015
Dark matter at the LHC: Effective field theories and gauge invariance
Phys. Rev. D92, 053008 (2015) [arXiv:[1503.07874](#) [hep-ph]]
[73 citations]
15. N. F. Bell, Y. Cai, **R. K. Leane***, A. D. Medina 2014
Leptophilic dark matter with Z' interactions
Phys. Rev. D 90, 035027 (2014) [arXiv:[1407.3001](#) [hep-ph]]
[65 citations]

Review Articles:

14. **R. K. Leane** 2020
Indirect Detection of Dark Matter in the Galaxy
[arXiv:[2006.00513](#) [hep-ph]]
[29 citations]

Invited Viewpoint Articles:

13. Y. Hochberg, Y. Kahn, **R. K. Leane***, S. Rajendran, 2022
K. Van Tilburg, T-T. Yu, K. Zurek
New Approaches to Dark Matter Detection
[Nature Reviews Physics \(2022\)](#).
[2 citations]

White Papers and Working Group Reports:

12. J. Cooley, T. Lin, H. Lippincott, T. Slatyer, T. Yu et al (incl **R. K. Leane**) 2022
Report of the Topical Group on Particle Dark Matter for Snowmass 2021,
[arXiv:[2209.07426](#) [hep-ph]]
Role: Report based in part on my Cosmic Frontier contributions.
[2 citations]
11. A. Drlica-Wagner, C. Prescod-Weinstein, H.-B. Yu et al (incl **R. K. Leane**) 2022
Report of the Topical Group on Cosmic Probes of Dark Matter for Snowmass 2021,
[arXiv:[2209.08215](#) [hep-ph]]
Role: Report based in part on my Cosmic Frontier contributions.
[2 citations]

10. D. Green, J. Ruderman, B. Safdi, J. Shelton et al (incl **R. K. Leane**) 2022
 Snowmass Theory Frontier: Astrophysics and Cosmology,
 [arXiv:[2209.06854](#) [hep-ph]]
Role: Report based in part on my Theory Frontier contributions.
 [0 citations]

9. **R. K. Leane**, S. Shin, L. Yang, et al, 2022
 Snowmass2021 Cosmic Frontier:
 Puzzling excesses in dark matter searches and how to resolve them,
 [arXiv:[2203.06859](#) [hep-ph]]
Role: Paper coordinator/editor, and leader of the Galactic Center Excess section.
 [12 citations]

8. L. Winslow, et al (incl **R. K. Leane**), 2022
 Axion Dark Matter, [arXiv:[2203.14923](#) [hep-ex]]
Role: Contributor to “Synergies with astrophysical searches” section.
 [30 citations]

7. P. Harding, S. Horiuchi, D. Walker, et al (incl **R. K. Leane**), 2022
 Snowmass2021 Cosmic Frontier:
 Synergies between dark matter searches and multiwavelength/multimessenger as-
 trophysics, [arXiv:[2203.06781](#) [hep-ph]]
Role: Contributor to “Searches with Celestial Bodies” section.
 [5 citations]

6. D. Carney, N. Raj, et al (incl **R. K. Leane**), 2022
 Snowmass2021 Cosmic Frontier:
 Ultra-heavy particle dark matter, [arXiv:[2203.06508](#) [hep-ph]]
Role: Contributor to “Indirect Detection” section.
 [21 citations]

5. M Baryakhtar, R. Caputo, D. Croon, K. Perez, et al (incl **R. K. Leane**), 2022
 Dark Matter In Extreme Astrophysical Environments, [arXiv:[2203.07984](#) [hep-ph]]
Role: Contributor to “Light Dark Matter” section.
 [18 citations]

4. K. Boddy, M. Lisanti, S. McDermott, N. Rodd, 2022
 C, Weniger, et al (incl **R. K. Leane**),
 Astrophysical and Cosmological Probes of Dark Matter,
 [arXiv:[2203.06380](#) [hep-ph]]
Role: Contributor to “X-ray and γ -ray Dark Matter Signatures” section.
 [17 citations]

3. T Aramaki, P. von Doetinchem, S. Profumo, et al (incl **R. K. Leane**), 2022
 Snowmass2021 Cosmic Frontier:
 The landscape of cosmic-ray and high-energy photon probes of particle dark matter,
 [arXiv:[2203.06894](#) [hep-ex]]
Role: Contributor to “Photon Probes” section.
 [8 citations]

