

PEARL SANDICK

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Department of Physics and Astronomy
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Research

- Dark Matter
- Particle Astrophysics and Cosmology
- Physics Beyond the Standard Model
- Phenomenology

Other Academic Interests

- Policy and Program Development
- Equity, Diversity, and Inclusion

Education

2008	Ph.D. in Physics, University of Minnesota, Advisor: Keith A. Olive
2003	B.A. in Mathematics (Cum Laude), New York University

Professional Appointments

- Professor, Department of Physics and Astronomy, University of Utah, 2022-present.
- Associate Dean for Faculty and Research, College of Science, University of Utah, 2022-present.
- Associate Dean for Faculty Affairs, College of Science, University of Utah, 2019-2022.
- Associate Chair, Department of Physics and Astronomy, University of Utah, 2018-2019.
- Associate Professor, Department of Physics and Astronomy, University of Utah, 2017-2022.
- Assistant Professor, Department of Physics and Astronomy, University of Utah, 2011-2017.
- Postdoctoral Fellow, Weinberg Theory Group, The University of Texas at Austin, 2008-2011.

Awards

2022 Linda K. Amos Award, University of Utah
2020 Presidential Scholar, University of Utah
2020 Distinguished Mentor Award, The Graduate School, University of Utah
2015 Early Career Teaching Award, University of Utah, 2015-2016
2007 Doctoral Dissertation Fellow, University of Minnesota, 2007-2008
2007 Miami 2007 Meshkov Award
2006 Buttrick and Hubachek Grant, 2006-2007
1999 New York University Honors Scholar, 1999-2003

QuickLinks

Memberships

Particle Physics, Astrophysics, & Cosmology
Refereed Publications
Conference Proceedings & Other Publications
Conference & Workshop Presentations
Seminars, Webinars, & Colloquia
Equity, Policy, and Program Development
Publications
Presentations
Funding History

Administrative Accomplishments

Professional Service
To the Broader Physics Community
To the Particle Physics Community
To the College & University
To the Department
Media Coverage & Public Lectures
Teaching Experience
Advising

Memberships

2005-present American Physical Society (APS)
2011-present Utah Women in Physics and Astronomy (WomPA)
2019-present American Association of Physics Teachers (AAPT)
2003-2008 UMN Women in Physics and Astronomy (WiPA)
2006-2008 UMN Grad Phi

Particle Physics, Astrophysics, & Cosmology

Refereed Publications (Particle Physics, Astrophysics, & Cosmology)

Also available on [INSPIRE](#).

Authors are alphabetical unless otherwise specified.

49. “*New dark matter analysis of Milky Way dwarf satellite galaxies with MADHATv2*,” K. K. Boddy, Z. J. Carter, J. Kumar, L. Rufino, **P. Sandick**, and N. Tapia-Arellano, arXiv:2401.05327 [hep-ph], *submitted to PRD*.
48. “*Are There Correlations in the HAWC and IceCube High Energy Skymaps Outside the Galactic Plane?*,” J. Kumar, C. Rott, **P. Sandick**, and N. Tapia-Arellano, arXiv:2312.15125 [hep-ph].
47. “*Supermassive Black Hole Binaries in Ultralight Dark Matter*,” B. C. Bromley, **P. Sandick**, and B. Shams Es Haghi, arXiv:2311.18013 [astro-ph.GA], *submitted to PRD*.
46. “*Neutrinos for TeV Neutralinos*,” C. Rott, **P. Sandick**, and B. Sheff, arXiv:2311.14802 [hep-ph], *submitted to PRD*.
45. “*Applying Machine Learning Techniques to Searches for Lepton-Partner Pair-Production with Intermediate Mass Gaps at the Large Hadron Collider*,” B. Dutta, T. Ghosh, A. Horne, J. Kumar, S. Palmer, **P. Sandick**, M. Snedeker, P. Stengel and J. W. Walker, arXiv:2309.10197 [hep-ph], *submitted to PRD*.
44. “*Constraining p-wave Dark Matter Annihilation with Gamma-Ray Observations of M87*,” K. Christy, J. Kumar, and **P. Sandick**, Phys. Rev. D **108**, no.10, 103042 (2023).

43. “*Earth Shielding and Daily Modulation from Electrophilic Boosted Dark Matter*,” Y. Chen, B. Fornal, **P. Sandick**, J. Shu, X. Xue, Y. Zhao, and J. Zong, Phys. Rev. D 107 (2023) 3, 033006.
42. “*Neutrino point source searches for dark matter spikes*,” K. Freese, I. Galstyan, **P. Sandick**, and P. Stengel, JCAP 08 (2022) 065.
41. “*Reionization in the Light of Dark Stars*,” P. Gondolo, **P. Sandick**, B. Shams Es Haghi, and E. Visbal, Astrophys. J. 935 (2022) 1, 11.
40. “*Asymmetric reheating by primordial black holes*,” **P. Sandick**, B. Shams Es Haghi, and K. Sinha, Phys. Rev. D 104 (2021) 8.
39. “*Precision Calculation of Dark Radiation from Spinning Primordial Black Holes and Early Matter Dominated Eras*,” A. Arbey, J. Auffinger, **P. Sandick**, B. Shams Es Haghi, and K. Sinha, Phys. Rev. D 103 (2021) 12.
38. “*Inelastic dark matter scattering off Thallium cannot save DAMA*,” S. Jacobsen, K. Freese, C. Kelso, **P. Sandick**, and P. Stengel, JCAP 10 (2021) 070.
37. “*MADHAT: Model-Agnostic Dark Halo Analysis Tool*,” K. Boddy, S. Hill, J. Kumar, **P. Sandick**, and B. Shams Es Haghi, Comp. Phys. Comm. 261 (2021) 107815.
36. “*Effects of primordial black holes on dark matter models*,” P. Gondolo, **P. Sandick**, and B. Shams Es Haghi, Phys. Rev. D 102 (2020) 9.
35. “*Boosted Dark Matter Interpretation of the XENON1T Excess*,” B. Fornal, **P. Sandick**, J. Shu, M. Su, and Y. Zhao, PRL 125 (2020) 16.
34. “*Hunting for Scalar Lepton Partners at Future Electron Colliders*,” S. Baum, **P. Sandick**, and P. Stengel, Phys. Rev. D 102 (2020) 1.
33. “*Searching for light from a dark matter clump*,” T. Ghosh, J. Kumar, D. Marfatia, and **P. Sandick**, JCAP 08 (2018) 023.
32. “*Model-independent constraints on dark matter annihilation in dwarf spheroidal galaxies*,” K. Boddy, J. Kumar, D. Marfatia, and **P. Sandick**, Phys. Rev. D 97 (2018) 095031.
31. “*Theoretical Uncertainties in the Calculation of Supersymmetric Dark Matter Observables*,” P. Bergeron, **P. Sandick**, and K. Sinha, JHEP 05 (2018) 113.
30. “*Directly Detecting Isospin-Violating Dark Matter*,” C. Kelso, J. Kumar, D. Marfatia, and **P. Sandick**, Phys. Rev. D 97 (2018) 056004.
29. “*Examining the time dependence of DAMA’s modulation amplitude*,” C. Kelso, C. Savage, **P. Sandick**, K. Freese, and P. Gondolo, Eur. Phys. J. C 78 (2018) 223.
28. “*Black Holes, Dark Matter Spikes, and Constraints on Simplified Models with t -channel Mediators*,” **P. Sandick**, K. Sinha, and T. Yamamoto, Phys. Rev. D 98 (2018) 035004.
27. “*Prospects for detecting a net photon circular polarization produced by decaying dark matter*,” E. Elagin, J. Kumar, **P. Sandick**, and F. Teng, Phys. Rev. D 96 (2017) 096008.

