Siddharth Mishra-Sharma

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Academic Appointments

Massachusetts Institute of Technology **Cambridge, MA, USA**
Harvard University **Cambridge, MA, USA**
NSF AI Institute for Artificial Intelligence and Fundamental Interactions
IAIFI Fellow Sep. 2021 – Present

New York University **New York, NY, USA**
Center for Cosmology and Particle Physics
Postdoctoral Associate Sep. 2018 – Aug. 2021

Education

Princeton University **Princeton, NJ, USA**
Ph.D. in Theoretical Physics Sep. 2013 – Aug. 2018
Thesis: *Extragalactic Searches for Dark Matter Annihilation*
Advisor: Mariangela Lisanti

University of Cambridge **Cambridge, UK**
Part III of the Mathematical Tripos (M.Math.) Oct. 2012 – Jun. 2013
B.A. (Hons.) in Natural Sciences (Physical) Oct. 2009 – Jun. 2012

Awards and Honors

- Rising Stars in Data Science, *University of Chicago DSI and UCSD HDSI* 2023
  Focuses on celebrating and fast tracking the careers of exceptional data scientists at a critical inflection point in their career
- IAIFI Fellowship 2021
  Awarded towards independent postdoctoral research at the intersection of physics and artificial intelligence
- Department Teaching Award, *Princeton Department of Physics* 2018
  Awarded for excellence in the role of Assistant in Instruction for courses taught at Princeton
- Kusaka Memorial Prize in Physics, *Princeton Department of Physics* 2017
  Awarded to physics graduate students who have shown outstanding performance in research and professional promise
- Princeton Graduate School Impact Award, *Princeton Graduate School* 2016
  Awarded to an individual in the community that has made a difference during their time at Princeton
- Princeton First-Year Graduate Fellowship, *Princeton University* 2013
  Awarded towards the first year of graduate study at Princeton
- Hugo de Balsham Prize, *Peterhouse, University of Cambridge* 2012
  Awarded for exceptional academic distinction at Peterhouse, Cambridge

- Peter Scheuer Scholarship in Natural Sciences, *Peterhouse, University of Cambridge* 2011, 2012
  Awarded for exceptional academic performance in the Cambridge second and third year Tripos examinations
- Senior Academic Scholarship, *Peterhouse, University of Cambridge* 2010
  Awarded for exceptional academic performance in the Cambridge first year Tripos examinations

Publications

Primary contributions: *(Note: where indicated with an asterisk*, authors are listed in alphabetical order as per the standard in that field. †denotes equal contribution.)*

39. S. Mishra-Sharma, Y. Song, J. Thaler *PAPERCLIP: Associating Astronomical Observations and Natural Language with Multi-Modal Models* [arXiv:2403.08851]
38. M.M. Ivanov, †C. Cuesta-Lazaro, †S. Mishra-Sharma, †A. Obuljen, †M. Toomey, *Full-shape analysis with simulation-based priors: constraints on single field inflation from BOSS* [arXiv:2402.13310]
37. *L. Heinrich, S. Mishra-Sharma, C. Pollard, P. Windischhofer, *Hierarchical Neural Simulation-Based Inference Over Event Ensembles*, Transactions on Machine Learning Research (TMLR) [arXiv:2306.12584]
36. †S. Mishra-Sharma, †C. Cuesta-Lazaro, *A point cloud approach to generative modeling for galaxy surveys at the field level*, Machine Learning for Astrophysics Workshop at the Fortieth International Conference on Machine Learning (ICML 2023) **[Spotlight Oral]** [arXiv:2311.17141]
35. *S. Mishra-Sharma, T.R. Slatyer, Y. Sun, Y. Wu, *Disentangling gamma-ray observations of the Galactic Center using differentiable probabilistic programming*, Machine Learning for Astrophysics Workshop at the Fortieth International Conference on Machine Learning (ICML 2023) **[Spotlight Oral]** [Paper]
34. A. Akhmetzanova, S. Mishra-Sharma, C. Dvorkin, *Data Compression and Inference in Cosmology with Self-Supervised Machine Learning*
    - Mon.Not.Roy.Astron.Soc. 527 (2023) 7459 [arXiv:2308.09751]
    - Machine Learning for Astrophysics Workshop at the Fortieth International Conference on Machine Learning (ICML 2023) [Paper]
33. G. Zhang, S. Mishra-Sharma, C. Dvorkin, *Inferring subhalo effective density slopes from strong lensing observations with neural likelihood-ratio estimation*, Mon.Not.Roy.Astron.Soc. 517 (2022) 4317 [arXiv:2208.13796]
32. T. Nguyen, S. Mishra-Sharma, R. Williams, L. Necib, *Uncovering dark matter density profiles in dwarf galaxies with graph neural networks*
    - Phys.Rev. **D107** (2023) 043015 [arXiv:2208.12825]
    - Machine Learning for Astrophysics Workshop at the Thirty-ninth International Conference on Machine Learning (ICML 2022) **[Spotlight Oral]** [Paper]
31. S. Mishra-Sharma, G. Yang, *Strong Lensing Source Reconstruction Using Continuous Neural Fields*, Machine Learning for Astrophysics Workshop at the Thirty-ninth International Conference on Machine Learning (ICML 2022) **[Spotlight Oral]** [arXiv:2206.14820]
30. *A. Caputo, H. Liu, S. Mishra-Sharma, M. Pospelov, J.T. Ruderman, *A Stimulating Explanation of the Extragalactic Radio Background*, Phys.Rev. **D107** (2023) 123033 [arXiv:2206.07713]
29. S. Mishra-Sharma, K. Cranmer, *A neural simulation-based inference approach for characterizing the Galactic Center γ-ray excess*

