

Curriculum Vitae

Kuver Sinha

<i>Address</i>	Homer L. Dodge Department of Physics and Astronomy The University of Oklahoma 440 W. Brooks St. Norman, OK 73019
<i>Mail</i>	kuver.sinha@ou.edu
<i>WWW</i>	https://sites.google.com/site/kuversinha
<i>WWW</i>	Research Site

Appointments

Associate Professor (with tenure) <i>University of Oklahoma</i>	2023 onwards
Carl T. Bush Professor of Theoretical Physics <i>University of Oklahoma</i>	2017 onwards
Assistant Professor (tenure track) <i>University of Oklahoma</i>	2017-2023

Education

PhD Physics <i>Rutgers, The State University of New Jersey</i> “Supersymmetry Breaking in Gauge Theories and String Theory” Thesis advisor: Duiliu-Emanuel Diaconescu	2008
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Funding History

Internal funding

- Senior Faculty Fellowship, University of Oklahoma (2024)
- Junior Faculty Summer Fellowship, University of Oklahoma (2022)

APS funding

- Women in Physics Group Grant (2018)

Federal Funding

- National Science Foundation (2024) “Forays into Dark Matter and Naturalness: From Colliders to the Cosmos”
- Department of Energy (2021) “From Colliders to Cosmology in the LHC Era”
- Department of Energy (2018) “From Colliders to Cosmology in the LHC Era”

Research Areas

- Astroparticle phenomenology, Cosmology
- Particle physics/collider phenomenology
- String phenomenology, Supergravity, Supersymmetric gauge theories

Citation Metrics (02/07/2025) [\[INSPIRE profile\]](#)

- Total citeable papers = 116
- h-index = 42
- Total citations = 6218
- Total peer-reviewed journal publications only = 94, citations = 4694, h-index = 39

Invited Contributions in Community Reviews

11. Contributor and whitepaper facilitator, “[Report of the Topical Group on Cosmic Probes of Fundamental Physics for Snowmass 2021](#)”, *Report of the Topical Group on Cosmic Probes of Fundamental Physics, for the U.S. decadal Particle Physics Planning Exercise (Snowmass 2021)* , arXiv:2209.11726 (2022).
10. Contributor and whitepaper facilitator, “[Report of the Topical Group on Cosmic Probes of Dark Matter for Snowmass 2021](#)”, *Report of the CF3 Topical Group for Snowmass 2021* , arXiv:2209.08215 (2022).
9. Contributor and whitepaper facilitator, “[Report of the Topical Group on Particle Dark Matter for Snowmass 2021](#) ”, *2021 Snowmass Cosmic Frontier Topical Subgroup Report* , arXiv:2209.0742 (2022).
8. Contributor in section “Ultralight dark matter”, “[Dark Matter In Extreme Astrophysical Environments](#) ”, *2021 Snowmass Cosmic Frontier white paper* , arXiv:2203.07984 (2022).

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7. Contributor in section “Searches with gravitational waves”, “[Synergies between dark matter searches and multiwavelength/multimessenger astrophysics](#)”, *2021 Snowmass Cosmic Frontier white paper*, arXiv:2203.06781 (2022).
 6. Contributor in Chapter 4 “Long-lived Particles”, “[The Forward Physics Facility at the High-Luminosity LHC](#)”, *2021 Snowmass white paper*, arXiv:2203.05090 (2022).
 5. Signatory, “[Axion Dark Matter](#)”, *2021 Snowmass white paper*, arXiv:2203.14923 (2022).
 4. Contributor in Chapter 3.3.2, Higgs Physics at the HL-LHC and HE-LHC, “[CERN Working Group 2](#)”, *CERN-LPCC-2018-04*, arXiv:1902.00134 (2019).
 3. Using X-Ray Polarimetry to Probe the Physics and Astrophysics of Black Holes and Neutron Stars, “[XPP Collaboration](#)”, *2020 Decadal Survey of Astronomy and Astrophysics*, arXiv:1904.09313 (2019).
 2. Contributor in Chapter 3.6, Higgs boson pair production at colliders: status and perspectives, “[Fermilab Di-Higgs Workshop Report](#)”, *Proceedings of the Di-Higgs workshop at Colliders*, arXiv:1910.00012 (2019).
 1. Top Quark Working Group Collaboration, “[Working Group Report: Top Quark](#)”, *Snowmass on the Mississippi*, arXiv:1311.2028 (2013).

Peer-Reviewed Journal Papers (authors in alphabetic order except *)

[\[INSPIRE profile\]](#)

In the theoretical high energy community, the author list is usually **alphabetical**. All my papers, except those that are marked with “*”, follow this rule (in all instances, the first author was a student).

Publications while in the rank of Associate Professor

98. Robert Wiley Deal*, Leia Barrowes, John T. Giblin, [K. Sinha](#), Scott Watson, Fred C. Adams, “[Cosmological Moduli and Non-perturbative Production of Axions](#)”, *JHEP* **under review**, (2025).
97. Kaleb Anderson, Thomas C. Gehrman, Pearl Sandick, [K. Sinha](#), Edward Walsh, Tao Xu, “[Blue Loops, Cepheids, and Forays into Axions](#)”, *JCAP* **under review**, (2025).
96. Brian Batell, Keith R. Dienes, Brooks Thomas, Scott Watson, Rouzbeh Allahverdi, [K. Sinha](#), et. al., “[Conversations and Deliberations: Non-Standard Cosmological Epochs and Expansion Histories](#)”, *JHEP* **under review**, (2025).
95. Badal Bhalla, Benjamin V. Lehmann, [K. Sinha](#), Tao Xu, “[Dancing with invisible partners: Three-body exchanges with primordial black holes](#)”, *PRD*, **in press**, (2024).
94. P.S. Bhupal Dev, Doojin Kim, Deepak Sathyan, [K. Sinha](#), Yongchao Zhang, “[New Laboratory Constraints on Neutrinophilic Mediators](#)”, *Phys.Rev.Lett.*, **under review**, (2024).
93. Huai-ke Guo, Fazlollah Hajkarim, [K. Sinha](#), Graham White, Yang Xiao, “[A Precise Fitting Formula for Gravitational Wave Spectra from Phase Transitions](#)”, *JCAP*, **in press**, (2024).