26. “A Study of Dark Matter and QCD-Charged Mediators in the Quasi-Degenerate Regime,” A. Davidson, C. Kelso, J. Kumar, **P. Sandick**, and Patrick Stengel, Phys. Rev. D 96 (2017) 115029.
25. “Probing Squeezed Bino-Slepton Spectra with the Large Hadron Collider,” B. Dutta, K. Fantahun, A. Fernando, T. Ghosh, J. Kumar, **P. Sandick**, P. Stengel, and J.W. Walker, Phys. Rev. D 96 (2017) 075037.
24. “Simplified Dark Matter Models with Charged Mediators: Prospects for Direct Detection,” **P. Sandick**, K. Sinha, and F. Teng, JHEP 10 (2016) 018.
23. “Gamma-ray Signals from Dark Matter Annihilation Via Charged Mediators,” J. Kumar, **P. Sandick**, F. Teng, and T. Yamamoto, Phys. Rev. D 94 (2016) 015022.
22. “Beyond the CMSSM without an Accelerator: Proton Decay and Direct Dark Matter Detection,” J. Ellis, J. L. Evans, F. Luo, N. Nagata, K. A. Olive, and **P. Sandick**, Eur. Phys. J. C 76 (2016) no.1, 8.
21. “Searching for Dark Matter Annihilation to Monoenergetic Neutrinos with Liquid Scintillation Detectors,” J. Kumar and **P. Sandick**, JCAP 06 1506 (2015) 035.
20. “Strange Brew: Charged Mediators in Dark Matter Scattering with Nuclei,” C. Kelso, J. Kumar, **P. Sandick**, and P. Stengel, Phys. Rev. D 91 (2015) 055028.
19. “MSSM Dark Matter and a Light Slepton Sector: The Incredible Bulk,” K. Fukushima, C. Kelso, J. Kumar, **P. Sandick**, and T. Yamamoto, Phys. Rev. D 90 no. 9 (2014) 095007.
18. “Lowering the Threshold in the DAMA Dark Matter Search,” C. Kelso, **P. Sandick**, and C. Savage, JCAP 09 (2013) 022.
17. “Closing Supersymmetric Resonance Regions With Direct Detection Experiments,” D. Hooper, C. Kelso, **P. Sandick**, and W. Xue, Phys. Rev. D 88 (2013) 015010.
16. “Gamma Rays from Bino-like Dark Matter in the MSSM,” J. Kumar and **P. Sandick**, Phys. Rev. D 87 (2013) 123534.
15. “Well-Mixed Dark Matter and the Higgs,” D. Feldman and **P. Sandick**, Phys. Let. B 724 (2013) 241.
14. “The Higgs Mass beyond the CMSSM,” J. Ellis, F. Luo, K.A. Olive, and **P. Sandick**, Eur. Phys. J. C 73 (2013) 2403.
13. “Gamma-ray Constraints on the First Stars from Annihilation of Light WIMPs,” **P. Sandick**, J. Dieemand, K. Freese, and D. Spolyar, Phys. Rev. D 85 (2012) 083519.
12. “Probing EWSB Naturalness in Unified SUSY Models with Dark Matter,” S. Amsel, K. Freese, and **P. Sandick**, JHEP 11 (2011) 110.
11. “Detection Prospects for Majorana Fermion WIMPless Dark Matter,” K. Fukushima, J. Kumar, and **P. Sandick**, Phys. Rev. D 84 (2011) 014020.
10. “Constraints on a Non-thermal History from Galactic Dark Matter Spikes,” **P. Sandick** and S. Watson, Phys. Rev. D 84 (2011) 023507.

9. “*Black Holes in our Galactic Halo: Compatibility with FGST and PAMELA Data and Constraints on the First Stars*,” **P. Sandick***, J. Diemand, K. Freese, and D. Spolyar, JCAP 01 (2011) 018.
8. “*The Sensitivity of the IceCube Neutrino Detector to Dark Matter Annihilating in Dwarf Galaxies*,” **P. Sandick***, D. Spolyar, M. R. Buckley, K. Freese, and D. Hooper, Phys. Rev. D 81 (2010) 083506.
7. “*Update on the Direct Detection of Dark Matter in MSSM Models with Non-Universal Higgs Masses*,” J. Ellis, K. A. Olive, and **P. Sandick**, New J. Phys. 11 (2009) 105015.
6. “*Varying the Universality of Supersymmetry-Breaking Contributions to MSSM Higgs Boson Masses*,” J. Ellis, K. A. Olive, and **P. Sandick**, Phys. Rev. D 78 (2008) 075012.
5. “*Sparticle Discovery Potentials in the CMSSM and GUT-less Supersymmetry-Breaking Scenarios*,” J. Ellis, K. A. Olive, and **P. Sandick**, JHEP 08 (2008) 013.
4. “*Phenomenology of GUT-less Supersymmetry Breaking*,” J. Ellis, K. A. Olive, and **P. Sandick**, JHEP 06 (2007) 079.
3. “*What if supersymmetry breaking appears below the GUT scale?*,” J. Ellis, K.A. Olive, and **P. Sandick**, Phys. Lett. B 642 (2006) 389.
2. “*Gravitational Waves from the First Stars*,” **P. Sandick***, K. A. Olive, F. Daigne, and E. Vangioni, Phys. Rev. D 73 (2006) 104024.
1. “*Neutrino Signatures from the First Stars*,” F. Daigne, K. A. Olive, **P. Sandick**, and E. Vangioni, Phys. Rev. D 72 (2005) 103007.

Conference Proceedings & Other Publications (Particle Physics, Astrophysics, & Cosmology)

15. “*Report of the Topical Group on Physics Beyond the Standard Model at Energy Frontier for Snowmass 2021*,” T. Bose et al., Contribution to Snowmass 2021, arXiv:2209.13128 [hep-ph].
14. “*Simplified dark matter models with charged mediators*,” T. Ghosh, C. Kelso, K. Kumar, **P. Sandick**, and P. Stengel, Contribution to Snowmass 2021, arXiv:2203.08107 [hep-ph].
13. “*The International Linear Collider: Report to Snowmass 2021*,” ILC International Development Team, Contribution to Snowmass 2021, arXiv:2203.07622 [phys.acc-ph].
12. “*Dark radiation constraints on light primordial black holes*,” J. Auffinger, A. Arbey, **P. Sandick**, B. Shams Es Haghi, and K. Sinha, PoS EPS-HEP2021 (2022).
11. “*Proceedings, Workshop on Dark Matter, Neutrino Physics and Astrophysics CETUP* 2016: Lead/Deadwood, SD, USA, June 9-July 17 2016*,” B. Szczerbinska (ed.), K. Babu (ed.), B. Balentekin (ed.), J. Kumar (ed.), S. Mishra (ed.), S. Raby (ed.), **P. Sandick (ed.)**, and L. Strigari (ed.) AIP Conf. Proc. 1900 (2017).
10. “*SUSY Dark Matter: Beyond the Standard Paradigm*,” **P. Sandick**, Proceedings of the Workshop on Dark Matter, Neutrino Physics and Astrophysics CETUP* 2015; 9th International Conference on the Interconnection between Particle Physics and Cosmology (PPC 2015): Lead/Deadwood, SD, USA, July 2015, AIP Conf. Proc. **1743** (2016) 020011.

* Authors are by order of contribution.

