

CONTACT INFORMATION	<p>Fermi National Accelerator Laboratory Particle Physics Division, Astrophysics Theory Website: https://samuelmcdermott.github.io/ Email: sammcd00@fnal.gov</p>	<p>Citizenship: USA Phone: (215) 990-7036</p>
RESEARCH INTERESTS	<p>Dark matter: direct detection, indirect detection, model building, cosmological and astrophysical constraints, Asymmetric Dark Matter, Galactic center GeV excess, Supernova 1987A, Big Bang Nucleosynthesis. Black Holes: intermediate mass black holes, LIGO observations, observable ramifications of the pulsational pair instability Field theory: finite temperature effects, effective theory, renormalization. Neutrinos: sterile neutrinos, low-energy nonunitarity, appearance anomalies.</p>	
EMPLOYMENT	<p>Fermi National Accelerator Laboratory</p> <ul style="list-style-type: none"> Postdoctoral Associate (6th floor) and KICP (associate fellow) September 2017-present Schramm Fellow January 2019-present <p>C. N. Yang Institute for Theoretical Physics Postdoctoral Associate September 2014-September 2017</p>	
EDUCATION	<p>Ph.D., Physics. <i>Ratcheting up the Search for Dark Matter</i> August 2014 The University of Michigan, Ann Arbor. Advisor: Dr. Kathryn M. Zurek and Fermi National Accelerator Laboratory. Predoctoral Theory Fellowship, 2013-2014. Supervisor: Dr. Dan Hooper</p> <p>B.A., Physics and B.A., Math. Honors Thesis: <i>Effect of Electric Field on Fluorescence Intermittency Statistics of CdSe Nanocrystals</i> December 2008 The University of Pennsylvania. Advisor: Dr. Marija Drndic</p>	
AWARDS AND RECOGNITION	<p>Fermilab</p> <ul style="list-style-type: none"> Schramm Fellowship Predoctoral Theory Fellowship, 2013-2014, and URA Thesis Award, 2015 <p>The University of Michigan</p> <ul style="list-style-type: none"> Rackham Predoctoral Fellowship, 2013-2014 <p>The University of Pennsylvania</p> <ul style="list-style-type: none"> <i>Summa cum Laude</i>, with Distinction in Physics; Dean's List, all semesters; Benjamin Franklin Scholar; Phi Beta Kappa scholar 	
PUBLICATION STATISTICS	<p>According to the inSPIREHEP database, as of January 2, 2022:</p> <ul style="list-style-type: none"> 45 research publications and 1 review article 9 <i>Letters</i> published (7 in the Physical Review, 1 in the Astrophysical Journal, 1 in Physics Letters B) many letters of intent for Snowmass 2020 and Astro20 more than 3,300 total citations <i>h</i>-index: 27 	

PUBLICATIONS Prepared while at Fermilab as a postdoctoral associate:

46. Ilias Cholis, Yi-Ming Zhong, SDM, and Joseph P. Surdutovich. *The Return of the Templates: Revisiting the Galactic Center Excess with Multi-Messenger Observations*. [arXiv:2112.09706 \[astro-ph\]](#). FERMILAB-PUB-21-709-T.
45. Marcela Carena, Nina M. Coyle, Yingying Li, SDM, and Yuhsin Tsai. *Cosmologically Degenerate Fermions*. [arXiv:2108.02785](#). FERMILAB-PUB-21-325-T.
44. Susan Gardner, SDM, and Brian Yanny. *The Milky Way, Coming into Focus: Precision Astrometry Probes its Evolution, and its Dark Matter*. *Prog. Part. Nucl. Phys.* **121**, 103904 (2021). [arXiv:2106.13284 \[astro-ph\]](#). FERMILAB-PUB-21-297-T.
43. Pierce Giffin, John Lloyd, SDM, and Stefano Profumo. *Neutron Star Quantum Death by Small Black Holes*. [arXiv:2105.06504](#). FERMILAB-PUB-21-259-T.
42. Eric J. Baxter, Djuna Croon, SDM, and Jeremy Sakstein. *Find the Gap: Black Hole Population Analysis with an Astrophysically Motivated Mass Function*. *Astrophys. J. Lett.* **916**, no.2, L16 (2021). [arXiv:2104.02685 \[astro-ph\]](#). FERMILAB-PUB-21-148-T.
41. Carlos Blanco, Yonatan Kahn, Benjamin Lillard, and SDM, *Dark Matter Daily Modulation With Anisotropic Organic Crystals*. *Phys. Rev. D* **104**, 036011 (2021). [arXiv:2103.08601](#). FERMILAB-PUB-21-066-T.
40. James M. Cline, Guillermo Gambini, SDM, and Matteo Puel, *Late-Time Dark Matter Oscillations and the Core-Cusp Problem*. *JHEP* **04**, 223 (2021). [arXiv:2010.12583](#). FERMILAB-PUB-20-556-T.
39. Jeremy Sakstein, Djuna Croon, SDM, Maria C. Straight and Eric J. Baxter, *Beyond the Standard Model Explanations of GW190521*. *Phys. Rev. Lett.* **125**, no.26, 261105 (2020). [arXiv:2009.01213 \[gr-qc\]](#). FERMILAB-PUB-20-461-T.
38. Djuna Croon, SDM, and Jeremy Sakstein. *Missing in Action: New Physics and the Black Hole Mass Gap*. *Phys. Rev. D* **102**, no. 11, 115024; selected as an **Editor's Choice** article. [arXiv:2007.07889 \[gr-qc\]](#). FERMILAB-PUB-20-328-T.
37. Djuna Croon, SDM, and Jeremy Sakstein. *Missing in Axion: where are XENON1T's big black holes?* *Phys. Dark Univ.* **32**, 100801 (2021). [arXiv:2007.00650](#). FERMILAB-PUB-20-270-T.
36. Djuna Croon, Gilly Elor, Rebecca Leane, and SDM. *Supernova Muons: New Constraints on Z' Bosons, Axions, and ALPs*. *JHEP* **01**, 107 (2021). [arXiv:2006.13942](#). FERMILAB-PUB-20-246-A-T.
35. Celeste Keith, Dan Hooper, SDM, and Nikita Blinov. *Constraints on Primordial Black Holes From Big Bang Nucleosynthesis Revisited*. *Phys. Rev. D* **102**, no.10, 103512 (2020). [arXiv:2006.03608 \[astro-ph\]](#). FERMILAB-PUB-20-224-A.
34. Dan Hooper, Gordan Krnjaic, John March-Russell, SDM, and Rudin Petrossian-Byrne. *Hot Gravitons and Gravitational Waves From Kerr Black Holes in the Early Universe*. [arXiv:2004.00618 \[astro-ph\]](#). FERMILAB-PUB-20-125-A-T.