- Phys.Rev. **D105** (2022) 063017 [arXiv:2110.06931]
- Machine Learning and the Physical Sciences Workshop at the 35th Conference on Neural Information Processing Systems (NeurIPS 2021) [Paper] [Poster]

28. S. Mishra-Sharma, *Inferring dark matter substructure with astrometric lensing beyond the power spectrum*
    - Mach.Learn.Sci.Tech. **3** (2022) 01LT03 [arXiv:2110.01620]
    - Machine Learning and the Physical Sciences Workshop at the 35th Conference on Neural Information Processing Systems (NeurIPS 2021) [Poster]
27. S. Mishra-Sharma, K. Cranmer, *Semi-parametric γ-ray modeling with Gaussian processes and variational inference*, Machine Learning and the Physical Sciences Workshop at the 34rd Conference on Neural Information Processing Systems (NeurIPS 2020) [Paper] [Poster] [arXiv:2010.10450]
26. *A. Caputo, H. Liu, S. Mishra-Sharma, M. Pospelov, J.T. Ruderman, A. Urbano, *Edges and Endpoints in 21-cm Observations from Resonant Photon Production*, Phys.Rev.Lett. **127** (2021) 011102 [arXiv:2009.03899]
25. J.J. Somalwar, L.J. Chang, S. Mishra-Sharma, M. Lisanti, *Harnessing the Population Statistics of Subhalos to Search for Annihilating Dark Matter*, Astrophys.J. **906** (2021) no.1, 57 [arXiv:2009.00021]
24. *A. Caputo, H. Liu, S. Mishra-Sharma, J.T. Ruderman, *Modeling Dark Photon Oscillations in Our Inhomogeneous Universe*, Phys.Rev. **D102** (2020) 103533 [arXiv:2004.06733]
23. S. Mishra-Sharma, K. Van Tilburg, N. Weiner, *Power of Halometry*, Phys.Rev. **D102** (2020) 023026 [**Editors' Suggestion** and **Featured** in *Physics*; Synopsis] [arXiv:2003.02264]
22. M. Buschmann, N.L. Rodd, B.R. Safdi, L.J. Chang, S. Mishra-Sharma, M. Lisanti, O. Macias *Foreground Mismodeling and the Point Source Explanation of the Fermi Galactic Center Excess*, Phys.Rev. **D102** (2020) 023023 [arXiv:2002.12373]
21. *A. Caputo, H. Liu, S. Mishra-Sharma, J.T. Ruderman, *Dark Photon Oscillations in Our Inhomogeneous Universe*, Phys.Rev.Lett. **125** (2020) 221303 [arXiv:2002.05165]
20. J. Brehmer, K. Cranmer, S. Mishra-Sharma, F. Kling, G. Louppe, *Mining gold: Improving simulation-based inference with latent information*, Machine Learning and the Physical Sciences Workshop at the 33rd Conference on Neural Information Processing Systems (NeurIPS 2019) [Paper]
19. *†J. Brehmer, †S. Mishra-Sharma, J. Hermans, G. Louppe, K. Cranmer, *Mining for Dark Matter Substructure: Inferring subhalo population properties from strong lenses with machine learning*, Astrophys.J. **886** (2019) no.1, 49 [arXiv:1909.02005]
18. L.J. Chang, S. Mishra-Sharma, M. Lisanti, M. Buschmann, N.L. Rodd, B.R. Safdi, *Characterizing the Nature of the Unresolved Point Sources in the Galactic Center: An Assessment of Systematic Uncertainties*, Phys.Rev. **D101** (2020) 023014 [arXiv:1908.10874],
17. *L.J. Chang, M. Lisanti, S. Mishra-Sharma, *Search for Dark Matter Annihilation in the Milky Way Halo*, Phys.Rev. **D98** (2018) 123004 [arXiv:1804.04132]
16. S. Mishra-Sharma, D. Alonso, J. Dunkley, *Neutrino masses and beyond-ΛCDM cosmology with LSST and future CMB experiments*, Phys.Rev. **D97** (2018) 123544 [arXiv:1803.07561]
15. *R. Bartels, D. Hooper, T. Linden, S. Mishra-Sharma, N.L. Rodd, B.R. Safdi, T.R. Slatyer, *Comment on "Characterizing the population of pulsars in the Galactic bulge with the Fermi Large Area Telescope" [arXiv:1705.00009v1]*, Phys.Dark Univ. **20** (2018) 88-94 [arXiv:1710.10266]

