Sarunas Verner

Curriculum Vitae

Contact Information

Kavli Institute for Cosmological Physics (KICP)
University of Chicago
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INSPIRE-HEP
ORCID
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U.S. citizen

Positions

Kavli Institute for Cosmological Physics (KICP) — September 2025 – present
University of Chicago
KICP Fellow

Institute for Fundamental Theory (IFT) — July 2022 – September 2025
University of Florida
Postdoctoral Researcher

Education

University of Minnesota — 2017 – 2022
Ph.D. Physics, July 2022
Advisor: Keith Olive
Thesis: "No-scale Supergravity, Inflation, and Dark Matter"

Harvard-Smithsonian Center for Astrophysics — 2015 – 2016
Part of the MPhys Physics with Astronomy Program
Advisor: Belinda Wilkes
Thesis: "Extended X-ray and Radio Structures Around High-Redshift ($0.5 < z < 2$) 3CRR Sources"

University of Southampton — 2012 – 2016
MPhys Physics with Astronomy (*Distinction*), May 2016
BSc Physics and Astronomy (*First Class Honours*), May 2015

Research Program

Theoretical cosmology and particle physics. Physics beyond the Standard Model, from model building to its signatures in the early universe: how dark matter, axions and other new particles arise during inflation, reheating, phase transitions and black hole evaporation, and what they leave behind in cosmological, gravitational wave and astrophysical data.

Particle production and dark matter: gravitational portals; heavy scalars, vectors, spin-3/2 and massive spin-2 particles during and after inflation; axions from kinetic misalignment, Hawking radiation and the cosmic axion background.

Signatures and data: stochastic gravitational wave backgrounds from spectator fields and cosmic strings; constraints on inflation and reheating from Planck, BICEP/Keck, ACT DR6 and SPT-3G; astrometric searches for ultralight dark matter.

Machine learning for theoretical physics: deep learning discovery of symmetries and Lie algebras; machine learning searches of theory landscapes and flavor models; AI agents for particle physics.

Research profile: 49 papers, 1,476 citations, h-index 20 (INSPIRE-HEP, October 2026). Two papers with over 100 citations and eleven with over 50. Four single-author papers.

Awards & Fellowships

KICP Fellowship, Kavli Institute for Cosmological Physics, University of Chicago	2025
Doctoral Dissertation Fellowship, University of Minnesota	2021
Anatoly Larkin Fellowship, University of Minnesota	2020
Outstanding T.A. Award, University of Minnesota	2020
William I. Fine Theoretical Physics Institute (FTPI) Travel Award	2019
Smithsonian Astrophysical Observatory (SAO) Travel Award	2016
Visiting Student Fellowship, Smithsonian Astrophysical Observatory (SAO)	2016
University of Southampton Physics and Astronomy Scholarship	2015
South East Physics Network (SEPnet) Summer Research Award	2015
University of Southampton Physics and Astronomy Award	2013

Select Publications

⋆ I led the project; † equal contribution; underlined: student I supervised or co-supervised (full key under Publications).

- ⋆ J. A. Dror, **S. Verner** — Phys. Rev. Lett. **134** (2025) 111003, arXiv:2406.03526
  New Method for the Astrometric Direct Detection of Ultralight Dark Matter
  Press: NRAO Newsletter, Volume 17, Issue 9
- ⋆ S. Cléry, Y. Mambrini, K. A. Olive, **S. Verner** — Phys. Rev. D **105** (2022) 075005, arXiv:2112.15214
  Gravitational Portals in the Early Universe
- ⋆ J. Ellis, M. A. G. Garcia, K. A. Olive, **S. Verner** — Phys. Rev. D **113** (2026) 063571, arXiv:2510.18656
  Constraints on Attractor Models of Inflation and Reheating from Planck, BICEP/Keck, ACT DR6, and SPT-3G Data
- ⋆ R. T. Co, L. J. Hall, K. Harigaya, K. A. Olive, **S. Verner** — JCAP **08** (2020) 036, arXiv:2004.00629
  Axion Kinetic Misalignment and Parametric Resonance from Inflation
- ⋆ **S. Verner** — JCAP **05** (2025) 060, arXiv:2408.11889
  Nonminimal Superheavy Dark Matter
- ⋆ R. T. Forestano, K. T. Matchev, K. Matcheva, A. Roman, E. B. Unlu, **S. Verner** — Mach. Learn. Sci. Tech. **4** (2023) 025027, arXiv:2301.05638
  Deep Learning Symmetries and Their Lie Groups, Algebras, and Subalgebras from First Principles