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33. Samuel J. Witte, Salvador Rosauero-Alcaraz, SDM, and Vivian Poulin. *Dark Photon Dark Matter in the Presence of Inhomogeneous Structure*. JHEP **06**, 132 (2020). [arXiv:2003.13698 \[astro-ph\]](#). FERMILAB-PUB-20-121-T.
32. Yi-Ming Zhong, SDM, Ilias Cholis, and Patrick J. Fox. *A New Mask for An Old Suspect: Testing the Sensitivity of the Galactic Center Excess to the Point Source Mask*. Phys. Rev. Lett. **124**, no.23, 231103 (2020). [arXiv:1911.12369 \[astro-ph\]](#). FERMILAB-PUB-19-575-T.
31. SDM and Samuel J. Witte. *The Cosmological Evolution of Light Dark Photon Dark Matter*. Phys. Rev. D **101**, 063030 (2020). [arXiv:1911.05086 \[hep-ph\]](#). FERMILAB-PUB-19-565-T.
30. Gordan Krnjaic and SDM. *Implications of BBN Bounds for Cosmic Ray Upscattered Dark Matter*. Phys. Rev. D **101**, no.12, 123022 (2020). [arXiv:1908.00007 \[hep-ph\]](#). FERMILAB-PUB-19-358-A.
29. Nikita Blinov, Kevin J. Kelly, Gordan Krnjaic, and SDM. *Constraining the Self-Interacting Neutrino Interpretation of the Hubble Tension*. Phys. Rev. Lett. **123**, no. 19, 191102 (2019). [arXiv:1905.02727 \[astro-ph\]](#). FERMILAB-PUB-19-175-A-T.
28. Dan Hooper, Gordan Krnjaic, and SDM. *Dark Radiation and Superheavy Dark Matter from Black Hole Domination*. JHEP **08**, 001 (2019). [arXiv:1905.01301 \[hep-ph\]](#). FERMILAB-PUB-19-186-A.
27. SDM and Michael S. Turner. *Nuclear Kinetic Equilibrium During Big Bang Nucleosynthesis*. [arXiv:1811.04932 \[hep-ph\]](#). FERMILAB-PUB-18-625-A
26. SDM, Sanjay Reddy, and Srimoyee Sen. *A Deeply Bound Dibaryon is Incompatible with Neutron Stars and Supernovae*. Phys. Rev. D **99**, no. 3, 035013 (2019). [arXiv:1809.06765 \[hep-ph\]](#). FERMILAB-PUB-18-490-A.
25. Rouven Essig, SDM, Hai-Bo Yu, and Yi-Ming Zhong. *Constraining Dissipative Dark Matter Self-Interactions*. Phys. Rev. Lett. **123**, no. 12, 121102 (2019). [arXiv:1809.01144 \[hep-ph\]](#). FERMILAB-PUB-18-437-A.
24. Dan Hooper, Gordan Krnjaic, Andrew J. Long, and SDM. *WIMPflation*. Phys. Rev. Lett. **122**, no. 9, 091802 (2019). [arXiv:1807.03308 \[hep-ph\]](#). FERMILAB-PUB-18-309-A.
23. Asher Berlin, Dan Hooper, Gordan Krnjaic, and SDM. *Severely Constraining Dark Matter Interpretations of the 21-cm Anomaly*. Phys. Rev. Lett. **121**, no. 1, 011102 (2018); selected as an **Editor's Choice** article. [arXiv:1803.02804 \[hep-ph\]](#). FERMILAB-PUB-18-066-A.
22. Bhaskaran Balaji, Ilias Cholis, Patrick J. Fox, and SDM. *Analyzing the Gamma-ray Sky with Wavelets*. [arXiv:1803.01952 \[astro-ph\]](#). Phys. Rev. D **98**, no. 4, 043009 (2018). FERMILAB-PUB-18-057-A-T.
21. Jae Hyeok Chang, Rouven Essig, and SDM. *Supernova 1987A Constraints on Sub-GeV Dark Sectors, Millicharged Particles, the QCD Axion, and an Axion-like Particle*. JHEP **09**, 051 (2018). [arXiv:1803.00993 \[hep-ph\]](#). YITP-SB-18-01, FERMILAB-PUB-17-432-T.
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20. Dan Hooper and SDM. *Robust Constraints and Novel Gamma-Ray Signatures of Dark Matter That Interacts Strongly With Nucleons*. Phys. Rev. D **97**, 115006 (2018). [arXiv:1802.03025 \[hep-ph\]](#). FERMILAB-PUB-18-032-A.
19. SDM. *Is Self-Interacting Dark Matter Undergoing Dark Fusion?* Phys. Rev. Lett. **120**, 221806 (2018); selected as an **Editor's Choice** article. [arXiv:1711.00857 \[hep-ph\]](#). FERMILAB-PUB-17-483-A-T.