14. *M. Lisanti, S. Mishra-Sharma, N.L. Rodd, B.R. Safdi, *Mapping Extragalactic Dark Matter Annihilation with Galaxy Surveys: A Systematic Study of Stacked Group Searches*, Phys.Rev. **D97** (2018) 063005 [arXiv:1709.00416]
13. *M. Lisanti, S. Mishra-Sharma, N.L. Rodd, B.R. Safdi, *Search for Dark Matter Annihilation in Galaxy Groups*, Phys.Rev.Lett. **120** (2018) 101101 [arXiv:1708.09385]
12. *T. Cohen, M. Lisanti, H. K. Lou, S. Mishra-Sharma, *LHC Searches for Dark Sector Showers*, JHEP **11**, 196 (2017) [arXiv:1707.05326]
11. *S. Mishra-Sharma, N.L. Rodd, B.R. Safdi, *NPTFit: A code package for Non-Poissonian Template Fitting*, Astron.J. **153** (2017) no.6, 253 [arXiv:1612.03173]
10. *Y. Kahn, G. Krnjaic, S. Mishra-Sharma, T.M.P. Tait, *Light Weakly Coupled Axial Forces: Models, Constraints, and Projections*, JHEP **05**, 002 (2017) [arXiv:1609.09072]
9. *M. Lisanti, S. Mishra-Sharma, L. Necib, B.R. Safdi, *Deciphering Contributions to the Extragalactic Gamma-Ray Background from 2 GeV to 2 TeV*, Astrophys.J. **832** (2016) no.2, 117 [arXiv:1606.04101]
8. *S.K. Lee, M. Lisanti, S. Mishra-Sharma, B.R. Safdi, *Modulation Effects in Dark Matter-Electron Scattering Experiments*, Phys.Rev. **D92** (2015) 083517 [arXiv:1508.07361]

Contributions to white papers and as part of larger collaborations:

7. C. Dvorkin, S. Mishra-Sharma *et al.*, *Machine Learning and Cosmology: Snowmass 2021 White Paper* [arXiv:2203.08056]
6. K. Boddy *et al.* (including S. Mishra-Sharma), *Snowmass2021 theory frontier white paper: Astrophysical and cosmological probes of dark matter*, J.HEAp 35 (2022) 112-138 [arXiv:2203.08056]
5. R. Leane *et al.* (including S. Mishra-Sharma), *Snowmass2021 Cosmic Frontier White Paper: Puzzling Excesses in Dark Matter Searches and How to Resolve Them* [arXiv:2203.06859]
4. J. Alimena *et al.* (including S. Mishra-Sharma), *Searching for long-lived particles beyond the Standard Model at the Large Hadron Collider*, J.Phys.G 47 (2020) 090501 [arXiv:1903.04497]
3. S. Algeri *et al.* (including S. Mishra-Sharma), *Statistical challenges in the search for dark matter* [arXiv:1807.09273]
2. DarkSide Collaboration (including S. Mishra-Sharma), *Constraints on Sub-GeV Dark Matter-Electron Scattering from the DarkSide-50 Experiment*, Phys.Rev.Lett. **121** (2018) 111303 [arXiv:1802.06998]
1. DarkSide Collaboration (including S. Mishra-Sharma), *Low-Mass Dark Matter Search with the DarkSide-50 Experiment*, Phys.Rev.Lett. **121** (2018) 081307 [arXiv:1802.06994]

