

Kathryn M. Zurek

Curriculum Vitae

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Academic Positions 2014–PRESENT, SENIOR SCIENTIST, Lawrence Berkeley National Laboratory.
2014–PRESENT, EXCEPTIONAL PRINCIPLE INVESTIGATOR, University of California, Berkeley.
JANUARY 2013–SEPTEMBER 2014, ASSOCIATE PROFESSOR, Department of Physics, University of Michigan.
SEPTEMBER 2009–DECEMBER 2012, ASSISTANT PROFESSOR, Department of Physics, University of Michigan.
FALL 2012, MEMBER, Institute for Advanced Study. Princeton, NJ.
2008–2009 ASSOCIATE RESEARCHER, Department of Physics, University of Michigan.
2008–2009 DAVID SCHRAMM FELLOW, Fermi National Accelerator Laboratory, Particle Astrophysics Center.
2006–2008 POSTDOCTORAL SCHOLAR, Wisconsin Phenomenology Institute, University of Wisconsin, Madison.
2002–2006 RESEARCH ASSISTANT, Institute for Nuclear Theory, University of Washington.

Education UNIVERSITY OF WASHINGTON 2001–2006
Seattle, WA, USA
Ph.D., Department of Physics
Advisor: David B. Kaplan
BETHEL UNIVERSITY 1997–2001
St. Paul, MN, USA
B.S. in Physics, *Summa Cum Laude*, 2001

Selected Publications Yonit Hochberg, Yonatan Kahn, Mariangela Lisanti, Christopher Tully, Kathryn M. Zurek, “Directional Detection of Dark Matter with 2D Targets,” arXiv:1606.08849.
Katelin Schutz and Kathryn M. Zurek, “On the Detectability of Light Dark Matter with Superfluid Helium,” *Phys. Rev. Lett.*, **117**, 121302 (2016), arXiv:1604.08206.
Yonit Hochberg, Yue Zhao, Kathryn M. Zurek “Superconducting Detectors for Superlight Dark Matter,” *Phys. Rev. Lett.*, **116** 011301 (2016), arXiv:1504.07237.

Jack Kearney, Hojin Yoo, Kathryn M. Zurek, “Is a Higgs Vacuum Instability Fatal for High Scale Inflation?,” *Phys. Rev. D*, **91**, 123538 (2015), arXiv:1503.05193.

Kathryn M. Zurek, “Asymmetric Dark Matter: Theories, Signatures and Constraints,” Invited review for *Physics Reports*, arXiv:1308.0338.

Sean Tulin, Haibo Yu, and Kathryn M. Zurek, “Resonant Dark Forces and Small Scale Structure,” *Phys. Rev. Lett.*, **110**, 111301 (2013), arXiv:1210.0900.

Sean Tulin, Haibo Yu, and Kathryn M. Zurek, “Oscillating Asymmetric Dark Matter,” *JCAP*, **1205**, 013 (2012), arXiv:1202.0283.

Moira Gresham, Ian-Woo Kim, and Kathryn M. Zurek, “On Models of New Physics for Top A_{FB} ,” *Phys. Rev. D*, **83**, 114027 (2011), arXiv:1103.3501.

David Morrissey, David Poland, and Kathryn M. Zurek, “Abelian Hidden Sectors at a GeV,” *JHEP*, **0907**, 050 (2009), arXiv:0904.2567.

David E. Kaplan, Markus A. Luty, and Kathryn M. Zurek, “Asymmetric Dark Matter,” *Phys. Rev. D*, **79**, 115016 (2009), arXiv:0901.4117 [hep-ph].

Dan Hooper and Kathryn M. Zurek, “A Natural Supersymmetric Model of MeV Dark Matter,” *Phys. Rev. D*, **77**, 087302 (2008), arXiv:0801.3686 [hep-ph].

Matthew J. Strassler and Kathryn M. Zurek, “Echoes of a hidden valley at hadron colliders,” *Phys. Lett. B*, **651**, 374 (2007), hep-ph/0604261.

Publications Approximately 5500 citations with h -index of 42.

Yonit Hochberg, Tongyan Lin, Kathryn M. Zurek, “Absorption of Light Dark Matter in Semiconductors,” arXiv:1608.01994.