9. “*Proceedings, Workshop on Dark Matter, Neutrino Physics and Astrophysics CETUP* 2013; 7th International Conference on the Interconnection between Particle Physics and Cosmology (PPC 2013): Lead/Deadwood, SD, USA, July 8-13 2013*,” B. Szczerbinska (ed.), R. Allahverdi (ed.), B. Balentekin (ed.), B. Dutta (ed.), T. Kamon (ed.), J. Kumar (ed.), and **P. Sandick (ed.)**, AIP Conf. Proc. 1604 (2014).
8. “*Sub-GUT $mSUGRA$* ,” **P. Sandick**, Proceedings of the 36th International Conference on High Energy Physics (ICHEP 2012), Melbourne, Australia, July 4-11, 2012, PoS ICHEP 2012 **117** (2013).
7. “*Dark Matter and EWSB Naturalness in Unified SUSY Models*,” **P. Sandick**, Proceedings of the Center for Theoretical Underground Physics - Dark Matter & Neutrino Physics (CETUP* 2012), Lead/Deadwood, South Dakota, July 10 - Aug 1, 2012, AIP Conf. Proc. **1534** 136 (2012).
6. “*Signatures of Dark Star Remnants in the Galactic Halo*,” **P. Sandick**, Juerg Diemand, Katherine Freese, and Douglas Spolyar, Proceedings of the 8th International Workshop on the Identification of Dark Matter, Montpellier, France, 26-30 July, 2010, PoS IDM2010 **086** (2010).
5. “*Particle Dark Matter: Status and Searches*,” **P. Sandick**, Proceedings of the Frank N. Bash Symposium 2009: New Horizons in Astronomy, Austin, TX, 18-20 Oct. 2009, ASP Conf. Proc. **432** 133 (2010).
4. “*Neutralino Dark Matter in MSSM Models with Non-Universal Higgs Masses*,” **P. Sandick**, Proceedings of the Invisible Universe International Conference, UNESCO, Paris, France, 29 Jun - 3 Jul 2009, AIP Conf. Proc. **1241** 450 (2010).
3. “*Detecting Dark Matter in the MSSM with Non-Universal Higgs Masses*,” **P. Sandick**, Proceedings of the 17th International Conference on Supersymmetry and the Unification of Fundamental Interactions (SUSY09), Boston, MA, 5 - 10 Jun 2009, AIP Conf. Proc. **1200** 1027 (2010).
2. “*Dark Matter Phenomenology of GUT-less SUSY Breaking*,” **P. Sandick**, Published in “Karlsruhe 2007, SUSY 2007” 894-987, arXiv:0710.1843.
1. “*The Relic Neutrino Background from the First Stars*,” K. A. Olive and **P. Sandick**, Published in *Venice 2006, Neutrino oscillations in Venice* 337-355, arXiv:astro-ph/0603236.

Conference & Workshop Presentations (Particle Physics, Astrophysics, & Cosmology)

- 2024** *TBD, Invited Talk*, Center for Theoretical Underground Physics and Related Areas (CETUP*) 2024, Lead, SD, June 2024.
- 2024** “*Constraining p-wave Dark Matter Annihilation with Gamma-Ray Observations of M87*,” APS April 2024 Meeting, Sacramento, CA, April 2024.
- 2023** “*Constraining p-wave Dark Matter Annihilation with Gamma-Ray Observations of M87*,” APS Four Corners Section (4CS) 2023 Meeting, Utah State University, October 2023.
- 2023** “*An Improved Dark Halo Analysis with MADHAT v2.0*,” TeV Particle Astrophysics (TeVPA) 2023, Napoli, Italy, September 2023.
- 2023** “*Reionization in Light of Dark Stars*,” The 25th International Conference From the Planck Scale to the Electroweak Scale (Planck) 2023, University of Warsaw, Warsaw, Poland, May 2023.
- 2022** “*Dark Stars*,” **Invited Plenary Talk**, 4th World Summit on Exploring the Dark Side of the Universe (EDSU2022), La Reunion, France, November 2022.

- 2022 “*An Overview of Dark Matter Indirect Detection*,” **Invited Plenary Talk** , 33rd Rencontres De Blois - Particle Physics And Cosmology, Blois, France, May 2022.
- 2022 “*Primordial Black Holes*,” **Invited Plenary Talk**, Searching for New Physics at Various Energy Scales, Hong Kong University of Science and Technology Institute for Advanced Study, January 2022.
- 2021 “*Dark Radiation from Spinning PBHs in the Early Universe - Precision Calculation and Constraints*,” 2021 APS Division of Particles and Fields (DPF) Annual Meeting, Florida State University (virtual), July 2021.
- 2021 “*Dark Matter Candidates*,” **Invited Lecture Series**, Tri-Institute Summer School on Elementary Particles (TRISEP) 2021 (Virtual), June 2021.
- 2021 “*Primordial Black Holes*,” **Invited Plenary Talk**, XIV International Conference on Interconnections between Particle Physics and Cosmology (PPC), University of Oklahoma, May 2021.
- 2020 “*Particle Dark Matter*,” **Invited Lecture Series** (cancelled due to covid), Tri-Institute Summer School on Elementary Particles (TRISEP) 2020, Waterloo, ON, Canada, July 2020.
- 2020 “*An Overview of Dark Matter Indirect Detection*,” **Invited Talk** (cancelled due to covid), 32nd Rencontres De Blois - Particle Physics And Cosmology, Blois, France, May 2020.
- 2020 “*Dark Stars*,” **Invited Plenary Talk**, Inflationary Reheating Meets Particle Physics Frontier, UCSB KITP, Santa Barbara, CA, February 2020.
- 2019 “*Introducing the Model-Agnostic Dark Halo Analysis Tool (MADHAT)*’, APS Four Corners Section Meeting 2019, Embry Riddle Aeronautical University, Prescott, AZ, October 2019.
- 2019 “*WIMPs in the Sky*,” **Invited Plenary Talk**, 2019 AAPT Summer Meeting, Provo, UT, July 2019.
- 2019 “*Particle Dark Matter*,” **Invited Lecture Series** (declined), Tri-Institute Summer School on Elementary Particles (TRISEP) 2019, Waterloo, ON, Canada, July 2019.
- 2019 “*Dark Matter and the First Stars*,” **Invited Plenary Talk**, Vera Rubin Symposium, Georgetown University, Washington, D.C., June 2019.
- 2019 “*Model-independent constraints on dark matter annihilation in dwarf spheroidal galaxies*,” 27th International Conference on Supersymmetry and Unification of Fundamental Interactions (SUSY 2019), Corpus Christi, TX, May 2019.
- 2019 “*Dark Matter - Theory*,” **Invited Plenary Talk**, Third Conference on Science at the Sanford Underground Research Facility (CoSSURF), Rapid City, SD, May 2019.
- 2019 “*Model-independent constraints on dark matter annihilation in dwarf spheroidal galaxies*,” APS April Meeting 2019, Denver, CO, April 2019.
- 2018 “*Dark Matter and the First Stars*,” **Invited Plenary Talk**, International Workshop on Dark Matter and Stars, Instituto Superior Tecnico, Lisbon, Portugal, December 2018.
- 2018 “*Dark Matter Indirect Detection - Prospects for WIMPs*,” **Invited Plenary Talk**, Invisibles18: Neutrinos, Dark Matter, Axions, and other Elusives, Karlsruhe, Germany, September 2018.
- 2018 “*Model-Independent Constraints on Dark Matter Annihilation on Dwarf Spheroidal Galaxies*,” TeV Particle Astrophysics (TeVPA) 2018, Berlin, Germany, August 2018.
- 2017 “*Beyond the Standard Model with Cosmology*” (Discussion Leader), Advances in Theoretical Cosmology in Light of Data, Nordita, Stockholm, Sweden, July 2017.
- 2017 “*A black hole, a dark matter spike, and a story of enhanced annihilations*,” **Invited Talk**, Advances in Theoretical Cosmology in Light of Data, Nordita, Stockholm, Sweden, July 2017.
- 2017 “*A galaxy and its dark matter profile: a story of enhanced annihilations*,” **Invited Talk**, Olivefest: Astroparticle Physics Looking Forward, University of Minnesota, Minneapolis, MN, May 2017.