Prepared while at YITP Stony Brook as a postdoctoral associate:

18. SDM, Hiren H. Patel, and Harikrishnan Ramani. *Dark Photon Decay Beyond The Euler-Heisenberg Limit*. Phys. Rev. D **97**, no. 7, 073005 (2018). [arXiv:1705.00619 \[hep-ph\]](#). YITP-SB-17-14.
17. Samuel Witte, Vera Gluscevic, and SDM. *Prospects for Distinguishing Dark Matter Models Using Annual Modulation*. JCAP **02**, no. 02, 044 (2017). [arXiv:1612.07808 \[hep-ph\]](#). YITP-SB-16-51.
16. Jae Hyeok Chang, Rouven Essig, and SDM. *Revisiting Supernova 1987A Bounds on Dark Photons*. JHEP **01**, 107 (2017). [arXiv:1611.03864 \[hep-ph\]](#). YITP-SB-16-44.
15. SDM, Patrick Meade, and Harikrishnan Ramani. *Singlet Scalar Resonances and the Diphoton Excess*. Phys. Lett. B **755**, 353 (2016). [arXiv:1512.05326 \[hep-ph\]](#). YITP-SB-15-47.
14. SDM, Ilias Cholis, Patrick J. Fox, and Samuel K. Lee. *Wavelet-Based Techniques for the Gamma-Ray Sky*. JCAP **07**, 07, 045, (2016). [arXiv:1512.00012 \[astro-ph\]](#). YITP-SB-15-43.
13. Asher Berlin, Dan Hooper, and SDM. *Dark matter elastic scattering through Higgs loops*. Phys. Rev. D **92**, no. 12, 123531 (2015). [arXiv:1508.05390 \[hep-ph\]](#). YITP-SB-15-29.
12. Hooman Davoudiasl, Dan Hooper, and SDM. *Inflatable Dark Matter*. Phys. Rev. Lett. **116**, 031303 (2016); selected as an **Editor's Choice** article. [arXiv:1507.08660 \[hep-ph\]](#). YITP-SB-15-26.
11. Vera Gluscevic, Moira Gresham, SDM, Annika H. G. Peter, and Kathryn M. Zurek. *Identifying the Theory of Dark Matter with Direct Detection*. JCAP **12**, 12, 057 (2015). [arXiv:1506.04454 \[hep-ph\]](#). YITP-SB-15-16. Associated code publicly available on [github](#) and [ASCL](#).

Prepared while at Fermilab as a Fermilab Fellow:

10. SDM. *Lining up the Galactic Center Gamma-Ray Excess*. Phys. Dark Univ. **7-8**, 12 (2015). [arXiv:1406.6408 \[hep-ph\]](#). FERMILAB-PUB-14-205-A-T.
9. Asher Berlin, Pierre Gratia, Dan Hooper, and SDM. *Hidden Sector Dark Matter Models for the Galactic Center Gamma-Ray Excess*. Phys. Rev. D **90**, 015032 (2014). [arXiv:1405.5204 \[hep-ph\]](#). MCTP-14-12, FERMILAB-PUB-14-134-A.
8. Asher Berlin, Dan Hooper, and SDM. *Simplified Dark Matter Models for the Galactic Center Gamma-Ray Excess*. Phys. Rev. D **89**, 115022 (2014). [arXiv:1404.0022 \[hep-ph\]](#). MCTP-14-07, FERMILAB-PUB-14-060-A.

7. Ilias Cholis, Dan Hooper, and SDM. *Dissecting the Gamma-Ray Background in Search of Dark Matter*. JCAP **02**, 014 (2014). [arXiv:1312.0608 \[astro-ph\]](#). MCTP-13-40, FERMILAB-PUB-13-546-A.
6. Rouven Essig, Eric Kuflik, SDM, Tomer Volansky, and Kathryn M. Zurek. *Constraining Light Dark Matter with Diffuse X-Ray and Gamma-Ray Observations*. JHEP **11**, 193 (2013). [arXiv:1309.4091 \[hep-ph\]](#). MCTP-13-27, FERMILAB-PUB-13-377-A-T.

