

SIDDHARTH MISHRA-SHARMA

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ACADEMIC APPOINTMENTS

New York University

Center for Cosmology and Particle Physics

Postdoctoral Associate

New York, NY, USA

Sep. 2018 – Present

EDUCATION

Princeton University

Ph.D. in Theoretical Physics

Advisor: Mariangela Lisanti

Thesis: *Extragalactic Searches for Dark Matter Annihilation*

Princeton, NJ, USA

Sep. 2013 – Aug. 2018

University of Cambridge

Part III of the Mathematical Tripos (M.Math.)

B.A. (Hons.) in Natural Sciences

Cambridge, UK

Oct. 2012 – Jun. 2013

Oct. 2009 – Jun. 2012

PUBLICATIONS

Authors are usually listed in alphabetical order as per the standard in particle physics.

14. 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* [[arXiv:1909.02005](https://arxiv.org/abs/1909.02005)]
13. 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* [[arXiv:1908.10874](https://arxiv.org/abs/1908.10874)]
12. L.J. Chang, M. Lisanti, S. Mishra-Sharma, *A Search for Dark Matter Annihilation in the Milky Way Halo*, [*Phys.Rev.* **D98** \(2018\) 123004](#) [[arXiv:1804.04132](https://arxiv.org/abs/1804.04132)]
11. S. Mishra-Sharma, D. Alonso, J. Dunkley, *Neutrino masses and beyond- Λ CDM cosmology with LSST and future CMB experiments*, [*Phys.Rev.* **D97** \(2018\) 123544](#) [[arXiv:1803.07561](https://arxiv.org/abs/1803.07561)]
10. DarkSide Collaboration, *Constraints on Sub-GeV Dark Matter-Electron Scattering from the DarkSide-50 Experiment*, [*Phys.Rev.Lett.* **121** \(2018\) 111303](#) [[arXiv:1802.06998](https://arxiv.org/abs/1802.06998)]
9. DarkSide Collaboration, *Low-Mass Dark Matter Search with the DarkSide-50 Experiment*, [*Phys.Rev.Lett.* **121** \(2018\) 081307](#) [[arXiv:1802.06994](https://arxiv.org/abs/1802.06994)]
8. 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](https://arxiv.org/abs/1705.00009v1)], [*Phys.Dark Univ.* **20** \(2018\) 88-94](#) [[arXiv:1710.10266](https://arxiv.org/abs/1710.10266)]
7. 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](https://arxiv.org/abs/1709.00416)]
6. M. Lisanti, S. Mishra-Sharma, N.L. Rodd, B.R. Safdi, *A Search for Dark Matter Annihilation in Galaxy Groups*, [*Phys.Rev.Lett.* **120** \(2018\) 101101](#) [[arXiv:1708.09385](https://arxiv.org/abs/1708.09385)]
5. T. Cohen, M. Lisanti, H. K. Lou, S. Mishra-Sharma, *LHC Searches for Dark Sector Showers*, [*JHEP* **11**, 196 \(2017\)](#) [[arXiv:1707.05326](https://arxiv.org/abs/1707.05326)]
4. 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](https://arxiv.org/abs/1612.03173)]

3. 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](#)]
2. 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](#)]
1. 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](#)]

SELECTED SEMINARS AND TALKS

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| • LSST Dark Matter Workshop | Chicago, IL, Aug 2019 |
| • SUSY 2019 | Corpus Christi, TX, May 2019 |
| • Phenomenology Symposium (Pheno) 2019 | Pittsburgh, PA, May 2019 |
| • Brown Astrophysics Seminar Series | Providence, RI, May 2019 |
| • NYU CCPP Brown Bag Seminar | New York, NY, Apr. 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 |
| • LHC Long-Lived Particles Community Workshop (Remote Talk) | Trieste, Italy, 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 |
| • Dark Matter, Neutrinos and their Connection (DA ν CO) | Odense, Denmark, Aug. 2017 |
| • TeV Particle Astrophysics (TeVPA) 2017 | Columbus, OH, Aug. 2017 |
| • Phenomenology Symposium (Pheno) 2017 | Pittsburgh, PA, May 2017 |
| • Princeton Pheno & Vino Seminar | Princeton, NJ, Apr. 2017 |
| • APS April Meeting 2017 | Washington, DC, Jan. 2017 |
| • MIT BSM Journal Club | Boston, MA, Nov. 2016 |
| • 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 |

WORKSHOPS

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| • <i>Gaia</i> Sprint 2019 | Santa Barbara, CA, Mar. 2019 |
| • Accelerating the Search for Dark Matter with Machine Learning | Leiden, Netherlands, Jan. 2018 |
| • Prospects in Theoretical Physics (PiTP) | Princeton, NJ, Jul. 2017 |
| • Theoretical Advanced Study Institute (TASI) | Boulder, CO, Jun. 2016 |
| • Tri-Institute Summer School on Elementary Particles (TRISEP) | Waterloo, Canada, Jul. 2015 |

TEACHING EXPERIENCE

Course numbers refer to courses taught at Princeton.

- 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

BROADER IMPACT

- *Referee*, Phys. Rev. D, Phys. Rev. Lett, Comput. Phys. Commun, JHEP 2017 – Present

PRIZES AND HONOURS

- Department Teaching Award, Princeton Department of Physics 2018
Awarded for excellence in the role of Assistant in Introduction 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 2016
Awarded to an individual in the community that has made a difference during their time at Princeton.
- Princeton First-Year Graduate Fellowship 2013
Awarded for the first year of graduate study at Princeton.
- Hugo de Balsham Prize 2012
Awarded for exceptional academic distinction at Peterhouse, Cambridge.
- Peter Scheuer Scholarship in Natural Sciences 2011, 2012
Awarded for exceptional academic performance in Cambridge second/third year Tripos examinations.
- Senior Academic Scholarship of Peterhouse, Cambridge 2010
Awarded for exceptional academic performance in Cambridge first year Tripos examinations.

RESEARCH TRAINING

- CERN Geneva, Switzerland
Visiting Student, CMS Experiment Aug. – Sep. 2012
- DAMTP, University of Cambridge Cambridge, UK
Summer Student Jun. – Jul. 2012
- Institute of Astronomy, University of Cambridge Cambridge, UK
Summer Student Aug. – Sep. 2011
- CERN Geneva, Switzerland
Summer Student, CMS Experiment Jun. – Jul. 2011