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92. Badal Bhalla, [K. Sinha](#), Tao Xu, “[Exploring Dark Forces with Multimessenger Studies of Extreme Mass Ratio Inspirals](#)”, *JCAP*, **03**, 2024 (044).
 91. Ephraim Gau, Fazlollah Hajkarim, Steven P. Harris, P.S. Bhupal Dev, Jean-Francois Fortin, Henric Krawczynski, [K. Sinha](#), “[New Constraints on Axion-Like Particles from IXPE Polarization Data for Magnetars](#)”, *Physics of the Dark Universe*, **46**, 2024 (101709).
 90. Thomas C. Gehrman, Barmak Shams Es Haghi, [K. Sinha](#), Tao Xu, “[Recycled Dark Matter](#)”, *JCAP* **03**, 2024 (044).
 89. Robert Wiley Deal, Kishan Sankharva, [K. Sinha](#), Scott Watson, “[Multi-component Dark Matter and Small Scale Structure Formation](#)”, *JHEP* **02**, 2024 (085).
 88. Tathagata Ghosh, Anish Ghoshal, Huai-Ke Guo, Fazlollah Hajkarim, Stephen F. King, [K. Sinha](#), Xin Wang, Graham White, “[Did we hear the sound of the Universe boiling? Analysis using the full fluid velocity profiles and NANOGrav 15-year data](#)”, *JCAP* **05**, 2024 (100).
 87. P.S. Bhupal Dev, Jean-François Fortin, Steven P. Harris, [K. Sinha](#), Yongchao Zhang, “[First Constraints on the Photon Coupling of Axion-like Particles from Multimessenger Studies of the Neutron Star Merger GW170817](#)”, *Phys.Rev.Lett.* **132**, 2024 (10, 101003).
 86. Thomas C. Gehrman, Barmak Shams Es Haghi, [K. Sinha](#), Tao Xu, “[The Primordial Black Holes that Disappeared: Connections to Dark Matter and MHz-GHz Gravitational Waves](#)”, *JCAP* **10**, 2023 (01).
 85. Jean-Francois Fortin, [K. Sinha](#), “[Polarization Formalism for ALP-induced X-ray Emission from Magnetars](#)”, *JCAP* **08**, 2023 (042).

Publications while in the rank of Assistant Professor

84. Thomas C. Gehrman, Barmak Shams Es Haghi, Kuver Sinha, Tao Xu, “[Baryogenesis, Primordial Black Holes and MHz-GHz Gravitational Waves](#)”, *JCAP* **02**, 2023 (062).
83. Michele Cicoli, Matteo Licheri, Anshuman Maharana, Kajal Singh, Kuver Sinha, “[Joint statistics of cosmological constant and SUSY breaking in flux vacua with nilpotent Goldstino](#)”, *JHEP* **01**, 2023 (013).
82. Michele Cicoli, [K. Sinha](#), Robert Wiley Deal, “[The Dark Universe after Reheating in String Inflation](#)”, *JHEP* **12**, 2022 (068).
81. Igor Broeckel, Michele Cicoli, Anshuman Maharana, Kajal Singh, [K. Sinha](#), “[On the Search for Low \$W_0\$](#) ”, *Fortschritte der Physik - Progress of Physics* **70**, 2022 (6).
80. Robert Caldwell, [K. Sinha](#), et. al., “[Detection of Early-Universe Gravitational Wave Signatures and Fundamental Physics](#)”, *Gen.Rel.Grav.* **54**, 2022 (12 156).
79. P.S. Bhupal Dev, Jean-François Fortin, Steven P. Harris, [K. Sinha](#), Yongchao Zhang, “[Light scalars in neutron star mergers](#)”, *JCAP* **01**, 2022 (006).
78. Huai-Ke Guo, [K. Sinha](#), Joshua Swaim, Chen Sun, Daniel Vagie, “[Two-scalar Bose-Einstein condensates: from stars to galaxies](#)”, *JCAP* **10**, 2021 (028).