Scientific Leadership & Organization

Organizer, *Cosmology after DESI, ACT, and LZ* workshop, KICP, University of Chicago	April 2027 *Upcoming*
Seminar Organizer, Kavli Institute for Cosmological Physics, University of Chicago	2026 – present
Journal Club Organizer, Kavli Institute for Cosmological Physics, University of Chicago	2025 – present
Session Chair, Cosmology and the Early Universe, SUSY 2025, UC Santa Cruz	August 2025

Organizer, *The Early Universe: A Window to New Physics* workshop, University of Florida	October 2023
Seminar Organizer and Journal Club Organizer, University of Florida	2022 – 2025
Organizer, Student Talks at TASI 2022, University of Colorado Boulder	June 2022

Students & Mentoring

Students I currently supervise or co-supervise. Student coauthors are underlined in the publication list.

Jingyuan Wang, Ph.D. student, University of Chicago
Cosmological gravitational particle production in multifield inflation (with E. W. Kolb; arXiv:2606.25015)

Gio Leone, Ph.D. student, University of Chicago

Claire Kaplan, undergraduate, University of Chicago

Christos Litos, graduate student, University of Florida
Gravitational waves from long strings and loops (arXiv:2609.22430)

Roy T. Forestano, **Alex Roman**, **Eyup B. Unlu**, graduate students, University of Florida
Machine-learned symmetries and Lie-algebra structure: four papers (2023), incl. Mach. Learn. Sci. Tech. **4** (2023) 025027 and three in Phys. Lett. B

Teaching

University of Florida, Department of Physics Guest Instructor, Classical Mechanics (undergraduate) Guest Instructor, The Standard Model (graduate)	Fall 2023, Spring 2024
University of Minnesota, College of Science and Engineering, Department of Physics — Teaching Assistant Outstanding T.A. Award (2020)	2017 – 2022
Advanced Quantum Mechanics (PHYS 8001)	Fall 2019
Quantum Mechanics (PHYS 4101)	Fall 2020
Introductory Physics for Science and Engineering I (PHYS 1301W)	Fall 2019, Fall 2017
Introductory College Physics I (PHYS 1101W)	Spring 2021, Spring 2020, Spring 2019, Fall 2018, Spring 2018

Publications

Authors are listed alphabetically, following the convention in high energy physics. An up-to-date list is maintained at INSPIRE-HEP.
Key: ⋆ I led the project (carried out the main calculations and wrote the paper), including all single-author papers; † equal contribution; underlined: student I supervised or co-supervised.

49 papers: 47 published or accepted, 2 submitted or preprints; 4 single-author. 1,476 citations, h-index 20; 11 papers with 50+ citations (INSPIRE-HEP, October 2026).

In preparation

⋆ **S. Verner**, *Reheating after Inflation* (review, ∼200 pages)
⋆ **S. Verner**, *Production of the Cosmic Axion Background in the Early Universe*
E. W. Kolb, **S. Verner**, *Dark Matter from a Second-Order Phase Transition*
E. W. Kolb, A. J. Long, E. McDonough, **S. Verner**, J. Wang, *Gravitational Particle Production in Supergravity Cosmology*
G. Krnjaic, **S. Verner**, *Hawking Axions*
E. H. Tanin, **S. Verner**, *Thermal Damping of Spectator Scalar Fields*
H. Bagherian, B. Dobrescu, G. Fleming, K. T. Matchev, S. Mrenna, **S. Verner**, L.-T. Wang, *AI Agents in Particle Physics*

Papers

49. † C. Litos, **S. Verner**, W. Xue, F. Yang — submitted to JCAP
Gravitational Waves from Long Strings and Loops — arXiv:2609.22430