2. M. Un Nisa, J. F. Beacom, S. Y. BenZvi, 2019
R. K. Leane, T. Linden, K. C.Y. Ng, A. H.G. Peter, B. Zhou
 The Sun at GeV-TeV Energies: A New Laboratory for Astroparticle Physics
 Astro2020 Science White Paper (2019) [arXiv:[1903.06349](#) [astro-ph.HE]]
Role: Contributor to text, content based in part on my solar dark matter search papers.
 [23 citations]

1. G. Brooijmans et al (incl **R. K. Leane**) 2012
 Les Houches 2011: Physics at TeV Colliders New Physics Working Group Report
 (2012) [arXiv:[1203.1488](#) [hep-ph]]
Role: Contributor to text; “DLHA: Dark Matter Les Houches Agreement”, is heavily based on my bachelor thesis.
 [114 citations]

TALKS

Summary: 11 invited plenary talks, 13 invited colloquia, 54 invited seminars, 23 additional conference/workshop talks (incl. 16 invited). Talks across Australia, Austria, Brazil, Canada, Germany, Guadeloupe, Italy, Japan, New Zealand, Portugal, Spain, Sweden, Switzerland, United Kingdom, and the United States.

Invited Plenary/Overview Talks and Colloquia:

102. Invited Colloquium, University of Toronto, Toronto, Canada	Jan 2023
101. Invited Plenary Talk, TeVPA 2022, Kingston ON, Canada	Aug 2022
100. Invited Plenary Talk, Identification of DM 2022, Vienna, Austria	Jul 2022
99. Invited Colloquium, Snowmass Cosmic Frontier Meeting, Online	Jun 2022
98. Invited Overview Talk, HEP/Astro Results Forum, Online	May 2022
97. Invited Colloquium, Munich-Area Physics (TUM/LMU/MPI), Germany	May 2022
96. Invited Colloquium, SLAC, Menlo Park CA, USA	Feb 2022
95. Invited Colloquium, Carleton University, Ottawa, Canada	Dec 2021
94. Invited Colloquium, CERN, Geneva, Switzerland	Oct 2021
93. Invited Plenary Talk, Dark Matter 2021, Santander, Spain	Sep 2021
92. Invited Colloquium, North Carolina State U., Raleigh NC, USA	Sep 2021
91. Invited Plenary Talk, EXPLORE workshop, Germany	Aug 2021
90. Invited Plenary Talk, Planck 2021, Durham, UK	Jun 2021
89. Invited Colloquium, Stockholm University, Stockholm, Sweden	May 2021
88. Invited Colloquium, University of Chicago KICP, Chicago IL, USA	May 2021
87. Invited Colloquium, University at Albany SUNY, Albany NY, USA	Mar 2021
86. Invited Colloquium, Northeastern University, Boston MA, USA	Feb 2021
85. Invited Plenary Talk, Light Dark World 2020, Sydney, Australia	Dec 2020
84. Invited Plenary Talk, Identification of DM 2020, Vienna, Austria	Jul 2020
83. Invited Plenary Talk, 3rd World Summit on EDSU, Guadeloupe	Mar 2020
82. Invited Colloquium, MIT, LNS, Cambridge MA, USA	Feb 2020
81. Invited Plenary Talk, DM@LHC 2019, Seattle WA, USA	Aug 2019
80. Invited Colloquium, University of Melbourne, Melbourne Australia	Dec 2018
79. Invited Plenary Talk, CAASTRO-CoEPP Joint Workshop, Australia	Jan 2017
78. Invited Plenary Talk, ATLAS Astroparticle Forum Meeting, CERN	Nov 2016

Invited Seminars and Other Conference Talks:

77. Invited Talk, Aspen Winter Conference, Aspen CO, USA	Mar 2023
76. Invited Seminar, McGill University, Montreal, Québec, Canada	Nov 2022
75. Invited Seminar, Fermilab, Batavia IL, USA	Oct 2022
74. Invited Seminar, University of Utah, Salt Lake City UT, USA	Sep 2022