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77. Pearl Sandick, Barmak Shams Es Haghi, [K. Sinha](#), “[Asymmetric reheating by primordial black holes](#)”, *Phys.Rev.D* **104**, 083523 (2021).
 76. P.S. Bhupal Dev, Doojin Kim, [K. Sinha](#), Yongchao Zhang , “[New Interference Effects from Light Gauge Bosons in Neutrino-Electron Scattering](#)”, *Phys.Rev.D* **104**, 07500 (2021).
 75. Igor Broeckel, Michele Cicoli, Anshuman Maharana, Kajal Singh, [K. Sinha](#) , “[Moduli Stabilisation and the Statistics of Axion Physics in the Landscape](#)”, *JHEP* **08**, 2021 (059).
 74. Alexandre Arbey, J  r  my Auffinger, Pearl Sandick, Barmak Shams Es Haghi, [K. Sinha](#) , “[Precision Calculation of Dark Radiation from Spinning Primordial Black Holes and Early Matter Dominated Eras](#)”, *Phys.Rev.D* **103**, 123549 (2021).
 73. Huai-Ke Guo, [K. Sinha](#), Daniel Vagie, Graham White , “[The Benefits of Diligence: How Precise are Predicted Gravitational Wave Spectra in Models with Phase Transitions?](#)”, *JHEP* **06**, 2021 (164).
 72. Jean-Fran  ois Fortin, Huai-Ke Guo, Steven P. Harris, Doojin Kim, [K. Sinha](#), Chen Sun, “[Axions: From Magnetars and Neutron Star Mergers to Beam Dumps and BECs](#)”, *invited review, Int.J.Mod.Phys.D* **30**, 2021, 07 (2130002).
 71. Andr  s Fl  rez, Alfredo Gurrola, [K. Sinha](#), et. al., “[Probing axion-like particles with \$\gamma\gamma\$ final states from vector boson fusion processes at the LHC](#)”, *Phys.Rev.D* **103**, 095001 (2021).
 70. P.S. Bhupal Dev, Doojin Kim, [K. Sinha](#), Yongchao Zhang, “[PASSAT at Future Neutrino Experiments: Hybrid Beam-Dump-Helioscope Facilities to Probe Light Axion-Like Particles](#)”, *Phys.Rev.D* **104**, 035037 (2021).
 69. Jean-Fran  ois Fortin, Huai-Ke Guo, Steven P. Harris, Elijah Sheridan, [K. Sinha](#), Chen Sun, Daniel Vagie, “[Magnetars and Axion-like Particles: Probes with the Hard X-ray Spectrum](#)”, *JCAP* **06**, 2021 (036).
 68. Alexandre Alves, Dorival Gon  alves, Tathagata Ghosh, Huai-Ke Guo, [K. Sinha](#), “[Di-Higgs Blind Spots in Gravitational Wave Signals](#)”, *Phys.Lett.B* **818**, 136377 (2021).
 67. R. Allahverdi, [K. Sinha](#), et. al., “[The First Three Seconds: a Review of Possible Expansion Histories of the Early Universe](#)”, *The Open Journal of Astrophysics* , 4 (2021).
 66. Huai-Ke Guo, [K. Sinha](#), Daniel Vagie, Graham White , “[Phase Transitions in an Expanding Universe: Stochastic Gravitational Waves in Standard and Non-Standard Histories](#) ”, *JCAP* **01**, 001 (2021).
 65. S. J. Lloyd*, P. M. Chadwick, A. M. Brown, H. k. Guo and [K. Sinha](#), “[Axion Constraints from Quiescent Soft Gamma-ray Emission from Magnetars](#)”, *Phys.Rev.D* **103**, 023010 (2021).
 64. Igor Broeckel, Michele Cicoli, Anshuman Maharana, Kajal Singh, [K. Sinha](#), “[Moduli Stabilisation and the Statistics of SUSY Breaking in the Landscape](#)”, *JHEP* **10**, 015 (2020).
 63. A. S. de Jesus, S. Kovalenko, F. S. Queiroz, [K. Sinha](#) and C. Siqueira, “[Vector-Like Leptons and Inert Scalar Triplet: Lepton Flavor Violation, \$g - 2\$ and Collider Searches](#)”, *Phys. Rev. D* **102**, 035004 (2020).
 62. S. P. Harris*, J. F. Fortin, [K. Sinha](#) and M. G. Alford, “[Axions in neutron star mergers](#)”, *JCAP* **07**, 023 (2020).