48. ⋆ **S. Verner** — submitted to JCAP
Axion Isocurvature and the Model-Building Problem of Low-Scale Inflation — arXiv:2607.22809

47. ⋆ I. Antoniadis, J. Ellis, D. V. Nanopoulos, K. A. Olive, **S. Verner** — accepted in JHEP
Reheating in No-Scale Models of Inflation — arXiv:2606.31975

46. ⋆ E. W. Kolb, **S. Verner**, J. Wang — accepted in JCAP
Cosmological Gravitational Particle Production in Multifield Inflation — arXiv:2606.25015

45. ⋆ M. A. G. Garcia, A. Garcia-Vega, **S. Verner** — accepted in JCAP
Gravitational Waves from Matter Perturbations of Spectator Scalar Fields — arXiv:2604.05078

44. ⋆ **S. Verner** — Phys. Rev. D **113** (2026) 123503
Gravitational Production of Massive Spin-2 Particles During Reheating — arXiv:2512.19041

43. ⋆ M. A. G. Garcia, **S. Verner** — JCAP **08** (2026) 057
Gravitational Waves from Isocurvature Perturbations of Spectator Scalar Fields — arXiv:2512.04240

42. ⋆ J. Ellis, M. A. G. Garcia, K. A. Olive, **S. Verner** — Phys. Rev. D **113** (2026) 063571
Constraints on Attractor Models of Inflation and Reheating from Planck, BICEP/Keck, ACT DR6, and SPT-3G Data — arXiv:2510.18656

41. ⋆ M. A. G. Garcia, **S. Verner** — Phys. Rev. D **114** (2026) 023551
Gravitational Waves from Spectator Scalar Fields — arXiv:2506.12126

40. ⋆ K. T. Matchev, **S. Verner** — Phys. Rev. D **112** (2025) 113010
The Electroweak Sphaleron Revisited: II. Study of Decay Dynamics — arXiv:2505.05608

39. ⋆ K. T. Matchev, **S. Verner** — Phys. Rev. D **112** (2025) 113009
The Electroweak Sphaleron Revisited: I. Static Solutions, Energy Barrier, and Unstable Modes — arXiv:2505.05607

38. ⋆ M. A. G. Garcia, W. Ke, Y. Mambrini, K. A. Olive, **S. Verner** — JCAP **08** (2025) 039
Scalar Field Fluctuations and the Production of Dark Matter — arXiv:2502.20471

37. ⋆ **S. Verner** — JCAP **05** (2025) 060
Nonminimal Superheavy Dark Matter — arXiv:2408.11889

36. ⋆ G. Choi, M. A. G. Garcia, W. Ke, Y. Mambrini, K. A. Olive, **S. Verner** — Phys. Rev. D **110** (2024) 083512
Inflaton Production of Scalar Dark Matter Through Fluctuations and Scattering — arXiv:2406.06696

35. ⋆ J. A. Dror, **S. Verner** — Phys. Rev. Lett. **134** (2025) 111003
New Method for the Astrometric Direct Detection of Ultralight Dark Matter — arXiv:2406.03526
Press: NRAO Newsletter, Volume 17, Issue 9

34. ⋆ D. Racco, **S. Verner**, W. Xue — JHEP **09** (2024) 129
Gravitational Production of Heavy Particles During and After Inflation — arXiv:2405.13883

33. ⋆ Y. Ema, M. A. G. Garcia, W. Ke, K. A. Olive, **S. Verner**
Inflaton Decay in No-Scale Supergravity and Starobinsky-like Models
Universe **10** (2024) 239
arXiv:2404.14545

32. ⋆ K. T. Matchev, K. Matcheva, P. Ramond, **S. Verner**
Exploring the Truth and Beauty of Theory Landscapes with Machine Learning
Phys. Lett. B **856** (2024) 138941
arXiv:2401.11513

31. ⋆ M. A. G. Garcia, K. Kaneta, W. Ke, Y. Mambrini, K. A. Olive, **S. Verner**
The Role of Vectors in Reheating
JCAP **06** (2024) 014
arXiv:2311.14794