73. Invited Seminar, University of Hawaii, Manoa HI, USA	May 2022
72. Invited Seminar, Stanford University, Stanford CA, USA	Apr 2022
71. Invited Seminar, Kings College London, London, UK	Mar 2022
70. Invited Seminar, University of Kentucky, Lexington KY, USA	Mar 2022
69. Invited Talk, Bay Area Theoretical Physics Seminar, San Francisco CA	Mar 2022
68. Invited Talk, FISICA 2022, Mainz, Germany	Mar 2022
67. Invited Seminar, Rutgers University, Piscataway NJ, USA	Dec 2021
66. Invited Seminar, Colgate University, Hamilton NY, USA	Nov 2021
65. Invited Parallel Talk, PANIC 2021, Lisbon, Portugal	Sep 2021
64. Invited Seminar, Max-Planck Institute, Heidelberg, Germany	Jul 2021
63. Invited Seminar, UCLA, Los Angeles CA, USA	Jun 2021
62. Invited Seminar, Imperial College London, London, UK	Apr 2021
61. Invited Seminar, University of Torino, Torino, Italy	Apr 2021
60. Invited Talk, Aspen Center for Physics Winter Conf., Aspen CO, USA	Mar 2021
59. Invited Seminar, University of Notre Dame, Notre Dame IN, USA	Mar 2021
58. Invited Seminar, Brookhaven National Laboratory, Upton NY, USA	Feb 2021
57. Invited Seminar, Queen's University, Kingston ON, Canada	Feb 2021
56. Invited Seminar, Stanford University, Stanford CA, USA	Dec 2020
55. Invited Seminar, California Institute of Technology, Pasadena CA, USA	Dec 2020
54. Invited Talk, 3rd South American DM Workshop, Brazil	Dec 2020
53. Invited Seminar, UC Santa Cruz, Santa Cruz CA, USA	Nov 2020
52. Invited Seminar, SLAC, Menlo Park CA, USA	Nov 2020
51. Invited Talk, Snowmass CF-01 Group Meeting	Aug 2020
50. Invited Seminar, Sydney CCPC, Sydney, Australia	Aug 2020
49. Invited Seminar, Kavli IPMU, Tokyo, Japan	May 2020
48. Parallel Talk, Pheno 2020, Pittsburgh PA, USA	May 2020
47. Invited Talk, Astrophysical Signatures of DM Workshop, MI, USA (<i>canceled due to covid-19</i>)	May 2020
46. Invited Talk, Aspen Winter Conf. on Particle Physics, Aspen CO, USA (<i>canceled due to covid-19</i>)	Mar 2020
45. Invited Seminar, U. Mass Amherst, Amherst MA, USA	Feb 2020
44. Invited Seminar, Tufts University, Medford MA, USA	Feb 2020
43. Invited Seminar, Boston University, Boston MA, USA	Nov 2019
42. Invited Seminar, SLAC, Menlo Park CA, USA	Oct 2019
41. Invited Seminar, Texas A&M University, College Station TX, USA	Oct 2019
40. Invited Seminar, MIT Center for Theoretical Physics, Camb. MA, USA	Sep 2019
39. Invited Seminar, Perimeter Institute, Waterloo ON, Canada	Jun 2019
38. Invited Talk, Aspen Center for Physics, Aspen CO, USA	Jun 2019