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61. H. Baer, V. Barger, S. Salam, D. Sengupta and [K. Sinha](#), “[Status of weak scale supersymmetry after LHC Run 2 and ton-scale noble liquid WIMP searches](#)”, *Eur.Phys.J.ST* **229**, 21 (2020).
 60. J. B. Dent, B. Dutta, D. Kim, S. Liao, R. Mahapatra, [K. Sinha](#) and A. Thompson, “[New Directions for Axion Searches via Scattering at Reactor Neutrino Experiments](#)”, *Phys.Rev.Lett.* **124**, 211804 (2020).
 59. A. Alves, T. Ghosh, D. Goncalves, H. Guo, [K. Sinha](#), “[Di-Higgs Production in the \$4b\$ Channel and Gravitational Wave Complementarity](#)”, *JHEP* **2003**, 053 (2020).
 58. W. Bonivento, Doojin Kim, [K. Sinha](#), “[PASSAT: Particle Accelerator helioScopes for Slim Axion-like-particle deTection](#)”, *Eur. Phys. J. C* **80**, no. 2, 164 (2020).
 57. H. Baer, V. Barger, D. Sengupta, H. Serce, [K. Sinha](#), R. Wiley, “[Is the magnitude of the Peccei-Quinn scale set by the landscape?](#)”, *Eur. Phys. J. C* **79**, no.11, 897 (2019).
 56. Jean-Francois Fortin, [K. Sinha](#), “[Photon Dark Photon Conversions in Background Electromagnetic Fields](#)”, *JCAP* **1911**, no.11, 020 (2019).
 55. Huaikuo Guo, [K. Sinha](#), Chen Sun, “[Probing Boson Stars with Extreme Mass Ratio Inspirals](#)”, *JCAP* **1909**, no.09, 032 (2019).
 54. A. Florez, A. Gurrola, W. Johns, J. Maruri, P. Sheldon, [K. Sinha](#), S. Starko, “[Anapole Dark Matter via Vector Boson Fusion Processes at the LHC](#)”, *Phys.Rev. D* **100**, no.1, 016017 (2019).
 53. H. Baer, V. Barger, S. Salam, H. Serce, [K. Sinha](#), “[LHC SUSY and WIMP dark matter searches confront the string theory landscape](#)”, *JHEP* **1904**, 043 (2019).
 52. A. Alves, T. Ghosh, H. Guo, [K. Sinha](#), D. Vagie, “[Collider and Gravitational Wave Complementarity in Exploring the Singlet Extension of the Standard Model](#)”, *JHEP* **1904**, 052 (2019).
 51. Jean-Francois Fortin, [K. Sinha](#), “[X-Ray Polarization Signals from Magnetars with Axion-Like-Particles](#)”, *JHEP* **1901**, 163 (2019).
 50. A. Alves, T. Ghosh, H. Guo, [K. Sinha](#), “[Resonant Di-Higgs Production at Gravitational Wave Benchmarks: A Collider Study using Machine Learning](#)”, *JHEP* **1812**, 070 (2018).
 49. Jean-Francois Fortin, [K. Sinha](#), “[Constraining Axion-Like-Particles with Hard X-ray Emission from Magnetars](#)”, *JHEP* **1806**, 048 (2018).
 48. P. Bergeron, P. Sandick, [K. Sinha](#), “[Theoretical Uncertainties in the Calculation of Supersymmetric Dark Matter Observables](#)”, *JHEP* **1805**, 113 (2018).
 47. H. Baer, V. Barger, H. Serce, [K. Sinha](#), “[Higgs and superparticle mass predictions from the string theory landscape](#)”, *JHEP* **1803**, 002 (2018).
 46. A. Alves, A. C. O. Santos, [K. Sinha](#), “[Collider Detection of Dark Matter Electromagnetic Anapole Moments](#)”, *Phys. Rev. D* **97**, 055023 (2018).
 45. P. Sandick, [K. Sinha](#), T. Yamamoto, “[Black Holes, Dark Matter Spikes, and Constraints on Simplified Models with \$t\$ -Channel Mediators](#)”, *Phys. Rev. D* **98**, 035004 (2018).

Publications while Postdoctoral Researcher

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44. A. Alves, T. Ghosh, [K. Sinha](#), “[Can We Discover Double Higgs Production at the LHC?](#)”, *Phys. Rev. D* **96**, 035022 (2017).
 43. P. Sandick, [K. Sinha](#), F. Teng , “[Simplified Dark Matter Models with Charged Mediators: Prospects for Direct Detection](#)”, *JHEP* **1610**, 018 (2016).
 42. A. Alves, A. Dias, [K. Sinha](#), “[Diphotons at the Z-pole in Models of the 750 GeV Resonance Decaying to Axion-Like Particles](#)”, *JHEP* **1608**, 060 (2016).
 41. A. Alves, A. Dias, [K. Sinha](#), “[The 750 GeV S-cion: Where else should we look for it?](#) ”, *Phys.Lett. B* **757**, 39-46 (2016).
 40. A. Erickcek, [K. Sinha](#), S. Watson, “[Bringing Isolated Dark Matter Out of Isolation: Late-time Reheating and Indirect Detection](#)”, *Phys. Rev. D* **94**, 063502 (2016).
 39. M. G. Baring, T. Ghosh, F. S. Queiroz, [K. Sinha](#), “[New Limits on the Dark Matter Lifetime from Dwarf Spheroidal Galaxies using Fermi-LAT](#)”, *Phys.Rev. D* **93**, 103009 (2016).
 38. A. Alves, [K. Sinha](#), “[Searches for Dark Matter at the LHC: A Multivariate Analysis in the Mono-Z Channel](#) ”, *Phys.Rev. D* **92**, 115013 (2015).
 37. B. Dutta, A. Gurrola, K. Hatakeyama, W. Johns, T. Kamon, P. Sheldon, [K. Sinha](#), S. Wu, Z. Wu,, “[Probing Compressed Bottom Squarks with Boosted Jets and Shape Analysis](#)”, *Phys.Rev. D* **92**, 095009 (2015).
 36. Y. Gao, T. Ghosh, [K. Sinha](#), J-H. Yu, “[SU\(2\)×SU\(2\)×U\(1\) interpretations of the diboson and Wh excesses](#)”, *Phys.Rev. D* **92**, 055030 (2015).
 35. [K. Sinha](#), “[Early Universe Cosmology, Effective Supergravity, and Invariants of Algebraic Forms](#) ”, *Phys.Rev. D* **92**, 065023 (2015).
 34. B. P. Padley, [K. Sinha](#), K. Wang, “[Natural Supersymmetry, Muon \$g-2\$, and the Last Crevices for the Top Squark](#)”, *Phys.Rev. D* **92**, 055025 (2015).
 33. G. Kane, [K. Sinha](#), S. Watson, “[Cosmological Moduli and the Post-Inflationary Universe: A Critical Review](#)”, *Int. J. Mod. Phys. D* **24**, 1530022 (2015).
 32. B. Allanach, A. Alves, F. S. Queiroz, [K. Sinha](#), A. Strumia, “[Interpreting the CMS \$\ell^+\ell^-jj\cancel{E}_T\$ Excess with a Leptoquark Model](#)”, *Phys.Rev. D* **92**, 055023 (2015).
 31. B. Dutta, T. Li, J. A. Maxin, D. V. Nanopoulos, [K. Sinha](#), J. W. Walker, “[Third Generation in Cascade Decays](#)”, *Phys.Rev. D* **91**, 115021 (2015).
 30. B. Dutta, T. Ghosh, A. Gurrola, W. Johns, T. Kamon, P. Sheldon, [K. Sinha](#), K. Wang, S. Wu, “[Probing Compressed Sleptons at the LHC using Vector Boson Fusion Processes](#)”, *Phys.Rev. D* **91**, 055025 (2015).
 29. A. Anandakrishnan, B. Shakya, [K. Sinha](#), “[Dark matter at the pseudoscalar Higgs resonance in the phenomenological MSSM and SUSY GUTs](#)”, *Phys.Rev. D* **91**, 035029 (2015).
 28. O. Özsoy, [K. Sinha](#), S. Watson, “[How Well Can We Really Determine the Scale of Inflation?](#)”, *Phys.Rev. D* **91**, 103509 (2015).