- 2016 “*The Search for Dark Matter*,” **Invited Plenary Talk**, APS Joint Four Corners (4CS) and Texas Section Meeting 2016, New Mexico State University, Las Cruces, NM, October 2016.
- 2015 “*Supersymmetry and Dark Matter: Status and Outlook*,” **Invited Talk**, APS Four Corners Section (4CS) Meeting 2015, Arizona State University, Tempe, AZ, October 2015.
- 2015 “*Neutralino Dark Matter - Beyond the Standard Paradigm*,” IX International Conference on Interconnections between Particle Physics and Cosmology (PPC2015), Deadwood, SD, June-July 2015.
- 2015 “*SUSY Dark Matter - Beyond the Standard Paradigm*,” Center for Theoretical Underground Physics and Related Areas (CETUP*) Workshop 2015, Lead, SD, June 2015.
- 2015 “*Particle Theory, Cosmology, and the LHC*,” **Invited Plenary Talk**, 2015: The Spacetime Odyssey Continues, Nordita, Stockholm, Sweden, June 2015.
- 2014 “*Strange Brew*,” APS Four Corners Section (4CS) Meeting 2014, Utah Valley University, Orem, UT, October 2014.
- 2014 “*The Incredible Bulk*,” Astroparticle Physics 2014 - A Joint IDM/TeVPA Conference, Amsterdam, The Netherlands, June 2014.
- 2014 “*Thoughts on Neutralino Dark Matter*,” What is the Dark Matter?, Nordita, Stockholm, Sweden, May-June 2014.
- 2014 “*Dark Matter Theory and Searches*,” **Invited Plenary Talk**, Phenomenology Symposium (PHENO) 2014, Pittsburgh, PA, May 2014.
- 2013 “*Direct Dark Matter Searches and Supersymmetric Resonance Regions*,” XXVII Symposium on Relativistic Astrophysics, Dallas, TX, December 2013.
- 2013 “*The Status of Supersymmetric Dark Matter*,” **Invited Talk**, APS 4 Corners Section Meeting, Denver, CO, October 2013.
- 2013 “*Revisiting Supersymmetric Dark Matter: Beyond the CMSSM*,” **Invited Plenary Talk**, VII International Conference on Interconnections between Particle Physics and Cosmology (PPC2013), Deadwood, SD, July 2013.
- 2013 “*Sub-GUT $mSUGRA$* ,” Snowmass on the Pacific, KITP, Santa Barbara, CA, May, 2013.
- 2013 “*Scouting Sub-GUT SUSY Scenarios*,” **Invited Talk**, CCAPP Workshop on Dark Matter: from Space to Supercolliders, Columbus, OH, May 2013.
- 2013 “*Sub-GUT $mSUGRA$* ,” American Physical Society April Meeting 2013, Denver, CO, April 2013.
- 2013 “*To Bino or Not to Bino: Fermi Photons from Dark Matter Annihilation*,” TAMU Workshop on Dark Matter, Texas A&M University, College Station, TX, March 2013.
- 2012 “*Dark Matter and EWSB Naturalness in Unified SUSY Models*,” Center for Theoretical Underground Physics and Related Areas (CETUP*) Workshop 2012, Lead, SD, July 2012.
- 2012 “*GUT-less $mSUGRA$* ,” 36th International Conference on High Energy Physics (ICHEP), Melbourne, Australia, July 2012.
- 2012 “*Neutralino Dark Matter in GUT-less $mSUGRA$* ,” LHC Theory Workshop, CoEPP, University of Melbourne, Melbourne, Australia, July 2012.
- 2012 “*Supersymmetric Dark Matter*,” **Invited Talk**, Dark Matter Silver Jubilee Symposium, Pacific Northwest National Laboratory, Richland, WA, June 2012.
- 2012 “*Gamma-Ray Constraints on Dark Matter Spikes*,” **Invited Talk**, Dark Matter Signatures in the Gamma-Ray Sky, The University of Texas at Austin, TX, May 2012.
- 2012 “*New Results in Dark Matter*,” **Invited Plenary Lecture** at the Essential Cosmology for the Next Generation: Cosmology on the Beach (Cosmología en la Playa) Winter School, Cancún, Mexico, January 2012.

- 2011 “*Dark Matter Concentrations in the Galaxy*,” **Invited Talk**, Vth International Workshop on the Interconnection between Particle Physics and Cosmology (PPC2011), CERN, Geneva, Switzerland, June 2011.
- 2011 “*Dark Matter Theory and Fermi*,” **Invited Talk**, Fermi Symposium 2011, Universita La Sapienza, Rome, Italy, May 2011.
- 2011 “*Dark Matter and New Physics*,” **Invited Talk**, Linear Collider Workshop of the Americas, University of Oregon, Eugene, OR, March 2011.
- 2011 “*Update on SUSY Dark Matter*,” **Invited Talk**, American Linear Collider Physics Group (ALCPG) Workshop 2011, University of Oregon, Eugene, OR, March 2011.
- 2011 “*Sharpening Our Understanding of the First Stars with Gamma-Rays*,” **Invited Talk**, Aspen Winter Conference: Indirect and Direct Detection of Dark Matter, Aspen Center for Physics, Aspen, CO, February 2011.
- 2010 “*On SUSY Dark Matter*,” **Invited Talk**, International Workshop on Linear Colliders 2010, CERN, Geneva, Switzerland, October 2010.
- 2010 “*Dark Matter Spikes in Our Galactic Halo*,” 8th International Workshop on the Identification of Dark Matter, University of Montpellier 2, Montpellier, France, July 2010.
- 2010 “*Dark Matter Spikes in Our Galactic Halo*,” TeV Particle Astrophysics 2010, Paris, France, July 2010.
- 2010 “*SUSY Dark Matter*,” **Invited Talk**, Novel Searches for Dark Matter with Neutrino Telescopes, CCAPP, The Ohio State University, Columbus, OH, July 2010.
- 2010 “*Overview of SUSY Dark Matter*,” **Invited Talk**, Second Workshop on “Low Energy” Neutrino Physics and Astrophysics with IceCube’s DeepCore Sub-Array, Center for Particle Astrophysics, Pennsylvania State University, State College, PA, July 2010.
- 2009 “*Neutrinos from the First Dark Stars*,” Dark Stars Workshop, University of Michigan, Ann Arbor, MI, November 2009.
- 2009 “*Particle Dark Matter: Status and Searches*,” **Invited Talk**, Frank N. Bash Symposium 2009, The University of Texas at Austin, Austin, TX, October 2009.
- 2009 “*Neutralino Dark Matter in MSSM Models with Non-Universal Higgs Masses*,” Invisible Universe, UNESCO, Paris, France, June 2009.
- 2009 “*Detecting Dark Matter in the MSSM with Non-Universal Higgs Masses*,” SUSY 2009, Northeastern University, Boston, MA, June 2009.
- 2009 “*Dark Matter Phenomenology in NUHM Models*,” Pheno 2009, University of Wisconsin, Madison, WI, May 2009.
- 2008 “*Relaxing SUSY Universality: What it means for Neutralino Dark Matter*,” Dark Side II, University of Michigan, Ann arbor, MI, June 2008.
- 2008 “*Discovering Sparticles in the CMSSM and GUT-less SUSY-Breaking Scenarios*,” Pheno 2008, University of Wisconsin, Madison, WI, April 2008.
- 2007 “*Dark Matter Phenomenology of the GUT-less CMSSM*,” Miami 2007: A topical conference on elementary particles, astrophysics, and cosmology, Ft. Lauderdale, FL, December 2007.
- 2007 “*Dark Matter Phenomenology of GUT-less SUSY Breaking*,” The 15th International Conference on Supersymmetry and the Unification of Fundamental Interactions, Karlsruhe, Germany, July 2007.
- 2007 “*Dark Matter Phenomenology of sub-GUT Supersymmetry Breaking*,” Dark Side of the Universe Workshop, University of Minnesota, Minneapolis, MN, June 2007.

- 2005 “*Neutrino Signatures from the First Stars*” (Poster), Probing Early Structure Formation with Mass, Light, and Chemistry Workshop, William I. Fine Theoretical Physics Institute, University of Minnesota, Minneapolis, MN, October 2005.