Seminars, Colloquia, and Conference Talks

Invited talks:

- KITP Program: Cosmic Signals of Dark Matter Physics — Santa Barbara, CA, Jun. 2024
- European AI for Fundamental Physics Conference, Plenary — Amsterdam, Netherlands, Apr. 2024
- University of Amsterdam Anton Pannekoek Institute Colloq. — Amsterdam, Netherlands, Apr. 2024
- Herzberg Astronomy and Astrophysics Research Centre Colloquium (Remote) — Apr. 2024
- Rutgers High Energy Theory Seminar — New Brunswick, NJ, Mar. 2024

- Boston University Computing and Data Sciences (CDS) Colloquium — Boston, MA, Feb. 2024
- Georgia Tech School of Physics Colloquium — Atlanta, GA, Jan. 2024
- Rising Stars in Data Science Workshop — Chicago, IL, Nov. 2023
- Summit for AI Institutes Leadership — Atlanta, GA, Oct. 2023
- Johns Hopkins University Cosmology and Particle Physics Seminar — Baltimore, MD, Oct. 2023
- MIAPbP Workshop on Differentiable and Probabilistic Programming — Munich, Germany, Jun. 2023
- Status of the Galactic Center Excess Workshop — New Brunswick, NJ, Jun. 2023
- Simons Foundation MATH+X Symposium — Hella, Iceland, May. 2023
- Cosmic Connections: ML X Astrophysics (Flatiron Institute) — New York, NY, May. 2023
- Harvard Center for Astrophysics ITC Lunch Talk — Cambridge, MA, Apr. 2023
- Aspen Center for Physics Winter Session — Aspen, CO, Mar. 2023
- Normal Computing (Probabilistic AI Startup; Remote) — Feb. 2023
- Yale Astronomy Colloquium — New Haven, CT, Feb. 2023
- Mila ML for the Physical Sciences Reading Group — Montréal, Quebec, Jan. 2023
- McGill Space Institute Astronomy Seminar — Montréal, Quebec, Jan. 2023
- Nature of Dark Matter on Small Scales Meeting (Remote) — Oct. 2022
- Dagstuhl Seminar: Bridging Data-driven and Mechanistic Modelling — Dagstuhl, Germany, Sep. 2022
- Hammers & Nails Workshop 2022 — Rehovot, Israel, Aug. 2022
- ICML 2022 ML4Astro Workshop (Spotlight oral) — Baltimore, MD, May. 2022
- Physics ∩ ML Seminar (Remote at physicsmeetsml.org) — May. 2022
- Harvard CHASC Astrostatistics Seminar (Remote) — Apr. 2022
- University of Illinois Urbana-Champaign Phenomenology Seminar — Urbana, IL, Mar. 2022
- Harvard High Energy Theory Seminar — Cambridge, MA, Mar. 2022
- American Astronomical Society 239th Meeting (Invited panel) — Salt Lake City, UT, Jan. 2022
- Harvard LPPC (High Energy Experiment) Seminar — Cambridge, MA, Nov. 2021
- Rutgers High Energy Theory Seminar — New Brunswick, NJ, Oct. 2021
- Instituto de Astrofísica de Canarias Astrophysics Seminar (Remote) — Sep. 2021
- Stony Brook University YITP Seminar (Remote) — Mar. 2021
- SLAC AI Seminar Series (Remote) — Feb. 2021
- Northeastern University Physics Colloquium (Remote) — Feb. 2021
- Carnegie Observatories "Lunch Talk" Seminar (Remote) — Feb. 2021
- BSM PANDEMIC Seminar (Remote at bsmpandemic.com) — Nov. 2020
- SLAC Elementary Particle Physics Seminar (Remote) — Jul. 2020
- University of Amsterdam GRAPPA Colloquium (Remote) — May 2020
- Princeton Pheno & Vino Seminar (Remote) — Apr. 2020