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27. F. S. Queiroz, K. Sinha, A. Strumia, “[Leptoquarks, Dark Matter, and Anomalous LHC Events](#)”, *Phys.Rev. D* **91**, 035006 (2015).
 26. F. S. Queiroz, K. Sinha, W. Wester, “[Rich tapestry: Supersymmetric axions, dark radiation, and inflationary reheating](#)”, *Phys.Rev. D* **90**, 115009 (2014).
 25. F. S. Queiroz, K. Sinha, “[The Poker Face of the Majoron Dark Matter Model: LUX to keV Line](#)”, *Phys. Lett. B* **735**, 69-74 (2014).
 24. R. Allahverdi, M. Cicoli, B. Dutta, K. Sinha, “[Correlation between Dark Matter and Dark Radiation in String Compactifications](#)”, *JCAP* **1410**, 002 (2014).
 23. B. Dutta, W. Flanagan, A. Gurrola, W. Johns, T. Kamon, P. Sheldon, K. Sinha, K. Wang, S. Wu, “[Probing compressed top squark scenarios at the LHC at 14 TeV](#)”, *Phys.Rev. D* **90**, 095022 (2014).
 22. A. Anandakrishnan, K. Sinha, “[Viability of thermal well-tempered dark matter in SUSY GUTs](#)”, *Phys.Rev. D* **89**, 055015 (2014).
 21. R. Allahverdi, M. Cicoli, B. Dutta, K. Sinha, “[Nonthermal dark matter in string compactifications](#)”, *Phys.Rev. D* **88**, 095015 (2013).
 20. R. Allahverdi, B. Dutta, R. N. Mohapatra, K. Sinha, “[A Supersymmetric Model for Dark Matter and Baryogenesis Motivated by the Recent CDMS Result](#)”, *Phys. Rev. Lett.* **111**, 051302 (2013).
 19. A. G. Delannoy, B. Dutta, A. Gurrola, W. Johns, T. Kamon, E. Luigi, A. Melo, P. Sheldon, K. Sinha, K. Wang, S. Wu, “[Probing Dark Matter at the LHC using Vector Boson Fusion Processes](#)”, *Phys. Rev. Lett.* **111**, 061801 (2013).
 18. B. Dutta, T. Kamon, N. Koley, K. Sinha, K. Wang, S. Wu, “[Top Squark Searches Using Dilepton Invariant Mass Distributions and Bino-Higgsino Dark Matter at the LHC](#)”, *Phys. Rev. D* **87**, 095007 (2013).
 17. R. Allahverdi, B. Dutta, K. Sinha, “[Successful Supersymmetric Dark Matter with Thermal Over/Under-Abundance from Late Decay of a Visible Sector Scalar](#)”, *Phys. Rev. D* **87**, 075024 (2013).
 16. B. Dutta, A. Gurrola, W. Johns, T. Kamon, P. Sheldon, K. Sinha, “[Vector Boson Fusion Processes as a Probe of Supersymmetric Electroweak Sectors at the LHC](#)”, *Phys. Rev. D* **87**, 035029 (2013).
 15. R. Allahverdi, B. Dutta, K. Sinha, “[Non-thermal Higgsino Dark Matter: Cosmological Motivations and Implications for a 125 GeV Higgs](#)”, *Phys. Rev. D* **86**, 095016 (2012).
 14. B. Dutta, T. Kamon, N. Koley, Kuver Sinha, K. Wang, “[Searching for Top Squarks at the LHC in Fully Hadronic Final State](#)”, *Phys. Rev. D* **86**, 075004 (2012).
 13. B. Dutta, K. Sinha, “[Holomorphic Bisectional Curvatures, Supersymmetry Breaking, and Affleck-Dine Baryogenesis](#)”, *Phys. Rev. D* **86**, 103517 (2012).
 12. S. Downes, B. Dutta, K. Sinha, “[Attractors, Universality and Inflation](#)”, *Phys. Rev. D* **86**, 103509 (2012).

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11. B. Dutta, T. Kamon, A. Krislock, [K. Sinha](#), K. Wang, “[Diagnosis of Supersymmetry Breaking Mediation Schemes by Mass Reconstruction at the LHC](#)”, *Phys. Rev. D* **85**, 115007 (2012).
 10. S. Downes, B. Dutta, [K. Sinha](#), “[Catastrophic Inflation](#)”, *Phys. Rev. D* **84**, 063524 (2011).
 9. R. Allahverdi, B. Dutta, [K. Sinha](#), “[Cladogenesis: Baryon-Dark Matter Coincidence from Branchings in Moduli Decay](#)”, *Phys. Rev. D* **83**, 083502 (2011).
 8. B. Dutta, [K. Sinha](#), “[Affleck-Dine Baryogenesis in Effective Supergravity](#)”, *Phys. Rev. D* **82**, 095003 (2010).
 7. R. Allahverdi, B. Dutta, [K. Sinha](#), “[Baryogenesis and Late-Decaying Moduli](#)”, *Phys. Rev. D* **82**, 035004 (2010).
 6. R. Allahverdi, B. Dutta, [K. Sinha](#), “[Low-scale Inflation and Supersymmetry Breaking in Racetrack Models](#)”, *Phys. Rev. D* **81**, 083538 (2010).
 5. B. Dutta, L. Leblond, [K. Sinha](#), “[Mirage in the Sky: Non-thermal Dark Matter, Gravitino Problem, and Cosmic Ray Anomalies](#)”, *Phys. Rev. D* **80**, 035014 (2009).