30. ⋆ K. T. Matchev, K. Matcheva, P. Ramond, **S. Verner**
Seeking Truth and Beauty in Flavor Physics with Machine Learning
AI for Scientific Discovery workshop, NeurIPS 2023
arXiv:2311.00087

29. ⋆ K. Kaneta, W. Ke, Y. Mambrini, K. A. Olive, **S. Verner**
Gravitational Production of Spin-3/2 Particles During Reheating
Phys. Rev. D **108** (2023) 115027
arXiv:2309.15146

28. † Y. Ema, **S. Verner**
Cosmological Collider Signatures of Higgs-R^2 Inflation
JCAP **04** (2024) 039
arXiv:2309.10841

27. ⋆ R. T. Forestano, K. T. Matchev, K. Matcheva, A. Roman, E. B. Unlu, **S. Verner**
Identifying the Group-Theoretic Structure of Machine-Learned Symmetries
Phys. Lett. B **847** (2023) 138306
arXiv:2309.07860

26. ⋆ R. T. Forestano, K. T. Matchev, K. Matcheva, A. Roman, E. B. Unlu, **S. Verner**
Accelerated Discovery of Machine-Learned Symmetries: Deriving the Exceptional Lie Groups G_2, F_4 and E_6
Phys. Lett. B **847** (2023) 138266
arXiv:2307.04891

25. ⋆ M. A. G. Garcia, M. Pierre, **S. Verner**
New Window into Gravitationally Produced Scalar Dark Matter
Phys. Rev. D **108** (2023) 115024
arXiv:2305.14446

24. ⋆ E. Dudas, T. Gherghetta, K. A. Olive, **S. Verner**
Testing the Scalar Weak Gravity Conjecture in No-Scale Supergravity
JHEP **05** (2024) 249
arXiv:2305.11636

23. ⋆ R. T. Forestano, K. T. Matchev, K. Matcheva, A. Roman, E. B. Unlu, **S. Verner**
Deep Learning Symmetries and Their Lie Groups, Algebras, and Subalgebras from First Principles
Mach. Learn. Sci. Tech. **4** (2023) 025027
arXiv:2301.05638

22. ⋆ M. A. G. Garcia, M. Pierre, **S. Verner**
Isocurvature Constraints on Scalar Dark Matter Production from the Inflaton
Phys. Rev. D **107** (2023) 123508
arXiv:2303.07359

21. ⋆ R. T. Forestano, K. T. Matchev, K. Matcheva, A. Roman, E. B. Unlu, **S. Verner**
Discovering Sparse Representations of Lie Groups with Machine Learning
Phys. Lett. B **844** (2023) 138086
arXiv:2302.05383

20. ⋆ E. Dudas, T. Gherghetta, K. A. Olive, **S. Verner**
Supergravity Scattering Amplitudes
Phys. Rev. D **108** (2023) 076024
arXiv:2302.05456

19. ⋆ M. A. G. Garcia, M. Pierre, **S. Verner**
Scalar Dark Matter Production from Preheating and Structure Formation Constraints
Phys. Rev. D **107** (2023) 043530
arXiv:2206.08940

18. ⋆ S. Cléry, Y. Mambrini, K. A. Olive, A. Shkerin, **S. Verner**
Gravitational Portals with Nonminimal Couplings
Phys. Rev. D **105** (2022) 095042
arXiv:2203.02004

17. ⋆ S. Cléry, Y. Mambrini, K. A. Olive, **S. Verner**
Gravitational Portals in the Early Universe
Phys. Rev. D **105** (2022) 075005
arXiv:2112.15214

16. ⋆ J. Ellis, M. A. G. Garcia, D. V. Nanopoulos, K. A. Olive, **S. Verner**
BICEP/Keck Constraints on Attractor Models of Inflation and Reheating
Phys. Rev. D **105** (2022) 043504
arXiv:2112.04466

15. ⋆ M. A. G. Garcia, K. Kaneta, Y. Mambrini, K. A. Olive, **S. Verner**
Freeze-in from Preheating
JCAP **03** (2022) 016
arXiv:2109.13280