Prepared while a graduate student at the University of Michigan and a member of the Michigan Center for Theoretical Physics (**MCTP**):

5. Clifford Cheung, SDM, and Kathryn M. Zurek. *Inspecting the Higgs for New Weakly Interacting Particles*. JHEP **04**, 074 (2013). [arXiv:1302.0314 \[hep-ph\]](#). MCTP-13-01.
4. Eric Kuflik, SDM, and Kathryn M. Zurek. *Neutrino Phenomenology in a 3+1+1 Framework*. Phys. Rev. D **86**, 033015 (2012). [arXiv:1205.1791 \[hep-ph\]](#). MCTP-12-11.
3. SDM, Hai-Bo Yu, and Kathryn M. Zurek. *The Dark Matter Inverse Problem: Extracting Particle Physics from Scattering Events*. Phys. Rev. D **85**, 123507 (2012). [arXiv:1110.4281 \[hep-ph\]](#). MCTP-11-34.
2. SDM, Hai-Bo Yu, and Kathryn M. Zurek. *Constraints on Scalar Asymmetric Dark Matter from Black Hole Formation in Neutron Stars*. Phys. Rev. D **85**, 023519 (2012). [arXiv:1103.5472 \[hep-ph\]](#). MCTP-11-16.
1. SDM, Hai-Bo Yu, and Kathryn M. Zurek. *Turning off the Lights: How Dark is Dark Matter?* Phys. Rev. D **83**, 063509 (2011). [arXiv:1011.2907 \[hep-ph\]](#). MCTP-10-52.

CODE

`dmdd`, [ascl:1506.002](#)

- `dmdd` is a python package that enables simple simulation and Bayesian posterior analysis of nuclear-recoil data from dark matter direct detection experiments for a wide variety of theories of dark matter-nucleon interactions. `dmdd` was developed in collaboration with Vera Gluscevic for use in [arXiv:1506.04454](#), additionally with Moira Gresham, Annika H. G. Peter, and Kathryn M. Zurek.
- `dmdd` was used by the PICO collaboration to set official limits in [arXiv:1510.07754 \[hep-ex\]](#)

COLLOQUIA AND *Stellar Probes of New Physics* Topical Review

SUMMARY TALKS • Brookhaven Forum 2021

Nov 3, 2021

New Physics at the Stellar Frontier

- King's College London

Oct 25, 2021

Hunting for Dark Matter in the Lab, the Galaxy, and the Universe

- University of Victoria Dept of Physics and Astronomy

Mar 9, 2020

INVITED TALKS *New Physics and the Black Hole Mass Gap*

(*REMOTE)

- *High Energy Physics Seminar, Caltech
- *High Energy Theory Seminar, Brown University

Oct 12, 2020

Oct 14, 2020

- *SITP Seminar, Stanford University Oct 15, 2020
- *APEC Seminar, Kavli IPMU Oct 21, 2020
- *HEP Seminar, UC Santa Barbara Nov 16, 2020
- *N3AS Seminar Feb 2, 2020
- *Theory Seminar, Notre Dame Feb 23, 2020
- *MCFP Seminar, University of Maryland Mar 26, 2020
- *A Rainbow of Dark Sectors, Aspen Center for Physics March, 2021
- *Cosmology from Home July, 2021
- *The 16th Marcel Grossman Meeting July 8, 2021
- *APS DPF 2021 July 2021
- *Cambridge (Mass.) High Energy Workshop 2021 - Axion Physics July 2021
- *Particles and Nuclei International Conference Sept 8, 2021
- *BSM PANDEMIC Series Sept 14, 2021
- *Carleton HEP Seminar Nov 8, 2021

Self-Interacting Neutrinos and the Hubble Tension

- *INT Workshop Sept 21, 2021

Dark Photons, Cosmologically

- *Perimeter Institute Seminar Apr 28, 2020

A New Mask for An Old Suspect: Testing the Sensitivity of the Galactic Center Excess to the Point Source Mask

- Nuclear Theory Seminar, University of Kentucky Dec 19, 2019
- Informal Seminar, Harvard University Jan 24, 2020
- YITP-Brookhaven Joint Seminar, Stony Brook University Jan 29, 2020
- CCPP Seminar, New York University Jan 31, 2020
- New Techniques for Dark Matter Discovery, TRIUMF Mar 12, 2020
- *Thursday Seminar, CERN Th Mar 19, 2020
- *Israeli Joint Particle Physics Seminar, Hebrew University Jun 24, 2020