Seminars, Webinars, & Colloquia (Particle Physics, Astrophysics, & Cosmology)

- 2025 TBD, Departmental **Colloquium**, Idaho State University, January 2025.
- 2024 “*Highs and Lows in the Search for Dark Matter*,” Departmental **Colloquium**, Arizona State University, February 2024.
- 2021 “*Highs and Lows in the Search for Dark Matter*,” Departmental **Colloquium**, University of Utah, September 2021.
- 2020 “*Searching for Dark Matter - from the Heavens to the Earth*,” Departmental **Colloquium** (cancelled due to covid), University of North Florida, March 2020.
- 2019 “*WIMPs in the Sky: Techniques and Tools*,” Theory Group and Oklahoma Theory Network Seminar, University of Oklahoma, December 2019.
- 2019 “*Searching for Dark Matter - from the Heavens to the Earth*,” Departmental **Colloquium**, Weber State University, November 2019.
- 2019 “*Searching for Dark Matter - from the Heavens to the Earth*,” Departmental **Colloquium**, Sam Houston State University, September 2019.
- 2019 “*Dark Matter and Charged Scalar Mediators: Theme and Variations*,” Theory Group Seminar, UT Austin, September, 2019.
- 2019 “*Dark Matter and Charged Scalar Mediators: Theme and Variations*,” Physics Theory Seminar, Washington University, February 2019.
- 2018 “*Supersymmetry, WIMPs, and the Search for Dark Matter*,” Departmental **Colloquium**, College of Wooster, November 2018.
- 2018 “*Dark Matter Indirect Detection - Prospects for WIMPS*,” HEAP Seminar, University of Utah, September 2018.
- 2018 “*Dark Matter and Charged Scalar Mediators: Theme and Variations*,” High Energy Theory Seminar, University of Illinois, Urbana Champaign, April 2018.
- 2018 “*Mixing it Up: A New Take on WIMP Dark Matter*,” Departmental **Colloquium**, University of California, Santa Cruz, April 2018.
- 2018 “*Mixing it Up: A New Take on WIMP Dark Matter*,” Departmental **Colloquium**, Utah State University, March 2018.
- 2018 “*Dark Matter at the Galactic Center - Indirect Detection of a Subparsec Spike*,” High Energy Physics Seminar, University of Hawaii at Manoa, Honolulu, HI, March 2018.
- 2017 “*Mixing it Up: A New Take on WIMP Dark Matter*,” Departmental **Colloquium**, University at Buffalo, Buffalo, NY, November 2017.
- 2017 “*Mixing it Up: A New Take on WIMP Dark Matter*,” Departmental **Colloquium**, Rensselaer Polytechnic Institute, Troy, NY, November 2017.
- 2017 “*Dark Matter and Charged Scalar Mediators: Theme and Variations*,” Cosmology and High Energy Theory Seminar, Arizona State University, Tempe, AZ, September 2017.
- 2017 “*Mixing it Up: New Results in Dark Matter*,” Departmental **Colloquium**, Idaho State University, February 2017.
- 2016 “*Mixing it Up: New Results in Dark Matter*,” Departmental **Colloquium**, California State University - East Bay, December 2016.

- 2016 “*Mixing it Up: New Results in Dark Matter*,” Departmental **Colloquium**, California State University - Stanislaus, December 2016.
- 2016 “*Mixing it Up: New Results in Dark Matter*,” Departmental **Colloquium**, Embry Riddle Aeronautical University, Prescott, AZ, November 2016.
- 2016 “*Mixing it Up: New Results in Dark Matter*,” Departmental **Colloquium**, University of Hawaii at Manoa, Honolulu, HI, October 2016.
- 2016 “*Mixing it Up: New Results in Dark Matter*,” Departmental **Colloquium**, University of Utah, SLC, UT September 2016.
- 2015 “*Perspectives on WIMP Dark Matter*,” Particle Astrophysics Seminar, Case Western Reserve University, Cleveland, OH, October 2015.
- 2015 “*The Status of Supersymmetric Dark Matter*,” HEP Division Seminar, Argonne National Laboratory, Chicago, IL, March 2015.
- 2015 “*Beyond the Standard Model: Dark Matter and Supersymmetry*,” Departmental **Colloquium**, Western Colorado State University, Gunnison, CO, February 2015.
- 2014 “*Beyond the Standard Model: Dark Matter and Supersymmetry*,” Departmental **Colloquium**, University of Hawaii at Manoa, Honolulu, HI, October 2014.
- 2014 “*Particle Dark Matter: High Hopes and Low Cross Sections*,” Departmental **Colloquium**, Brigham Young University, Provo, UT, January 2014.
- 2013 “*Advances in Supersymmetry Phenomenology*,” Departmental **Colloquium**, University of Utah, Salt Lake City, UT September 2013.
- 2013 “*Beyond the CMSSM*,” High Energy Theory Seminar, University of California, Davis, CA, May, 2013.
- 2012 “*Dark Matter and EWSB Naturalness in Unified SUSY Models*,” Particle Astrophysics Seminar, Fermilab, Batavia, IL, May 2012.
- 2012 “*On Dark Matter*,” Condensed Matter Seminar, University of Utah, Salt Lake City, UT, April 2012.
- 2012 “*Dark Matter and EWSB Naturalness in Unified SUSY Models*,” Weak Interaction Discussion Group, Yale University, New Haven, CT, November 2011.
- 2011 “*Dark Matter Spikes: Sharpening our Understanding of the First Stars*,” Particle Theory Seminar, Yale University, New Haven, CT, November 2011.
- 2011 “*Superluminal Neutrinos: Phantoms of OPERA?*,” Special Seminar for the Colleges of Science and Engineering, University of Utah, Salt Lake City, UT, September 2011.
- 2011 “*Particle Dark Matter: High Hopes and Low Cross Sections*,” **Colloquium**, Idaho State University, Pocatello, ID, September 2011.
- 2011 “*Particle Dark Matter: High Hopes and Low Cross Sections*,” **Colloquium**, The University of Texas at Austin, Austin, TX, March 2011.
- 2011 “*Indirect Detection of the First Stars with Dark Matter Spikes*,” BOWTIE Seminar, University of Utah, Salt Lake City, UT, March 2011.
- 2011 “*Particle Dark Matter: High Hopes and Low Cross Sections*,” **Colloquium**, University of Utah, Salt Lake City, UT, March 2011.
- 2010 “*Dark Matter Spikes: Sharpening Our Understanding of the First Stars with Gamma-Rays*,” High Energy Physics Seminar, University of Hawaii at Manoa, Honolulu, HI, November 2010.
- 2010 “*Dark Matter Spikes: Sharpening Our Understanding of the First Stars with Gamma-Rays*,” Joint Particle Seminar, University of California, Irvine, CA, October 2010.

- 2010 “*Dark Matter Spikes: Sharpening Our Understanding of the First Stars with Gamma-Rays*,” Joint Relativity/High Energy Theory/Cosmology Seminar, Syracuse University, NY, October 2010.
- 2010 “*Black Holes in our Galactic Halo: Compatibility with FGST Data and Constraints on the First Stars*,” High Energy Theory Seminar, University of Michigan, Ann Arbor, MI, September 2010.
- 2010 “*Dark Matter in 2010: High Hopes and Low Cross Sections*,” **Rutherford Lecture**, The University of Texas at Austin, Austin, TX, August 2010.
- 2010 “*Neutrinos as a Test of Leptophilic Dark Matter*,” Particle Physics and Astrophysics Seminar, Arizona State University, Tempe, AZ, April 2010.
- 2009 “*The Sommerfeld Enhancement for Annihilating Dark Matter*,” The University of Texas at Austin, Austin, TX, April 2009.
- 2008 “*Higgs Searches at the LHC*,” Brown Bag Seminar, High Energy Theory Brown Bag Seminar, University of Michigan, Ann Arbor, MI, November 2008.
- 2008 “*Higgs Searches at the LHC*,” Theory Group Brown Bag Seminar, The University of Texas at Austin, Austin, TX, October 2008.
- 2008 “*GUT-less SUSY Phenomenology*,” High Energy Theory Seminar, Texas A&M University, College Station, TX, September 2008.
- 2008 “*Cosmology and Collider Searches in GUT-less SUSY Scenarios*,” Theory Group Seminar, The University of Texas at Austin, Austin, TX, April 2008.
- 2007 “*Neutralino Dark Matter in the GUT-less CMSSM*,” Fermilab Particle Astrophysics Seminar, Fermilab, Batavia, IL, September 2007.
- 2007 “*Neutralino Dark Matter in the GUT-less CMSSM*,” Astrophysics and Cosmology Lunchtime Seminar, University of Minnesota, Minneapolis, MN, September 2007.
- 2007 “*GUT-less Supersymmetry Phenomenology*,” CERN-TH Institute on LHC-Cosmology Interplay, CERN, Geneva, Switzerland, July 2007.
- 2006 “*EGRET’s Excess of Diffuse Gamma Rays as a Dark Matter Tracer*,” Astrophysics and Cosmology Lunchtime Seminar, University of Minnesota, Minneapolis, MN, December 2006.
- 2006 “*Neutrino and Gravitational Wave Signals from Cosmological Supernovae*,” Student Talk, Theoretical Advanced Study Institute in Elementary Particle Physics (TASI), University of Colorado, Boulder, CO, June 2006.
- 2006 “*Cosmological Supernovae: Neutrino Background and Gravitational Wave Signatures*,” Astrophysics and Cosmology Lunchtime Seminar, University of Minnesota, Minneapolis, MN, April 2006.
- 2006 “*Neutrino Signatures from the First Stars*,” Astrophysics and Cosmology Lunchtime Seminar, University of Minnesota, Minneapolis, MN, October 2005.