14. ⋆ M. A. G. Garcia, Y. Mambrini, K. A. Olive, **S. Verner**
On the Realization of WIMPflation
JCAP **10** (2021) 061
arXiv:2107.07472

13. ⋆ E. Dudas, M. A. G. Garcia, Y. Mambrini, K. A. Olive, M. Peloso, **S. Verner**
Slow and Safe Gravitinos
Phys. Rev. D **103** (2021) 123519
arXiv:2104.03749

12. ⋆ **S. Verner**
Quintessential Inflation in Palatini Gravity
JCAP **04** (2021) 001
arXiv:2010.11201

11. ⋆ J. Ellis, M. A. G. Garcia, N. Nagata, D. V. Nanopoulos, K. A. Olive, **S. Verner**
Building Models of Inflation in No-Scale Supergravity
Int. J. Mod. Phys. D **29** (2020) 2030011
arXiv:2009.01709

10. ⋆ J. Ellis, D. V. Nanopoulos, K. A. Olive, **S. Verner**
Non-Oscillatory No-Scale Inflation
JCAP **03** (2021) 052
arXiv:2008.09099

9. ⋆ M. A. G. Garcia, Y. Mambrini, K. A. Olive, **S. Verner**
Case for Decaying Spin-3/2 Dark Matter
Phys. Rev. D **102** (2020) 083533
arXiv:2006.03325

8. ⋆ R. T. Co, L. J. Hall, K. Harigaya, K. A. Olive, **S. Verner**
Axion Kinetic Misalignment and Parametric Resonance from Inflation
JCAP **08** (2020) 036
arXiv:2004.00629

7. ⋆ J. Ellis, D. V. Nanopoulos, K. A. Olive, **S. Verner**
Phenomenology and Cosmology of No-Scale Attractor Models of Inflation
JCAP **08** (2020) 037
arXiv:2004.00643

6. ⋆ K. Kaneta, Y. Mambrini, K. A. Olive, **S. Verner**
Inflation and Leptogenesis in High-Scale Supersymmetry
Phys. Rev. D **101** (2020) 015002
arXiv:1911.02463

5. ⋆ J. Ellis, B. Nagaraj, D. V. Nanopoulos, K. A. Olive, **S. Verner**
From Minkowski to de Sitter in Multifield No-Scale Models
JHEP **10** (2019) 161
arXiv:1907.09123

4. ⋆ J. Ellis, D. V. Nanopoulos, K. A. Olive, **S. Verner**
Unified No-Scale Attractors
JCAP **09** (2019) 040
arXiv:1906.10176

3. ⋆ J. Ellis, D. V. Nanopoulos, K. A. Olive, **S. Verner**
Unified No-Scale Model of Modulus Fixing, Inflation, Supersymmetry Breaking, and Dark Energy
Phys. Rev. D **100** (2019) 025009
arXiv:1903.05267

2. ⋆ J. Ellis, D. V. Nanopoulos, K. A. Olive, **S. Verner**
A General Classification of Starobinsky-like Inflationary Avatars of SU(2,1)/SU(2)×U(1) No-Scale Supergravity
JHEP **03** (2019) 099
arXiv:1812.02192

1. † J. Sakstein, **S. Verner**
Disformal Gravity Theories: A Jordan Frame Analysis
Phys. Rev. D **92** (2015) 123005
arXiv:1509.05679