Dark Matter and Fusion: Signals and Constraints from the Dark and the Light

- Brown Bag Seminar, University of Michigan Oct 31, 2018
- CCPP Seminar, New York University Feb 9, 2019
- Exceptional Seminar, CERN Th Sept 30, 2019
- Nuclear and Particle Theory Seminar, MIT Oct 28, 2019

Dark Radiation and Superheavy Dark Matter from Black Hole Domination

- AAS Dark Matter “Meeting within a Meeting” June 11, 2019
- Current Trends in Particle Theory, UIC June 16, 2019
- No Stone Unturned Workshop, Utah Aug 7, 2019
- Cosmic Controversies, KICP Oct 7, 2019

Stellar Constraints on Dark Matter and Dark Sectors

- LSST Dark Matter Workshop, KICP Aug 5, 2019

The Dark Matter Mass and The Dark Matter Cross Section

- “String Theory and the Hidden Universe” and “Progress After Impasse”, Aspen Center for Physics May 27 & 28, 2019

Core Collapse Supernovae and Hidden Sectors

Theory Seminar, Argonne National Lab

April 9, 2019*A Particle Physicist's Perspective on EDGES*

- Theoretical Astrophysics Seminar, Fermilab **May 21, 2018**
- CIPANP XIII **May 30, 2018**
- Twelfth Conference on the Identification of Dark Matter **July 23, 2018**
- Seventh PIMKIO meeting, University of Michigan **March 29, 2019**

Dark Matter and Fusion

- Particle Theory Seminar, Perimeter Institute **Dec 1, 2017**
- Theoretical Physics Seminar, Brandeis University **Feb 15, 2018**

Supernova 1987A Bounds on Hidden Sectors

- Dark Interactions Workshop, Brookhaven **Sep 7, 2016**
- HEP Seminar, Johns Hopkins University **Oct 25, 2016**
- High Energy Theory Seminar, University of Minnesota **Mar 10, 2017**
- Nuclear Theory Seminar, University of Kentucky **Apr 6, 2017**
- CFP Seminar, University of Maryland **Apr 10, 2017**
- Particle Theory Seminar, Boston University **Oct 11, 2017**
- 4D Seminar, Berkeley **Oct 18, 2017**
- Theory Seminar, SLAC **Oct 20, 2017**
- ITS Seminar, University of Oregon **Oct 23, 2017**
- Particle Physics Seminar, University of Washington **Oct 24, 2017**
- HPS Collaboration Telecon **Nov 15, 2017**
- Theoretical Astrophysics Seminar, Fermilab **Feb 5, 2018**
- *New Probes for Physics Beyond the Standard Model* Conference, KITP **Apr 10, 2018**
- CIPANP XIII **May 31, 2018**

Inflatable Dark Matter and the 750 GeV Resonance

- Pheno & Vino, Princeton **Feb 2, 2016**
- Astro Coffee, IAS **Feb 3, 2016**
- High Energy Physics Seminar, Caltech **Apr 25, 2016**
- Joint Particle Seminar, UC Irvine **Apr 27, 2016**

Probing Theories of Dark Matter with Direct Detection

APS DPF meeting, Ann Arbor

Aug 5, 2015*Ratcheting up the Search for Dark Matter*

URA Thesis Award Presentation, Fermilab Users Meeting

June 10, 2015*Beyond Templates for the Galactic Center GeV Gamma-ray Excess*

- MIT CTP **Oct 1, 2014**
- IAS Astro Coffee **Oct 8, 2014**
- UT Austin Theory Group Seminar **Nov 4, 2014**
- Brookhaven National Lab **Mar 4, 2015**
- Maryland CFP **Mar 9, 2015**

- Cornell Particle Theory Seminar **Apr 10, 2015**

The Galactic Center GeV Gamma-ray Excess: Have We Started to See Dark Matter?