Publications while Graduate Student

4. R. Essig, J-F. Fortin, [K. Sinha](#), G. Torroba, M. J. Strassler*, “[Metastable supersymmetry breaking and multitrace deformations of SQCD](#)”, *JHEP* **0903**, 043 (2009).
3. R. Essig, [K. Sinha](#), G. Torroba, “[Meta-stable dynamical supersymmetry breaking near points of enhanced symmetry](#)”, *JHEP* **0709**, 032 (2007).
2. D.-E. Diaconescu, A. Garcia-Raboso, R. L. Karp, [K. Sinha](#), “[D-Brane Superpotentials in Calabi-Yau Orientifolds](#)”, *Adv. Theor. Math. Phys.* **11**, no.3 (2007).
1. D.-E. Diaconescu, A. Garcia-Raboso, [K. Sinha](#), “[A D-brane landscape on Calabi-Yau manifolds](#)”, *JHEP* **0606**, 058 (2006).

Selected Reviews and Conference Papers

4. J. Auffinger, A. Arbey, P. Sandick, B. Shams Es Haghi, [K. Sinha](#), “[Dark radiation constraints on light primordial black holes](#)”, *PoS EPS-HEP2021 Contribution to: EPS-HEP2021*, 2022 (147).
3. O. Ozsoy, [K. Sinha](#), S. Watson, “[A Model Independent Approach to \(p\)Reheating](#)”, , (2015).
2. [K. Sinha](#), “[Non-thermal dark matter: Prospects and challenges](#)”, *AIP Conf. Proc.* **2014**, arXiv:1311.2028 (2013).
1. R. Essig, [K. Sinha](#), G. Torroba, “[Enhanced symmetry points and metastable supersymmetry breaking along pseudo-runaway directions](#)”, In **Karlsruhe 2007, SUSY 2007** **586-589** , (2007).

Selected Workshops, Conferences, and Extended Visits

40. Sabbatical, Rice University, Fall 2024
39. Invited seminar and discussion leader, [PITT PACC Workshop: Non-Standard Cosmological Epochs and Expansion Histories](#) , University of Pittsburgh, Sep 5-7, 2024
38. Invited participant, [Simons Physics Summer Workshop: Landscapia - landscape of old and new constructions of String/Quantum Gravity backgrounds](#), Simons Center for Geometry and Physics, Aug 11-16, 2024
37. Invited seminar, [CETUP* Dark Matter Workshop](#) , Lead, South Dakota, June, 2024
36. Invited Plenary, [Workshop on Collider, Dark Matter, and Neutrino Physics](#) , Mitchell Institute for Fundamental Physics, Texas A&M University, May 23-26, 2024
35. Invited Plenary, [Simons Workshop: Multifield Cosmology: Inflation, Dark Energy and More](#), Simons Center for Geometry and Physics, Feb 5-9, 2024
34. Invited Talk, [Aspen Winter Conference: Fields, Strings, and Deep Learning](#), Aspen Center for Physics, Jan 14-19, 2024
33. Invited Talk, [TACOS: Theoretical Astroparticle and Cosmology Symposium in Texas](#) , Rice University, Oct 9-10, 2023
32. Invited participant, [Workshop on Ending Inflation and the Hot Big Bang](#) , Simons Center for Geometry and Physics, June 5-9, 2023
31. Invited Plenary, [Workshop on Collider, Dark Matter, and Neutrino Physics](#) , Mitchell Institute for Fundamental Physics, Texas A&M University, May 16-19, 2023
30. Invited Plenary, [PPC 2022 XV International Workshop on Interconnections between Particle Physics and Cosmology](#) , Washington University in St. Louis, June 6-10, 2022 (unable to attend)
29. Invited Plenary, [Collider, Dark Matter, and Neutrino Physics 2022](#) , Mitchell Institute for Fundamental Physics, Texas A-M University, May 24-27, 2022 (unable to attend)
28. Selected Participant, New Methods and Ideas at the Frontiers of Particle Physics, Aspen Winter Conference, March 20-25, 2022
27. Parallel Talk, [SUSY 2021](#), ITP Beijing, August 23- August 28, 2021
26. Selected Participant, Dark Matter from the Laboratory to the Cosmos, Aspen Summer Conference, August 22- September 5, 2021 (in-person, unable to attend)
25. Selected Participant, [A Rainbow of Dark Sectors](#) , Aspen Winter Conference, March 22 - April 1, 2021
24. Invited seminar, [VBSCan Working Group 1 meeting](#) , European Cooperation in Science and Technology, March 3, 2021
23. Invited Participant, [From Inflation to the Hot Big Bang](#) , KITP Workshop, Jan 6-31, 2020