37. Invited Seminar, KICP, University of Chicago, Chicago IL, USA	Apr 2019
36. Invited Seminar, Brown University, Providence RI, USA	Apr 2019
35. Invited Seminar, Fermilab, Batavia IL, USA	Mar 2019
34. Invited Seminar, Brandeis University, Boston MA, USA	Mar 2019
33. Invited Seminar, Princeton University, Princeton NJ, USA	Feb 2019
32. Invited Talk, TRIUMF Dark Matter Workshop, Vancouver BC, Canada	Feb 2019
31. Parallel Talk, DESY Theory Workshop, Hamburg, Germany	Sep 2018
30. Invited Seminar, University of Melbourne, Melbourne VIC, Australia	Sep 2018
29. Parallel Talk 1, IDM 2018, Providence RI, USA	Jul 2018
28. Parallel Talk 2, IDM 2018, Providence RI, USA	Jul 2018
27. Invited Parallel Talk, PASCOS 2018, Cleveland OH, USA	Jun 2018
26. Parallel Talk, Pheno 2018 Symposium, Pittsburgh PA, USA	May 2018
25. Invited Seminar, California Institute of Technology, Pasadena CA, USA	Apr 2018
24. Invited Seminar, LBNL, Berkeley CA, USA	Apr 2018
23. Invited Seminar, University of Michigan, Ann Arbor MI, USA	Apr 2018
22. Invited Seminar, Dartmouth University, Hanover NH, USA	Apr 2018
21. Invited Seminar, University of Melbourne, Melbourne VIC, Australia	Jan 2018
20. Invited Seminar, MIT Center for Theoretical Physics, Camb. MA, USA	Sep 2017
19. PhD Completion Seminar, University of Melbourne, Australia	Mar 2017
18. Invited Seminar, TRIUMF, Vancouver BC, Canada (remote)	Dec 2016
17. Invited Talk, CETUP Dark Matter Workshop, Deadwood SD, USA	Jul 2016
16. Invited Seminar, University of Cincinnati, Cincinnati OH, USA	May 2016
15. Invited Seminar, CCAPP, Ohio State University, Columbus OH, USA	Jun 2016
14. Invited Seminar, UC Riverside, Riverside CA, USA	May 2016
13. Invited Seminar, UC Irvine, Irvine CA, USA	May 2016
12. Parallel Talk, Pheno 2016 Symposium, Pittsburgh PA, USA	May 2016
11. Invited Seminar, University of Melbourne, Melbourne VIC, Australia	Apr 2016
10. Invited Seminar, SLAC, Menlo Park CA, USA	Oct 2015
9. Invited Seminar, CCAPP, Ohio State University, Columbus OH, USA	Oct 2015
8. Invited Seminar, Fermilab, Batavia IL, USA	Sep 2015
7. Invited Seminar, Vanderbilt University, Nashville TN, USA	Sep 2015
6. Invited Seminar, University of Melbourne, Melbourne VIC, Australia	Aug 2015
5. Parallel Talk, SUSY 2015, Lake Tahoe CA, USA	Aug 2015
4. Invited Seminar, University of Melbourne, Melbourne VIC, Australia	May 2015
3. Parallel Talk, CoSPA2014, Auckland, New Zealand	Dec 2014
2. Contributed Talk, RESCEU APCosPA School, Matsumoto, Japan	Jul 2014
1. Invited Seminar, University of Cambridge, Cambridge, UK	Jun 2013

OUTREACH
& PRESS

Interview, <i>New Scientist</i> ,	2022
Earth's Surface May Be Teeming with Trillions of Dark Matter Particles	
Video Interview (~ 8K views), <i>Universe Today</i> ,	2021
Interview with Dr. Rebecca K. Leane, Detecting Dark Matter	
Interview, <i>SLAC News</i> ,	2021
How Exoplanets Could Aid the Search for Dark Matter	
Interview, <i>Universe Today</i> ,	2021
Jupiter Could Make an Ideal Dark Matter Detector	
Press Piece, <i>APS Physics</i> ,	2021
Detecting Dark Matter in Exoplanets	
Interview, <i>Science Magazine</i> ,	2021
Dark Matter Could Warm the Hearts of Lonely Old Planets, Scientists Predict	
Interview, <i>Wired Magazine</i> ,	2021
Where's the Dark Matter? Look for Suspiciously Warm Planets	
Interview, <i>Quanta Magazine</i> ,	2020
Physicists are Expanding the Search for Dark Matter	
Interview, <i>The Boston Globe Newspaper</i> ,	2019
MIT scientists find DM could be cause of mysterious energy at the center of our galaxy	
Interview, <i>MIT News</i> ,	2019
Is there dark matter at the center of the Milky Way?	
Press Piece, <i>APS Physics</i> ,	2019
New Hope for Milky-Way Dark Matter	
Interview, <i>Gizmodo</i> ,	2019
The Future of Particle Physics Is Bright, Bleak, and Magical	
Interview, <i>Quanta Magazine</i> ,	2019
Dark Matter Gets a Reprieve in New Analysis	
Interview, <i>Kavli Foundation</i> ,	2019
Dark Matter is Back	
Interview, <i>Science Magazine</i> ,	2019
Physicists Revive Hunt for Dark Matter in the Heart of the Milky Way	
Interview, <i>Popular Mechanics</i> ,	2019
Filling the Void: What is Dark Matter?	
Open House Talk, MIT Center for Theoretical Physics, Cambridge MA, USA	2018
Young Scientist Research Prize Talk, Royal Society of Victoria, Australia	2016
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 in a paid role over 12 months. Had a major role explaining the science content and developing the script for the series. Aired worldwide and won numerous science communication and 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
<u>High impact papers on Altmetric (stats as of 06/14/21):</u>	
<ul style="list-style-type: none"> • “Exoplanets as Sub-GeV Dark Matter Detectors” (2021) paper w/ Juri Smirnov: Altmetric Score of 435, ranked #49 of all time for media coverage of PRL outputs • “Dark Matter Strikes Back at the Galactic Center” (2019) paper w/ Tracy Slatyer: Altmetric Score of 327, ranked #91 of all time for media coverage of PRL outputs 	