William East, John Kearney, Bibhushan Shakya, Hojin Yoo, Kathryn M. Zurek, “Space-time Dynamics of a Higgs Vacuum Instability During Inflation,” arXiv:1607.00381.

Yonit Hochberg, Tongyan Lin, Kathryn M. Zurek, “Detecting Ultralight Bosonic Dark Matter via Absorption in Superconductors,” *Phys. Rev. D*, **94**, 015019 (2016), arXiv:1604.06800.

Daniele Bertolini, Katelin Schutz, Mikhail Solon, Kathryn M. Zurek, “The Trispectrum in the Effective Field Theory of Large Scale Structure,” *JCAP*, **1606**, 052 (2016), arXiv:1604.01770.

“Recommendations on Present LHC Searches for Missing Transverse Energy Signals Using Simplified s-channel Models of Dark Matter,” arXiv:1603.04156.

Stefania Goria, Ian-Woo Kim, Nausheen Shah, Kathryn M. Zurek, “Closing the Wedge: Search Strategies for Extended Higgs Sectors with Heavy Flavor Final States,” *Phys. Rev. D*, **93**, 075038, arXiv: 1602.02782.

Simon Knapen, Thomas Melia, Michele Papucci, Kathryn M. Zurek, “Rays of Light from the LHC,” *Phys. Rev. D*, **93**, 07502 (2016), arXiv: 1512.04928.

Daniele Bertolini, Katelin Schutz, Mikhail Solon, Kathryn M. Zurek, “Non-Gaussian Covariance of the Matter Power Spectrum in the Effective Field Theory of Large Scale Struc-

ture,” *Phys. Rev. D*, **93**, 123505 (2016), arXiv:1512.07630.

Yonit Hochberg, Yue Zhao, Matt Pyle, Kathryn M. Zurek, “Detecting Superlight Dark Matter with Fermi-Degenerate Materials,” *JHEP*, **1608** 058 (2016), arXiv:1512.04533.

Asher Berlin, Denis Robertson, Mikhail Solon, Kathryn M. Zurek, “Bino Variations: Effective Field Theory Methods for Dark Matter Direct Detection,” *Phys. Rev. D*, **93**, 09500 (2016), arXiv: 1511.05964.

Vera Gluscevic, Moira Gresham, Samuel McDermott, Annika Peter, Kathryn M. Zurek, “Identifying the Theory of Dark Matter with Direct Detection,” *JCAP*, **1512**, 057 (2015), arXiv: 1506.04454.

“Simplified Models for Dark Matter Searches at the LHC,” *Phys. Dark Univ.*, **9-10**, 8, arXiv:1506.03116.

“A Facility to Search for Hidden Particles at the CERN LHC: the SHiP Physics Case,” arXiv:1504.04855.

“Simplified Models for Dark Matter and Missing Energy Searches at the LHC,” arXiv: 1409.2893.

Clifford Cheung, Michele Papucci, David Sanford, Nausheen Shah and Kathryn M. Zurek, “NMSSM Interpretation of the Galactic Center Excess,” *Phys. Rev. D*, **90**, 075011 (2014), 1406.6372.

Anson Hook, John Kearney, Bibhushan Shakya, Kathryn M. Zurek, “Probable of Improbable Universe? Correlating Electroweak Vacuum Instability with the Scale of Inflation,” *JHEP*, **1501**, 061 (2015), arXiv:1404.5953.

Michele Papucci, Alessandro Vichi and Kathryn M. Zurek, “Monojet versus the rest of the world I: t-channel,” *JHEP*, **1411**, 024 (2014), arXiv:1402.2285.

Yue Zhao and Kathryn M. Zurek, “Indirect Detection Signatures for the Origin of Asymmetric Dark Matter,” *JHEP*, **1407** 017 (2014), arXiv:1401.7664.

Moira Gresham, Kathryn M. Zurek, “On the Effect of Nuclear response Functions in Dark Matter Direct Detection,” *Phys. Rev. D*, **89** (2014), arXiv:1401.3739.