Equity, Policy, & Program Development

Publications (Equity, Policy, & Program Development)

- 2021 “*Case Study of Graduate Program Reform in Physics and Astronomy: From Tragedy to Progressive Policies and an Evolving Culture*,” M. Lenz, R. Barthelemy, A. Knaub, **P. Sandick***, & J.A. Gerton, Phys. Rev. Phys. Educ. Res. **19**, 010102 (2023).

* Authors are by order of contribution.

Presentations (Equity, Policy, & Program Development)

- 2023 “*Family Planning and Caregiving Impacts on the Physics Community*,” **Invited Panelist**, APS April Meeting, Minneapolis, MN, April 2023.
- 2023 “*Mentoring Graduate Students - Advising Day and Other Approaches*,” **Invited Talk**, APS March Meeting, Las Vegas, NV, March 2023.
- 2023 “*Family Planning and Caregiving Impacts on the Physics Community*,” **Invited Panelist**, APS March Meeting, Las Vegas, NV, March 2023.
- 2023 “*Communication and Negotiation Skills Workshop*,” **Invited Talks (4)**, APS Conferences for Undergraduate Women in Physics, Virtual and UC Santa Cruz, January 2023.
- 2023 “*Promoting Yourself*,” **Invited Talk**, APS Conferences for Undergraduate Women in Physics, UC Santa Cruz, January 2023.
- 2021 “*Outcome of the Conferences for Undergraduate Women in Physics*,” **Invited Talk**, APS March Meeting, Virtual, March 2021.
- 2021 “*Leadership*,” **Panel Moderator**, APS Conferences for Undergraduate Women in Physics, Virtual, January 2021.
- 2020 “*Graduate Program Reform at the University of Utah: Collecting Data and Improving Transformation*,” AAPT SEA Change Program, **Invited Webinar**, December 2020.
- 2020 “*Tough Topics - Stepping Outside the Comfort Zone*,” American Association of Physics Teachers (AAPT) Summer Meeting, **Invited Talk**, Virtual, July 2020.
- 2020 “*Graduate Program Reform at the University of Utah*,” American Association of Physics Teachers (AAPT) Summer Meeting, Virtual, July 2020.
- 2020 “*Imposter Syndrome*,” APS Summer Webinar Series, **Invited Webinar**, June 2020.
- 2020 “*Outcome of the Conferences for Undergraduate Women in Physics*,” **Invited Talk** (cancelled), APS March Meeting, Denver, CO, March 2020.
- 2019 “*Building on the Legacy of Vera Rubin to Increase Participation of Women in Physics and Astronomy*,” **Panel Moderator**, Vera Rubin Symposium, Georgetown University, Washington, D.C., June 2019.
- 2019 “*APS Conferences for Undergraduate Women in Physics (CUWiPs)*,” **Invited Talk**, APS April Meeting 2019, Denver, CO, April 2019.
- 2019 “*Imposter Syndrome, Identity, and Your Community*,” Bennion Center Leadership Seminar, University of Utah, February 2019.
- 2018 “*Imposter Syndrome: Creating Strong Identity*,” Graduate School Mini Expo, University of Utah, Salt Lake City, UT, June 2018.
- 2017 “*Teaching and Learning: It’s Personal*,” **Keynote**, Center for Teaching and Learning Excellence (CTLE) Annual Teaching Symposium, University of Utah, Salt Lake City, UT, August 2017.
- 2017 “*Supporting Women in STEM*,” Center for Science and Mathematics (CSME) Exchange, University of Utah, April 2017.

Funding History

- “*Determining data-driven background distributions for a search for small sources*,” NASA Fermi Guest Investigator Cycle 17, Principal Investigator; Proposed Dates: July 2024 - June 2025; Proposed budget: \$75,000. My share: \$75,000. Currently under review.

- “*Searching for Sub-Threshold Fermi Sources Correlated with Neutrino Hot Spots*,” NASA Fermi Guest Investigator Cycle 17, Co-Principal Investigator with Shiqi Yu (PI); Proposed Dates: July 2024 - June 2025; Proposed budget: \$75,000. My share: \$0. Currently under review.
- “*Exploring Dark Matter and Other Physics Beyond the Standard Model*,” NSF PHY, Principal Investigator; Proposed Dates: August 2023 - July 2029; Proposed budget: \$538,314. My share: \$538,314. Currently under review.
- “*Particle Theory Research at the University of Utah*,” DOE, Principal Investigator; Proposed Dates: August 2023 - July 2029; Proposed budget: \$2,033,034. My share: \$719,258. Currently under review.
- “*Dark Matter, Dark Energy, and New Physics*,” NSF PHY 2014075; Co-Principal Investigator with P. Gondolo; Award Period: September 1, 2020 - August 31, 2024; Award: \$540,000 (my share: \$254,844).
- “*Conference Support for the NuFACT2022 Conference - The 23rd International Workshop on Neutrininos from Accelerators*,” NSF PHY-2217792; Co-Principal Investigator; Award Period: August 2022 - July 2023; Award: \$5,000.
- “*RAPID: The Impacts of Graduate Education Policies and Practices on the Success Graduate Students in Physics and Astronomy*,” NSF PHY-2000328; Co-Principal Investigator with R. Barthelemy (PI) and J. Gerton (Co-PI); Award Period: January 15, 2020 - June 30, 2021; Award: \$198,143 (my share: \$13,146).
- “*Dark Matter and New Physics*,” NSF PHY-1720282; Co-Principal Investigator with P. Gondolo, Award Period: August 1, 2017 - June 30, 2021; Award: \$480,000 (my share: \$227,772).
- “*2016 Summer Program at Center for Theoretical Underground Physics and Related Areas (CETUP*)*,” NSF PHY-1620853; Co-Principal Investigator; Award Period: July 15, 2016 - December 31, 2016; Award: \$12,110.
- “*Supersymmetry and Dark Matter in the Data Age*,” NSF PHY-1417367; Award Period: August 1, 2014 - July 31, 2017; Award: \$134,000.
- “*Increasing Minority Participation at the Rocky Mountain Conference for Undergraduate Women in Physics*,” University of Utah Graduate School Diversity Mini-Grant; Award Date: November 27, 2013; Award: \$1000.
- “*Center for Theoretical Underground Physics and Related Areas; Award Period: June 23 - July 26, 2013 at The Lodge of Deadwood, Deadwood, SD*,” NSF Grant Number PHY-1342611, Co-Principal Investigator; Award Period: June 1, 2013 - May 31, 2014; Award: \$12,000.
- “*Center for Theoretical Underground Physics and Related Fields and International Conference between Particle Physics and Cosmology*,” Department of Energy, Co-Principal Investigator; May 5, 2013 - October 31, 2013; Award: \$8000.
- “*Support for the 2012 SnowPAC Workshop*,” NSF Grant Number AST-1221024, Co-Principal Investigator; Award Period: March 1, 2012 - February 28, 2013; Award: \$8200.

Administrative Accomplishments

- Detailed description available upon request.