- CERN-TH BSM Forum (Remote) Apr. 2020
- Machine Learning for Astrophysicists Seminar (Remote at mlclub.net) Mar. 2020
- University of Michigan LCTP Brown Bag Seminar Ann Arbor, MI, Jan. 2020
- Stony Brook University Particle Physics Seminar Stony Brook, NY, Nov. 2019
- Minnesota High Energy Theory Lunchtime Seminar Minneapolis, MN, Nov. 2019
- Brown Astrophysics Seminar Series Providence, RI, May 2019
- Particles, Strings and Cosmology (PASCOS) 2018 Cleveland, OH, Jun. 2018
- Recontres de Blois 2018 Blois, France, Jun. 2018
- Princeton Astrophysics/IAS Cosmology Lunch Seminar Princeton, NJ, May 2018
- Fermilab Particle Astrophysics Seminar Batavia, IL, Mar. 2018
- Workshop on Statistical Challenges in the Search for Dark Matter Banff, Canada, Feb. 2018
- Maryland Elementary Particle Theory Seminar College Park, MD, Nov. 2017
- Rutgers High Energy Theory Seminar New Brunswick, NJ, Nov. 2017
- Cornell Particle Theory Seminar Ithaca, NY, Nov. 2017
- Caltech Particle Theory Seminar Pasadena, CA, Oct. 2017
- UC Irvine Joint Particle Seminar Irvine, CA, Oct. 2017
- ICTP LHC Long-Lived Particles Community Workshop (Remote) Oct. 2017
- Oxford Dalitz Seminar in Fundamental Physics Oxford, UK, Oct. 2017
- KIPAC Tea Talk Stanford, CA, Sep. 2017
- UC Santa Cruz Institute for Particle Physics Seminar Santa Cruz, CA, Sep. 2017
- Berkeley 4D Seminar Berkeley, CA, Sep. 2017
- MIT BSM Journal Club Boston, MA, Nov. 2016

Internal talks:

- MIT Physics Large Language Models Workshop Cambridge, MA, Jul. 2023
- IAIFI Seminar Cambridge, MA, Apr. 2022
- MIT CTP Nuclear and Particle Theory Seminar Cambridge, MA, Feb. 2022
- MIT CTP Graduate Student Lunch Seminar (Remote) Mar. 2021
- MIT QCD-DM-BSM-LHC Journal Club (Remote) Mar. 2021
- NYU CCPP Brown Bag Seminar New York, NY, Apr. 2019
- Princeton Pheno & Vino Seminar Princeton, NJ, Apr. 2017

Contributed talks:

- 1st Large Language Models in Physics Symposium (LIPS) Hamburg, Germany, Feb. 2024
- MIT Statistics and Data Science Conference Cambridge, MA, Apr. 2022
- WFIRST Science Meeting (Flatiron Institute) New York, NY, Mar. 2020
- LSST Dark Matter Workshop Chicago, IL, Aug. 2019

- SUSY 2019 — Corpus Christi, TX, May 2019
- Phenomenology Symposium (Pheno) 2019 — Pittsburgh, PA, May 2019
- Dark Matter, Neutrinos and their Connection (DAνCO) — Odense, Denmark, Aug. 2017
- TeV Particle Astrophysics (TeVPA) 2017 — Columbus, OH, Aug. 2017
- Phenomenology Symposium (Pheno) 2017 — Pittsburgh, PA, May 2017
- APS April Meeting 2017 — Washington, DC, Jan. 2017
- TeV Particle Astrophysics (TeVPA) 2016 — Geneva, Switzerland, Sep. 2016
- Gamma Rays and Dark Matter Workshop — Obergurgl, Austria, Dec. 2015
- Phenomenology Symposium (Pheno) 2015 — Pittsburgh, PA, May 2015

Broader Impact and Organizing

External organizing:

- *Organizer*, MIAPbP Program: *Build Big or Build Smart: Examining Scale and Domain Knowledge in Machine Learning for Fundamental Physics* — 2025
- *Organizer*, Aspen Center for Physics Summer Program: *Fundamental Physics in the Era of Big Data and Machine Learning* — 2024
- *Organizer*, NeurIPS Machine Learning and the Physical Sciences Workshop — 2022, 2023

Reviewing:

- *Journal Reviewer*, Astrophys. J., Phys.Rev.D, Phys.Rev.Lett., Comput.Phys.Commun., JHEP, JCAP, Journal of Open Source Software, MLST
- *Workshop Reviewer*, NeurIPS Machine Learning and the Physical Sciences Workshop (2019–2023), NeurIPS AI for Science Workshop (2021–2023), NeurIPS GenBio Workshop (2023), ICLR Workshop on Deep Generative Models for Highly Structured Data (2022), ICLR Workshop on Neural Fields (2023), ICML Workshop on Machine Learning for Astrophysics (2022, 2023), ICML Workshop on Structured Probabilistic Inference & Generative Modeling (2023), ICML Workshop on Synergy of Scientific and Machine Learning Modeling (2023)
- *Reviewer*, NeurIPS Workshop Selection (2023), ICML Workshop Selection (2024)
- *Grant Review Panelist*, Department of Energy ASCR Leadership Computing Challenge — 2023
- *Grant Review Panelist*, NASA ROSES/Astrophysics Research and Analysis — 2023