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22. Invited talk, [Searching for New Physics Workshop](#) , U. Utah, August 4-10, 2019
 21. Invited Plenary, [Dark Universe Workshop – Early Universe Cosmology](#) , ICTP-SAIFR, São Paulo, Brazil, Oct 21-25, 2019
 20. Invited Plenary, [PPC2019 XIII International Workshop on Interconnections between Particle Physics and Cosmology](#) , Cartagena de Indias, 22-26 July 2019
 19. Invited Parallel talk, [SUSY 2019](#) , Texas A-M University - Corpus Christi, May 20-24, 2019
 18. Invited Plenary, [Collider, Dark Matter, and Neutrino Physics 2019](#) , Mitchell Institute for Fundamental Physics, Texas A-M University, May 15-17, 2019
 17. Invited Plenary (unable to attend), [X-ray astronomy and fundamental physics](#) , The Royal Society, October 24-25, 2018
 16. Selected contributed talk, [Dark Interactions Workshop](#) , Brookhaven, October 2-5, 2018
 15. Theory Chair (*bbVV* Session), [Double Higgs Production at Colliders Workshop](#) , Fermilab, September 4-9, 2018
 14. Selected participant and speaker, [2018 Santa Fe Summer Workshop in Particle Physics](#) , Los Alamos National Laboratory, July 2-6, 2018
 13. Invited Parallel Talk, [Particles, Strings and Cosmology \(PASCOS\)](#) , Case Western Reserve University, June 4-8, 2018
 12. Invited Plenary, [Collider, Dark Matter, and Neutrino Physics 2018](#) , Mitchell Institute for Fundamental Physics, Texas A-M University, May 21-23, 2018
 11. Invited Plenary, [Focus Workshop on Particle Physics and Cosmology](#) , IBS-CTPU S. Korea, Dec. 5-9, 2016
 10. Discussion Leader, [CETUP* Dark Matter Workshop](#) , Deadwood, South Dakota, July 4-16, 2016
 9. Session Chair, [String/M-theory Compactifications and Moduli Stabilization](#) , Michigan Center for Theoretical Physics, Ann Arbor, Michigan, March 4-7, 2015
 8. Session Chair, [Dark Matter and Collider Physics Workshop](#) , Mitchell Institute for Fundamental Physics, Texas A-M University, March 4-7, 2015
 7. Discussion Leader, [CETUP* Dark Matter Workshop](#) , Deadwood, South Dakota, July, 2015
 6. Session Chair, [Hidden Sector Dark Matter](#) , Michigan Center for Theoretical Physics, Ann Arbor, Michigan, November 7-9, 2014
 5. Invited Plenary, Particle Physics and Cosmology (PPC), Leon, Mexico, June 23-27, 2014 (unable to attend)
 4. Session Chair, [Dark Matter and Collider Physics Workshop](#) , Mitchell Institute for Fundamental Physics, Texas A-M University, May 12-15, 2014
 3. Invited Plenary, Particle Physics and Cosmology (PPC), Deadwood, South Dakota, July 8-13, 2013

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2. Michigan Center for Theoretical Physics, Non-thermal Dark Matter Workshop, October 2010
 1. 2nd Annual Texas A-M Astrophysics Symposium, , August 2010
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Seminars and Colloquia

39. University of Delaware, High Energy Physics Seminar, November 3, 2022
38. Southern Illinois University, Colloquium, March 2021
37. Particle Physics Workshop, U. Kansas, Phase Transitions Session Chair, October 2019
36. University of Laval, Particle Physics Seminar, March 2019
35. Washington University, St. Louis, Particle Physics Seminar, November 2018
34. Particle Physics Workshop, U. Kansas, Higgs Session Chair, October 2018
33. U. Oklahoma, Colloquium, March 2017
32. IACS Kolkata, India, High Energy Physics Seminar, June 2016
31. IISc Bangalore, India, High Energy Physics Seminar, June 2016
30. U. Utah, High Energy Physics Seminar, November 2015
29. U. Wisconsin, Madison, Particle Physics Seminar, November 2014
28. Ohio State University, Particle Physics Seminar, November 2014
27. U. Pittsburgh, Particle Physics Seminar, November 2014
26. UC Riverside, Particle Physics Seminar, October 2014
25. UC Irvine, Particle Physics Seminar, October 2014
24. Texas A-M University, HEPEC Seminar, October 2014
23. Rice University, Bonner Lab/Astrophysics Seminar, October 2014
22. U. Maryland, College Park, Particle Physics Seminar, November 2014
21. U. Oklahoma, Particle Physics Seminar, August 2013
20. U. Kansas, Particle Physics Seminar, September 2013
19. U. Pittsburgh, Particle Physics Seminar, September 2013
18. Snowmass: Seattle Energy Frontier Workshop, Parallel Session, July 2013
17. Phenomenology 2013 Symposium, U. Pittsburgh, Parallel Session, April 2013
16. Rice University, Bonner Lab Seminar, September 2012
15. CETUP* Dark Matter Workshop, Deadwood, South Dakota, July 2012
14. U. Texas, Austin, Seminar, Weinberg Theory Group, April 2012

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13. Phenomenology 2013 Symposium, U. Pittsburgh, Parallel Session, May 2012
 12. Cook's Branch Workshop, Mitchell Institute for Fundamental Physics, TAMU, March 2012
 11. Rice University, Bonner Lab Seminar, January 2012
 10. Supersymmetry 2011 International Conference, Fermilab, August 2011
 9. Aspects of Inflation Workshop, Texas A-M University, April 2011
 8. U. New Mexico, Particle Physics Seminar, March 2011
 7. Cornell University, Particle Physics Seminar, November 2010
 6. Phenomenology 2010 Symposium, U. Wisconsin, Madison, Parallel Session, May 2010
 5. Supersymmetry 2009 International Conference, Northeastern University, June 2009
 4. U. Texas, Austin, Seminar, Weinberg Theory Group, May 2009
 3. Mitchell Institute for Fundamental Physics, TAMU, Particle Physics Seminar, Mar 2008
 2. Penn State University, Particle Physics Seminar, January 2008
 1. Columbia University, Particle Physics Seminar, December 2007