Professional Service

Service to the Broader Physics Community

- APS Climate Site Visit Committee, 2023-2024.
- APS Four Corners Section Chair(-line), 2019-2023
- Communication and Negotiation Skills Workshops for Women and Gender Minorities, approximately 20 workshops for local and national audiences, 2017-present
- APS Climate Site Visit Program, Team Lead/Member, three visits, 2015-present.
- Program Committee, APS 4CS Annual Meeting, University of Colorado, Boulder (virtual) October 2021.
- Organizing Committee and Session Chair, APS 4CS Annual Meeting, University of New Mexico (Virtual), October 23-24, 2020.
- CERN Beamline for Schools, Advisor to West High School DESY Chain team (first American team to win the competition), 2019
- Chair line, APS Conferences for Undergraduate Women in Physics (CUWiPs), 2016-2019
- APS Committee on the Status of Women in Physics (CSWP), 2015-2018
- APS CSWP Professional Skills Development Trainer, approximately 10 workshops for local and national audiences, 2015-2017
- National Organizing Committee, APS CUWiP, 2013-2015
- Coordinator, University of Minnesota Women in Physics and Astronomy (WiPA), 2007-2008
- Colloquium Committee Student Representative, 2006-2008
- Officer, UMN Women in Physics and Astronomy, 2005-2007
- Officer, UMN Grad Phi, Spring 2006
- Mentor and Organizer, First Year Graduate Student Mentoring Program, 2004-2005

Service to the Particle Physics Community

- Referee: *Physical Review Letters* (PRL), *Physical Review D* (PRD), *Journal of High Energy Physics* (JHEP), *Journal of Cosmology and Astroparticle Physics* (JCAP), *Monthly Notices of the Royal Astronomical Society* (MNRAS), *Astronomy & Astrophysics* (A&A)
- National Science Foundation (NSF), panelist (two panels)
- US Department of Energy (DoE), Office of Science, proposal review (three review cycles)
- APS Division of Particles and Fields (DPF) Mentoring Award Selection Committee; 2019, 2020, and 2021 (chair).
- Session Chair, Aspen Center for Physics 2021 Virtual Winter Conference, A Rainbow of Dark Sectors, March 22 - April 1, 2021.
- Session Convener, Workshop on Interplay of Neutrino and Dark Matter Experiments and Exotic Searches (INDEES) 2021, March 2021.
- Organizing Committee Co-Chair, The Search for New Physics - Leaving No Stone Unturned, University of Utah, Salt Lake City, UT, August 4-10, 2019.
- Session Chair, 27th International Conference on Supersymmetry and Unification of Fundamental Interactions (SUSY2019), Corpus Christi, TX, May 2019.
- Organizing Committee and Program Convener, Center for Theoretical Underground Physics and Related Areas (CETUP*) 2016, Dark Matter Program, Lead/Deadwood, South Dakota, Summer 2016.

- Dark Matter Session Convener, 10th Conference in the Symposium on Cosmology and Particle Astrophysics series (CosPA2013), Honolulu, HI, November 12 - 15, 2013.
- Cosmic Frontier Session Convener, Meeting of the American Physical Society (APS) Division of Particles and Fields (DPF), Santa Cruz, CA, August 13 - 17, 2013.
- Organizing Committee and Program Convener, Center for Theoretical Underground Physics and Related Areas (CETUP*) 2013, Dark Matter Program, Lead/Deadwood, South Dakota, June 24 - July 5, 2013.
- Scientific Organizing Committee, Dark Matter Signatures in the Gamma-Ray Sky, The University of Texas at Austin, May 2012.
- Co-chair, Scientific Organizing Committee, SnowDOG: Snowbird Workshop on Dark Matter Observations through Gamma Rays, University of Utah, March 2012.
- Scientific Organizing Committee, Frank N. Bash Symposium 2011: New Horizons in Astronomy, The University of Texas at Austin, October 2011.

Service to the College & University

- University of Utah One U Research Council (OURC), 2022-present
- University of Utah College of Science ACCESS Scholars, Interim Co-Director, 2023-2024
- University of Utah SVPAA Search Committee, 2022
- University of Utah College of Science ACCESS Program, Instructor/Mentoring Team, 2015-2022
- University of Utah Senate Personnel and Elections Committee, 2019-2021
- Mentoring Panelist, University of Utah Career, Development, and Training series (CaDeTs), Bio-science Program, November 2021
- University of Utah Mentoring Day, "*Mentoring Junior Faculty, Postdocs, and Students*", Panelist, March 2021
- University of Utah Distinguished Mentor Award Selection Committee, 2021
- National Postdoc Appreciation Week, "*Effective Mentee-ship*," Panelist, Utah Postdoctoral Association, 2020
- University of Utah College of Science Dean Search Committee, 2019
- University of Utah Academic Senate, 2016-2019
- University of Utah College of Science Council, 2014-2016
- University of Utah Center for Science and Mathematics Education REFUGES Bridge Program, Instructor, July 2015
- Science Olympiad Event Coordinator, Utah State Competition, April, 2014

Service to the Department

- Director of Graduate Studies, 2023-2024
 - Implemented new Graduate Student Travel Funding Program
 - Streamlined Early Arrival Program for incoming first year students
 - Spearheaded the first major Graduate Handbook updates since the launch of the new program in 2019
- Effective Practices for Physics Programs (EP3) Department Action Leadership Institute (DALI) Action Team, Utah Team Leader (w/ Anil Seth), 2021 cohort

- Undergraduate curriculum reform
- Modernizing teaching practices and evaluation
- Faculty Advisor, University of Utah Women in Physics and Astronomy (WomPA/PASSAGE), 2011-present
- Graduate Program - curriculum and policy development, 2017-2019
- Co-organizer of the Incoming TA Orientation: 2014-2017.
- Chair, Local Organizing Committee, 2014 Rocky Mountain Conference for Undergraduate Women in Physics (RMCUWiP), University of Utah, Salt Lake City, UT, January 17-19, 2014.
- HEP Educational Efforts:
 - High Energy Journal Club, lead organizer, 2012-2019.
 - Facilitation of Utah's involvement in the LHC Results Forum, a virtual lecture series for particle phenomenologists, 2012-present.

Department/College/University Committees:

- 2023-2024: Associate Dean, Director of Graduate Studies, Graduate Program, Curriculum, and Recruitment Committee (Chair), Graduate Comprehensive Exam Committee, Graduate Admissions Coordination Committee, Junior Faculty Mentoring Program (Chair), TA Committee (Chair), PASSAGE Advisor, College of Science EDI Committee (Chair), VPR Research Instrumentation Fund (RIF) Committee
- 2022-2023: Associate Dean, Executive Committee, Graduate Program Committee, Mentoring - Junior Faculty, Postdoctoral Affairs, TA Orientation, Multi-Messenger Astrophysics Faculty Search, PASSAGE Faculty Advisor, College of Science EDI Committee (Chair), VPR Research Instrumentation Fund (RIF) Committee
- 2021-2022: Associate Dean, Executive Committee, Graduate Program and Curriculum, Mentoring - Junior Faculty, Ombuds Liaison, Postdoctoral Affairs, TA Orientation, Theory Faculty Search, WomPA and UWomPA Faculty Advisor, College of Science EDI Committee (Chair), Senate Personnel and Elections Committee
- 2020-2021: Associate Dean, Executive Committee, Mentoring - Junior Faculty, Postdoctoral Affairs, WomPA and UWomPA Faculty Advisor, College of Science EDI Committee (Chair), Senate Personnel and Elections Committee
- 2019-2020: Associate Dean, Executive Committee, Physics and Astronomy Chair Search (Co-Chair), High Energy Theory Faculty Search, Senate Committee on Libraries, Senate Personnel and Elections Committee
- 2018-2019: Associate Chair, Academic Senate, Senate Committee on Libraries, Senate Personnel and Elections Committee
- 2017-2018: Diversity (Chair), Policy Board, Futures, Ombuds, TA Training and Development, HEAP Seminar, Astronomy Task Force, TA Training and Development, WomPA Advisor, HET Faculty Search (x2), Lecturer Search, Development, Academic Senate
- 2016-2017: Diversity (Chair), Policy Board, Futures, Ombuds, TA Training and Development, HEAP Seminar, Astronomy Task Force, Academic Senate
- 2015-2016: Diversity, Policy Board, Futures Committee, TA Training and Development, College of Science Council
- 2014-2015: Diversity, Advising (Undergraduate), College of Science Council

- 2013-2014: Diversity (Chair), Development (Chair), Colloquium, Futures, Graduate Recruiting
- 2012-2013: Diversity (Chair), Common Exam, Condensed Matter Experiment Faculty Search, Futures, Graduate Admissions, Graduate Recruitment, Policy Board