TEACHING	Invited Lecturer, Dark Matter Theory Lectures, SLAC Summer Institute	2022
	Invited Lecturer, EXPLORE2021 Summer School Workshop	2021
	Guest Lecturer for MIT graduate level course <i>8.811: Particle Physics II</i>	2017
	Lecture Title: “Dark Matter Model Building”	
	ATLAS International Masterclass Tutor, U. Melbourne	2015
	Physics Teaching Assistant (Tutorials, Grading, Office Hours), U. Melbourne	2014
	Physics Teaching Assistant (Lab Demonstrator, Grading), U. Melbourne	2012
	Physics Teaching Assistant (Lab Demonstrator, Grading), Monash U.	2011
	High School Tutoring, Physics and Mathematics	2008–2010
MENTORING	SLAC Postdoctoral Researchers:	
	Javier Acevedo	2022–
	PhD Students:	
	<i>Stanford Thesis Advising:</i>	
	Joshua Tong	2022–
	<i>Other Mentoring:</i>	
	Lillian Santos-Olmsted, Stanford (Rotation Advisor)	Fall 2022
	Joshua Tong, Stanford (Rotation Advisor)	Winter 2022
	Payel Mukhopadhyay, Stanford (→ Postdoc at Berkeley)	2020–2021
	Undergraduate Students:	
	Afura Taylor, MIT (→ PhD at Princeton)	2020–2021
STANFORD/SLAC SERVICE	Dark Matter Topical Lead for DOE HEP Institutional Review of SLAC	2022
	Stanford Physics, Identity, and Equity (PIE) Program Invited Speaker	2022
	SLAC Particle Theory Graduate Spring Open House Co-ordinator	2022
	Stanford Selection Committee for CAMPARE/Leadership Alliance Programs	2022
	Stanford Physics Graduate Admissions, Astrophysics Committee	2021–22
	Stanford Physics Recruitment Committee	2021–22
	Stanford Physics, Identity, and Equity (PIE) Program Invited Speaker	2021
	Stanford Graduate Student Orientation: SLAC Theoretical Physics Overview Talk	2021
	SLAC Particle Theory Website Maintenance	2021–
	SLAC Dark Matter Meetings/Journal Club Founding Organizer	2021–
	Stanford Physics PhD Dissertation Committee Examiner:	
	• David Cyncynates (advisor: Savas Dimopoulos)	2022

REVIEWING	Journal Referee for:	
	• Physical Review Journals (PRL, PRD)	2019–
	• Journal of High Energy Physics (JHEP)	2021–
	• Journal of Cosmology and Astroparticle Physics (JCAP)	2021–
	• SciPost Physics	2020–
COMMUNITY	Invited Viewpoint Article Contributor in Nature Physics Reviews, “New Approaches to Dark Matter Detection” (see publications)	2022
	Coordinator, Editor, and Author Snowmass Cosmic Frontier CF01 White Paper: “Puzzling Excesses in Dark Matter Searches and How to Resolve Them”	2021–2022
	Contributor to 6 Cosmic Frontier Snowmass White Papers (see publications)	2022
	Contributor to 1 Theory Frontier Snowmass White Paper (see publications)	2022
	Coordinator/Principal Author of Two Snowmass Letters of Interest Understanding the Galactic Center Gamma-Ray Excess: Observational Prospects Understanding the Galactic Center Gamma-Ray Excess: Theory Prospects Submitted to Cosmic Frontier and Theory Frontier Snowmass Working Groups	2020
	Convener/Chair, Plenary Session, TeV Particle Astrophysics (TeVPA) Conference	2022
	Particle Theory Seminar Organizer, MIT Center for Theoretical Physics	2018–2020
	Convener, Dark Matter Session, TeV Particle Astrophysics (TeVPA) Conference	2019
	MIT Heising-Simons Physics Research Fellowship Peer Review Committee	2018
REFERENCES	Prof. Tracy Slatyer Center for Theoretical Physics Massachusetts Institute of Technology	
	Prof. John Beacom Center for Cosmology and AstroParticle Physics (CCAPP) Ohio State University	
	Prof. Dan Hooper Fermi National Accelerator Laboratory (Fermilab) & University of Chicago	
	Prof. Nicole Bell (Ph.D. Advisor) University of Melbourne	