- Université de Montréal and McGill dark matter workshop **July 24, 2014**
- Galileo Galilei Institute workshop **Sep 30, 2015**

Thoughts on the keV Line

- University of Chicago Dark Matter Hub meeting **Apr 15, 2014**

Constraining Dark Matter with Background Light

- Los Alamos T2 Seminar **Dec 5, 2013**
- Wisconsin Theory Seminar **Nov 8, 2013**
- SLAC Theoretical Physics Seminar **Oct 30, 2013**
- Fermilab Theory Seminar **Oct 17, 2013**

PARALLEL AND OTHER TALKS	Midwest Relativity Meeting New Physics and the Black Hole Mass Gap	Oct 2020
	FNAL New Directions in the Search for Light Dark Matter	June 2019
	Aspen Center for Physics	2015, 2016, 2017, 2019
	Brookhaven Forum	Oct 2015
	YITP Wine and Cheese	Sep 2014
	COSMO2014 Parallel Session	Aug 2014
	TeVPA/IDM 2014 Parallel Session	June 2014
	Phenomenology Parallel Session	2012, 2013
	University of Michigan Undergraduate Poster Session	Mar 2012
	19th SUSY (2011)	Sep 2011
	University of Michigan Graduate Student Symposium	June 2011
	MCTP Student Journal Club	2009 - 2013

PROGRAMMING LANGUAGES	Proficient: Mathematica, Python, HTML
	Familiar: Cython, CSS

PROFESSIONAL SERVICE	Referee: Phys. Rev. Letters , the Astrophysical Journal , MNRAS Letters , JHEP , Phys. Rev. D , and Phys. Letters B .
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Next Frontiers in the Search for Dark Matter **Aug 26, 2019 - Oct 11, 2019**

- Workshop at Galileo Galilei Institute in Arcetri, Italy
- inclusive of a five-day conference
- Co-organized with Marco Battaglieri, Laura Baudis, Francesco D'Eramo, Claudia Frugieue, Eric Kuflik, Tongyan Lin, Hitoshi Murayama, and Stefano Profumo

New Directions in the Search for Light Dark Matter Particles

June 4-7, 2019

- Workshop at Fermilab and KICP
- Co-organized with Dan Bauer, Dan Baxter, Yoni Kahn, Gordan Krnjaic, and Noah Kurinsky
- awarded \$24,525 grant from the Gordon and Betty Moore Foundation

Beyond WIMPs: from Theory to Detection

March 27-29, 2017

- Workshop at Simons Center for Geometry and Physics
- Co-organized with Rouven Essig, Peter Sorensen, Tomer Volansky, and Tien-Tien Yu

MCTP Light Dark Matter: Asymmetric, thermal and non-thermal dark matter and its detection **April, 2013**

PRESS

Hershberger, Scott. “Physics at Tiniest Scale Could Explain ‘Impossible’ Black Holes” *Symmetry Magazine*, 16 December 2020.

Hershberger, Scott. “If Betelgeuse goes boom: How DUNE would respond to a nearby supernova.” *Fermilab News*, 5 October 2020.

Sakstein, Jeremy and Croon, Djuna, and SDM. “Beyond the Standard Model Explanations of GW190521.” *Newsletter of the CERN Experimental Physics Department*, 29 September 2020.

Hekkenberg, Ans. “Overschot straling centrum Melkweg niet te verklaren met donkere materie” (Dutch) *newscientist.nl*, 8 September 2020.

Fadelli, Ingrid. “Could recently spotted dim point sources explain the galactic center excess (GCE)?” *Phys.org*, 14 July 2020.

Muñoz, Julian and Loeb, Abraham. “The First Stars May Shed Light on Dark Matter.” *APS Physics*, 2 July 2018.

Conover, Emily. “If real, dark fusion could help demystify this physics puzzle.” *Science News*, 6 June 2018.

Inglis-Arkell, Esther. “‘Inflatable Dark Matter’ Could Explain Why We See Less Than Many Theories Predict.” *Gizmodo*, 18 January 2016.