Media Coverage & Public Lectures

- 2023 “*Dark stars: Have we finally found a weird sun powered by dark matter?*,” J. O’Callaghan, New Scientist, September 20, 2023.
- 2023 “*JWST Might Have Spotted the First Dark Matter Stars*,” S. Pappas, Scientific American, July 20 2023.
- 2023 “*Dark Star Hypothesis Sees the Light of Day*,” M. Schirber, Physics Magazine 16, 127, July 20, 2023.
- 2022 “*Light from Darkness: the Quest for Dark Matter*,” Natural History Museum of Utah, 2022 NHMU Lecture Series, April 27th and 28th, 2022.
- 2022 “*Utah physicist celebrates reopening of Large Hadron Collider*,” T. Smith, abc4.com Digital Exclusives, April 22, 2022.
- 2021 “*Dark Matter Astrophysics*,” Utah Astronomy Club for Women, April 28, 2021.
- 2020 “*Theorists React to Potential Signal in Dark Matter Detector*,” M. Rini, Physics 13, s132, October 12, 2020.
- 2020 “*Four U Presidential Scholars Named*,” R. Walsh, @TheU, August 21, 2020.
- 2020 “*University of Utah vows to fight racism in research*,” L. Seline, Salt Lake Tribune, June 11, 2020.
- 2020 “*Pearl Sandick wins Distinguished Mentor Award*,” M. Swaner, @TheU, June 3, 2020.
- 2019 “*Searching for Dark Matter - from the Heavens to the Earth*,” Science at Breakfast, hosted by the University of Utah College of Science, September 12, 2019.
- 2019 “*West High School team is first American group to win international science competition*,” H. Geisel, KUTV, July 23, 2019.
- 2019 “*Alumna Who Discovered Evidence of Dark Matter Inspires Global Symposium*,” Georgetown University Discovery and Impact, June 28, 2019.
- 2018 “*The Most Unknown*,” Post-Film Panelist, Park City Film Series, September 2018.
- 2018 “*Leveling the Playing Field*,” A. Sundermier, Symmetry Magazine, May 8, 2018.
- 2017 “*In small collisions, scientists find big new physics questions*,” Julia Franz, Public Radio International, August 7, 2017.
- 2017 Interview on NPR’s *Science Friday*, “*Particles Behaving Badly*,” July 21, 2017.
- 2017 “*College of Science Faculty Spotlight*,” University of Utah, February 2017.
- 2015 “*Science Movie Night: Bill and Ted’s Excellent Adventure*” presented by the Natural History Museum of Utah, Guest Expert and Public Lecture, Salt Lake City Public Library, Salt Lake City, UT, April 14, 2015.
- 2014 Interview on KPCW’s *Cool Science Radio*, April 3, 2014.
- 2013 “*Inventrixes: Women Scientists Who Have Changed the World*,” Leonardo After Hours, The Leonardo Museum, Salt Lake City, UT, July 19, 2013.
- 2013 “*Peculiar Particles: Higgs Bosons, Dark Matter, and the Supersymmetric Universe*,” Chemistry Enrichment Program, University of Utah, Salt Lake City, UT, June 18, 2013.
- 2012 “*The Particle Physicist Next Door*,” TEDxWOMEN Park City, UT, December 1, 2012.
- 2012 “*Frontiers of Science Lecture Series: Particle Smashers, Higgs Hunters, and the Fundamental Theory of Nature*,” University of Utah, Salt Lake City, UT, November 28, 2012.

- 2012** “5 Spot: God Particle and Dark Matter,” John Rasmuson, City Weekly, November 14, 2012.
- 2012** “The Higgs Boson: So What?,” University of Utah Alumni (Homecoming) Week Lecture, September 14, 2012.
- 2012** “Science Movie Night: The Hunt for Higgs” presented by the Natural History Museum of Utah in partnership with the Utah Film Center, Guest Expert and Public Lecture, Salt Lake City Public Library, Salt Lake City, UT, September 11, 2012.
- 2012** “Peculiar Particles: Neutrinos, Dark Matter, and a Higgs-like Boson,” Public Talk, Salt Lake Astronomical Society, August 15, 2012.
- 2012** “Utahns shocked, saddened by Sally Ride’s death,” Sheena McFarland, Salt Lake Tribune, July 23, 2012.
- 2011** “Can neutrinos travel faster than the speed of light?,” Science Night Live, Sponsored by the College of Science at the University of Utah, October 26, 2011.
- 2010** “Of Dark Matter and WIMPs,” Higher Education Notes, The Austin American-Statesman, December 2, 2010.
- 2010** “Seeing Dark Matter in the Ice,” by Daniel Oppenheimer, Texas Science: News from the College of Natural Sciences, November 10, 2010.
- 2010** “Dark Matter: Seeing the Invisible,” Texas Cosmology Center Video, <http://www.tcc.utexas.edu/video.html>
- 2010** “Particle Dark Matter,” StarDate/Universo Radio, July 21, 2010.

Teaching Experience

- F2023** PHYS 7820 Faculty Research Overview (enrollment: 16) and
PHYS 7830 Professional Development Course (enrollment: 16)
- F2022** PHYS 7820 Faculty Research Overview (enrollment: 17) and
PHYS 7830 Professional Development Course (enrollment: 16)
- F2021** PHYS 7830 Professional Development Course (enrollment: 11)
- F2020** PHYS 7830 Professional Development Course (developed and taught)
- S2019** PHYS 2210 Physics for Scientists and Engineers 1
- S2018** PHYS/ASTR 7720 General Relativity (joint with Univ. of Hawaii, lectures from UU)
- S2017** PHYS 3760 Introduction to Thermodynamics and Statistical Mechanics
- F2016** PHYS/ASTR 7720 General Relativity (joint with Univ. of Hawaii, lectures from UU)
- F2015** PHYS/ASTR 1060 The Universe
- S2015** PHYS 3760 Introduction to Thermodynamics and Statistical Mechanics
- F2014** PHYS/ASTR 7720 General Relativity (joint with Univ. of Hawaii, lectures from UU)
- S2014** PHYS 3760 Introduction to Thermodynamics and Statistical Mechanics and
PHYS 7650 Quantum Field Theory II (joint with Univ. of Hawaii, lectures from UH)
- F2013** PHYS 7640 Quantum Field Theory I (joint with Univ. of Hawaii, lectures from UH)
- S2013** PHYS 3760 Introduction to Thermodynamics and Statistical Mechanics
- F2012** PHYS/ASTR 7720 General Relativity
- S2012** PHYS 3760 Introduction to Thermodynamics and Statistical Mechanics

Advising

- Undergraduate:
 - Luis Rufino, spring 2020-summer 2022 (grad at Syracuse, physics)
 - Jamie Covington, ACCESS, spring 2021
 - Alec Hewitt, fall 2019-2021 (grad at UC Irvine, physics)
 - Abel Shiferaw, REU, 2020
 - Dane Gollero, SURP+, spring-summer 2019
 - Jack (JJ) Garzella, spring 2018-fall 2019 (grad at UCSD, mathematics)
 - Alex King, summer 2018
 - Rebecca Bassett, ACCESS, spring 2018
 - Andrew Davidson, REU, 2015 (grad at Utah)
 - David M. Stephens, 2013-2015
 - Jimmy Seiner, summer 2013 (high school) and 2014 (undergrad at U. Michigan, grad at Stony Brook)
- Graduate:
 - Zachary Carter, 2021-present
 - Emily Strickland, 2020-2021
 - Paul Bergeron, 2013-2019 (postdoc in PER at MSU)
 - Takahiro Yamamoto, 2012-2017 (employed in industry in Japan)
 - Meh Hui Teh, Summer 2012
- Postdocs:
 - Natalia Tapia Arellano, 2022-present
 - Benjamin Sheff, co-advised with Yue Zhao, 2022-present
 - Barmak Shams Es Haghi, 2019-2022 (postdoc at UT Austin)
 - Ashley Perko, 2020-2021 (faculty at Oglethorpe University)
 - Kuver Sinha, 2016-2017 (faculty at University of Oklahoma)
 - Chris Savage, 2013-2014 (postdoc at Nordita)
 - Chris Kelso, 2012-2014 (faculty at University of North Florida)