Seminars and Colloquia

University of Minnesota — FTPI Seminar — February 2027
TBD — *Upcoming*

University of Alabama — HEP Seminar — February 2027
TBD — *Upcoming*

University of Chicago — KICP Chalk Talk *Reheating after Inflation*	December 2026 *Upcoming*
National Autonomous University of Mexico (UNAM), Mexico — **Colloquium** *Reheating after Inflation*	November 2026 *Upcoming*
Rutgers University — High Energy Theory Seminar *Spectator Scalar Fields in the Early Universe*	April 2026
Northwestern University — High Energy Physics Seminar *Spectator Scalar Fields in the Early Universe*	April 2026
Fermilab — Cosmic Physics Center Seminar *Astrometric Detection of Ultralight Dark Matter*	February 2026
University of Notre Dame — Particle Physics Seminar *Gravitational Wave Signals from Spectator Scalar Fields*	December 2025
Stanford University — Friday Phenomenology Group Seminar *Gravitational Wave Signals from Spectator Scalar Fields*	November 2025
University of Chicago — KICP Seminar *Constraints on Attractor Models of Inflation and Reheating from Planck, BICEP/Keck, ACT DR6, and SPT-3G Data*	October 2025
MIT — Nuclear and Particle Theory Seminar *Gravitational Wave Signals from Spectator Fields*	May 2025
University of Florida — High Energy Physics Seminar *Astrometric Detection of Ultralight Dark Matter*	November 2024
UC Irvine — Particle Physics Seminar *Astrometric Detection of Ultralight Dark Matter*	October 2024
Caltech — High Energy Physics Seminar *Astrometric Detection of Ultralight Dark Matter*	October 2024
UC Santa Cruz — Institute for Particle Physics Seminar *Gravitational Wave Signals from Spectator Fields*	October 2024
Cornell University — Particle Theory Seminar *Gravitational Wave Signals from Spectator Scalar Fields*	October 2024
University of Pennsylvania — High Energy Theory Seminar *Gravitational Wave Signals from Spectator Fields*	October 2024
New York University — High Energy Physics Seminar *Astrometric Detection of Ultralight Dark Matter*	September 2024
University of Wisconsin–Madison — High Energy Physics Seminar *Gravitational Production of Scalar Dark Matter*	November 2022
University of Florida — High Energy Physics Seminar *Gravitational Production of Dark Matter*	October 2022
University of Minnesota — High Energy Physics Seminar *No-Scale Supergravity and Inflation*	July 2022
Harvard-Smithsonian Center for Astrophysics — Astronomy Seminar *Extended X-ray and Radio Structures Around High-Redshift 3CRR Sources*	May 2016
University of Southampton — Astronomy Seminar *Extended X-ray and Radio Structures Around High-Redshift 3CRR Sources*	May 2016

Conference and workshop presentations	Aspen Center for Physics *Multimessenger Probes of New Scales in Physics*	January 2027 *Upcoming*
	Paris-Saclay Astroparticle Symposium 2026, Gif-sur-Yvette — Workshop talk *Thermal Damping of a Spectator Scalar*	October 2026 *Upcoming*

Kavli Astrophysics Symposium 2026, Cambridge, UK — Conference talk *Reheating*	September 2026
COSMO 2026, University of Leiden — Conference talk *Hawking Axions*	August 2026
PLANCK 2026 & 6th EuCAPT Symposium, CERN — Conference talk *Gravitational Particle Production in Multifield Inflation*	May 2026
Paving the Way to New Discoveries in Particle Physics, Aspen — Young Scientist Forum talk *Astrometric Direct Detection of Ultralight Dark Matter*	February 2026
COSMO 2025, Pittsburgh — Conference talk *Gravitational Wave Signals from Spectator Scalar Fields*	October 2025
SUSY 2025, Santa Cruz — Conference talk *Gravitational Wave Signals from Spectator Scalar Fields*	August 2025
Particle Production in the Early Universe, CERN — Workshop talk *Gravitational Production of Heavy Particles During and After Inflation*	September 2024
The Dark Matter Landscape: From Feeble to Strong Interactions, MITP Mainz — Workshop talk *Gravitational Production of Heavy Particles During and After Inflation*	September 2024
Quantum Aspects of Inflationary Cosmology, MIAPbP Garching — Workshop talk *Nonminimal WIMPzillas*	July 2024
PASCOS 2023, Irvine — Conference talk *A New Window into Gravitationally Produced Scalar Dark Matter*	June 2023
Planck 2023, Warsaw — Conference talk *Gravitational Particle Production with a Nonminimal Coupling*	May 2023
PHENO 2023, Pittsburgh — Conference talk *Constraints on Scalar Dark Matter Production from the Inflaton*	May 2023
TASI 2022, Boulder — Summer school talk *Gravitational Production of Dark Matter*	June 2022
APS April Meeting 2022, New York — Conference talk *BICEP/Keck Constraints on Attractor Models of Inflation and Reheating*	April 2022
SUSY 2021, Shanghai (virtual) — Conference talk *High-Scale Supersymmetry, Inflation, and Leptogenesis*	August 2021
TASI 2020, Boulder — Summer school talk *Spin-3/2 Dark Matter*	June 2020
SUSY 2019, Corpus Christi — Conference talk *Unified No-Scale Inflation*	May 2019
227th Meeting of the American Astronomical Society, Kissimmee — Poster *Extended X-ray and Radio Structures Around High-Redshift 3CRR Sources*	January 2016
SEPnet Student Expo, London — Poster *Disformal Gravity Theories: A Jordan Frame Analysis*	November 2015
University of Southampton — Poster *Disformal Gravity Theories: A Jordan Frame Analysis*	September 2015