Teaching

- Instructor for Physics 5573 - Electrodynamics I, Spring 2025
- Instructor for Physics 5970 - Quantum Field Theory - III, Fall 2023. I developed this new course as a third installment of QFT. Topics covered include Effective Field Theories, Electroweak Precision, Flavor, Higgs Physics, and Beyond-Standard Model phenomenology.
- Instructor for Physics 5213/4213 - Nuclear and Particle Physics, Fall 2017, 2018, 2019, and 2020. This graduate course covered gauge theories and the symmetries underpinning the Standard Model of particle physics.
- Instructor for Physics 3803 - Quantum Mechanics I, Spring 2019 and 2020. This is an undergraduate course that covered the first semester of quantum mechanics.
- Instructor for Physics 6433 - Quantum Field Theory - I, Spring 2018, 2021, 2022, 2024. This graduate course covered the first semester of quantum field theory.
- Instructor for Physics 6443 - Quantum Field Theory - II, Fall 2021. This graduate course covered the second semester of quantum field theory.
- Participant in *New Faculty Workshop* organized by the American Association of Physics Teachers, November 2017, College Park, MD.

Prior to joining the University of Oklahoma, my teaching consisted of the following:

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- Instructor for large service course Physics 2010 - General Physics I (150+ students), Spring 2017 at the University of Utah. This course was intended for students of medicine, dentistry, pharmacy, humanities, and behavioral and social sciences. Three lectures and two recitations were offered weekly. Topics covered included mechanics and heat.
 - Rutgers University: General Physics 203-204 (teaching assistant, multiple semesters). Topics covered included mechanics and electromagnetic theory (algebra-based courses).
 - Rutgers University: General Physics 227-228 (teaching assistant, multiple semesters). Topics covered included mechanics and electromagnetic theory (calculus-based courses).

Advising

- Students (chair of Ph.D. committee): Badal Bhalla (2021 -), TJ Gehrman (2021 -), Teddy Walsh (2023 -), Rahul Muraleedharan (2024 -), Daniel Vagie (2017 - 2021)
- Postdocs: Tao Xu (2022 -), Fazlollah Hajkarim (2023 -), Juhi Dutta (2022 - 2024), Huaikuo Guo (2018 - 2021, subsequent position: Asst. Prof., ICTP-AP, University of Chinese Academy of Sciences)
- Thesis Committee Member: Hunter Campbell, Joseph Muse, Robert Wiley, Yifan Zhang, Dakota Martinez, Connor Waits.
- Undergraduate Capstone students: Katherine Sloan (2020-2021, went to Ohio State) Oskar Novak (2019-2020, went to Dartmouth), Jeremiah Buenger (2018-2019, went to U. Kansas Math), and Sean Islas (2017-2018, U.S. Marine Corps).
- Undergraduate REU students: Joshua Swaim (2019, went to the graduate program at U. Connecticut), Elijah Sheridan (2020, went to the graduate program at Cornell), Samantha Reisenauer (2021, went to the graduate program at Arizona State), Nathan Bailey (2023, Bowdoin College), Kaleb Anderson (2024, Brown University)
- Undergraduate exchange student: Deniz Serman (Boğaziçi University, Fall 2023)

Service

- Member of the Local Organizing Committee for [PPC 2021](#) (*XIV International Conference on Interconnections between Particle Physics and Cosmology*), U. Oklahoma
- Member of the Local Organizing Committee for [PPC 2020](#) (*XIV International Conference on Interconnections between Particle Physics and Cosmology*), U. Oklahoma (cancelled)
- Referee for Physical Review D (PRD), Physical Review Letters (PRL), Journal of High Energy Physics (JHEP), Journal of Cosmology and Astroparticle Physics (JCAP)
- Reviewer for NSF, DOE, and NASA grant proposals

Departmental Service

- Member, Community and Belonging Committee (2024-2025)

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- Chair, Publicity Committee. Responsible for publishing Dodge Digest newsletter, August 2021 - 2023. Responsible for working with website developer.
 - Editor, E&M Qualifying Exam, Quantum Mechanics Qualifying Exam
 - Graduate recruiting committee, 2019-2020
 - AMO/CM Faculty hiring committee, 2018-2019 and 2019-2020
 - Rejuvenated/created and currently organize the High Energy Physics [Journal Club](#), U. Oklahoma
 - Assisted Prof. Ferah Munshi, who led efforts to create the department's first Women in Physics group in Fall 2017. Students successfully applied for APS WiP grant in 2018. I served as a faculty co-mentor, 2018 - 2019, for the Women in Physics group.

Outreach

- Interviewed by *Nature* for the article "Theorists feast on Higgs data - but usurpers of 'standard model' have little to chew on." (July 18, 2012).
- Syracuse University: Volunteer for Undergraduate Research Day, 2014 and 2015. Attended by more than 100 students from 16 colleges and universities in the New York area universities and beyond. The meetings gave undergraduates a chance to present their own research in the form of talks and posters.
- Texas A-M University: Volunteer for Physics and Engineering Festival, 2009 - 2012. Attended by over 4000 people from across the US. Over 100 physics demonstrations.
- Rutgers University: Volunteer for Holiday Children's Lecture, 2004 - 2007.