Internal organizing:

- *Organizer*, Symposium on the Impact of Generative AI in the Physical Sciences — 2024
- *Organizer*, Boston-Area Machine Learning × Astrophysics Hackathon — 2024
- *Co-chair*, IAIFI Speaker Selection Committee — 2023 – Present
- *Member*, IAIFI Computing Committee — 2022 – Present
- *Member*, IAIFI Early Career and Equity Committee — 2021 – 2023
- *Organizer*, NYU CCPP Particle Physics Seminar — 2019 – 2020
- *Vice Chair*, Princeton Graduate College House Committee — 2016 – 2018

- *Subject Representative*, Princeton Graduate Student Government Assembly 2013 – 2017
- *Organizer*, Princeton Physics Department Open House Committee 2015 – 2016
- *Chair*, Princeton Physics Graduate Student Council 2015 – 2018

Research Mentorship

- Julia Balla (Graduate, MIT EECS) 2023 – Present
  Designing symmetry-preserving neural networks for cosmological data analysis
- Yiding Song (Harrow School; MIT via Research Science Institute) 2023 – Present
  Designing multi-modal language models for scientific data [arXiv:2403.08851]
- Yitian Sun (Graduate, MIT Physics) 2021 – Present
  Probabilistic programming and deep generative modeling for γ-ray data analysis
- Aizhan Akhmetzhanova (Graduate, Harvard Physics) 2021 – Present
  Simulation-based self-supervision for cosmological data analysis [arXiv:2308.09751]
- Tri Nguyen (Graduate, MIT Astrophysics) 2021 – Present
  Inferring the shapes of dark matter halos with graph neural networks [arXiv:2208.12825]
- Gemma Zhang (Graduate, Harvard Physics) 2021 – 2022
  Inferring subhalo populations in strong lenses with likelihood-free inference [arXiv:2208.13796]
- Reuel Williams (Undergraduate, Princeton) 2021
  Inferring the shapes of dark matter halos with graph neural networks [arXiv:2208.12825]
- Jean Somalwar (Undergraduate, Princeton) 2019 – 2020
  Searching for dark matter in Galactic subhalos using photon statistics [arXiv:2009.00021]
- Laura Chang (Graduate, Princeton) 2018 – 2020
  Searches for annihilating dark matter in the Milky Way [arXiv:1804.04132] [arXiv:1908.10874]

Teaching Experience

At MIT/IAIFI:

- IAIFI Summer School [Lectures on Generative Modeling] Summer 2023
- 8.16 Data Science in Physics [Guest Lecture] Spring 2023
- IAIFI Summer School [Tutorials on Probabilistic Programming] Summer 2022
- 8.S50 Computational Data Science in Physics [Tutorials] Winter 2022

At Princeton (As Assistant in Instruction): PHY235 Introduction to Research in Physics (Spring 2018), PHY312 Experimental Physics (Spring 2018), PHY115 Physics for Future Leaders (Fall 2017), PHY104 General Physics II (Spring 2016), PHY406 Nuclear and Elementary Particle Physics (Fall 2015), PHY106 Advanced Physics: Electromagnetism (Spring 2015), MAT201 Calculus III: Multivariable Calculus (Fall 2014, 2015), PHY105 Advanced Physics: Mechanics (Fall 2014)

Research Training

- CMS Experiment, CERN Geneva, Switzerland
  Visiting Student Researcher Aug. – Sep. 2012
  Summer Student Jun. – Jul. 2011

- DAMTP, University of Cambridge — Cambridge, UK
  Summer Student — Jun. – Jul. 2012
- Institute of Astronomy, University of Cambridge — Cambridge, UK
  Summer Student — Aug. – Sep. 2011

References

- Kyle Cranmer (University of Wisconsin, Madison) — kyle.cranmer@wisc.edu
- Jesse Thaler (MIT) — jthaler@mit.edu
- Mariangela Lisanti (Princeton University) — mlisanti@princeton.edu
- Tess Smidt (MIT) — tsmidt@mit.edu
- Tracy Slatyer (MIT) — tslatyer@mit.edu
- Neal Weiner (New York University) — neal.weiner@nyu.edu
- Joshua Ruderman (New York University) — ruderman@nyu.edu
- Christoph Weniger (University of Amsterdam) — c.weniger@uva.nl