Service

Referee (12 reports in 2026): Physical Review Letters, Physical Review D, Journal of High Energy Physics, Journal of Cosmology and Astroparticle Physics, Physics Letters B, European Physical Journal, Nuclear Physics B, Universe

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Workshops & Summer Schools

The Paris-Saclay Astroparticle Symposium 2026 — October 2026
University of Paris-Saclay
Gif-sur-Yvette, France
Upcoming

Kavli Astrophysics Symposium 2026 — September 2026
Kavli Institute for Cosmology, Cambridge
Cambridge, UK

Paving the Way to New Discoveries in Particle Physics — February 2026
Aspen Center for Physics Winter Workshop
Aspen, CO

Collider Physics at the LHC and Beyond — June 2025
Aspen Center for Physics Summer Workshop
Aspen, CO

Particle Production in the Early Universe — September 2024
CERN
Geneva, Switzerland

The Dark Matter Landscape: From Feeble to Strong Interactions — September 2024
Mainz Institute for Theoretical Physics (MITP)
Mainz, Germany

Quantum Aspects of Inflationary Cosmology — July 2024
Munich Institute for Astro-, Particle and BioPhysics (MIAPbP)
Garching, Germany

Axions 2024 — April 2024
University of Florida
Gainesville, FL

The Early Universe: A Window to New Physics (Organizer) — October 2023
University of Florida
Gainesville, FL

New Opportunities in High Energy Physics
Theoretical Physics for Deep Learning — June 2023
Aspen Center for Physics Summer Workshop
Aspen, CO

TASI 2022: Ten Years After the Higgs Discovery: Particle Physics Now and Future — June 2022
Theoretical Advanced Study Institute, University of Colorado Boulder
Boulder, CO

The Paris-Saclay Astroparticle Symposium 2021 — November 2021
University of Paris-Saclay
Gif-sur-Yvette, France

TASI 2020: The Obscure Universe: Neutrinos and Other Dark Matters — June 2020
Theoretical Advanced Study Institute, University of Colorado Boulder
Boulder, CO

Research Experience

University of Minnesota — May 2018 – Aug 2022
William I. Fine Theoretical Physics Institute
Research Assistant
Advisor: Keith Olive

Harvard-Smithsonian Center for Astrophysics — Sep 2015 – Jan 2017
Research Fellow
Advisor: Belinda Wilkes

University of Portsmouth May 2015 – Sep 2015
Institute of Cosmology and Gravitation
Summer Researcher
Advisor: Jeremy Sakstein

University of Southampton May 2014 – Aug 2014
School of Physics and Astronomy
Summer Researcher

References

Edward W. (Rocky) Kolb, University of Chicago *ekolb@uchicago.edu*
Gordan Krnjaic, Fermilab & University of Chicago *krnjaicg@uchicago.edu*
Keith Olive, University of Minnesota *olive@umn.edu*
John Ellis, King's College London *john.ellis@cern.ch*
Konstantin Matchev, University of Alabama *kmatchev@ua.edu*
Jeff Dror, University of Florida *jeffdror@ufl.edu*
Wei Xue, University of Florida *weixue@ufl.edu*
Yann Mambrini, University of Paris-Saclay *mambrini@ijclab.in2p3.fr*
Tony Gherghetta, University of Minnesota *tgher@umn.edu*