Moira Gresham, Kathryn M. Zurek, “Light Dark Matter Anomalies After LUX,” *Phys. Rev. D*, **89**, 016017 (2014), arXiv:1311.2082.

Ian-Woo Kim and Kathryn M. Zurek, “Flavor and Collider Signatures of Asymmetric Dark Matter,” *Phys. Rev. D*, **89**, 035008 (2014), arXiv:1310.2617.

R. Essig, E. Kuflik, S.D. McDermott, T. Volansky, K. M. Zurek, “Constraining Light Dark Matter with Diffuse X-Ray and γ -Ray Observations,” *JHEP*, **1311**, 193 (2013), arXiv: 1309.4091.

Sean Tulin, Haibo Yu and Kathryn M. Zurek, “Beyond collisionless Dark Matter: Particle Physics Dynamics for Dark Matter Halo Substructure,” *Phys. Rev. D*, **87**, 115007 (2013), arXiv:1302.3898.

Clifford Cheung, Samuel D. McDermott and Kathryn M. Zurek, “Inspecting the Higgs

for New Weakly Interacting Particles,” *JHEP*, **1304**, 074 (2013), arXiv:1302.0314.

Moira Gresham, Jessie Shelton, and Kathryn M. Zurek, “Open Windows for a Light axigluon Explanation of the Top Forward-Backward Asymmetry,” *JHEP*, **1301**, 008 (2013), arXiv:1212.1718.

Sean Tulin, Haibo Yu, and Kathryn M. Zurek, “Three Exceptions for Thermal Dark Matter with Enhanced Annihilation to $\gamma\gamma$,” *Phys. Rev. D*, **87** 036011 (2013), arXiv:1208.0009.

Eric Kuflik, Samuel D. McDermott, and Kathryn M. Zurek, “Neutrino Phenomenology in a 3+1+1 Framework,” *Phys. Rev. D*, **86**, 033015 (2012), arXiv:1205.1791.

Clifford Cheung, Michele Papucci, and Kathryn M. Zurek, “Higgs and Dark Matter Hints of an Oasis in the Desert,” *JHEP*, **1207**, 105 (2012), arXiv:1203.5106.

Moira I. Gresham, Ian-Woo Kim, *Sean Tulin*, and Kathryn M. Zurek, “Confronting Top A_{FB} with Parity Violation Constraints,” *Phys. Rev. D*, **86**, 034029 (2012), arXiv:1203.1320.

Tongyan Lin, Haibo Yu, and Kathryn M. Zurek, “On Symmetric and Asymmetric Light Dark Matter,” *Phys. Rev. D*, **85**, 063503 (2012), arXiv:1111.0293.

Samuel D. McDermott, Haibo 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.

Moira Gresham, Ian-Woo Kim and Kathryn M. Zurek, “Tevatron Top A_{FB} Versus LHC Top Physics,” *Phys. Rev. D*, **85**, 014022 (2012), arXiv:1107.4364.

Clifford Cheung and Kathryn M. Zurek, “Affleck-Dine Cogenesis,” *Phys. Rev. D*, **84**, 035007 (2011), arXiv:1105.4612.

Samuel D. McDermott, Haibo 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.

Moira Gresham, Ian-Woo Kim, and Kathryn M. Zurek, “Searching for Top Flavor Violating Resonances,” *Phys. Rev. D*, **84**, 034025 (2011), arXiv:1102.0018.

Shant Baghran, Niayesh Afshordi and Kathryn M. Zurek, “Prospects for Detecting Dark Matter Halo Substructure with Pulsar Timing,” *Phys. Rev. D*, **84**, 043511 (2011), arXiv:1101.5487.

Jessie Shelton and Kathryn M. Zurek, “A Theory for Maximal Flavor Violation,” *Phys. Rev. D*, **83**, 091701 (2011), arXiv:1101.5392.

Samuel D. McDermott, Haibo Yu and Kathryn M. Zurek, “Turning off the Lights: How Dark is Dark Matter?,” *Phys. Rev. D*, **83**, 063509 (2011), arXiv:1011.2907.

Jessie Shelton and Kathryn M. Zurek, “Darkogenesis: a Baryon Asymmetry from the Dark Matter Sector,” *Phys. Rev. D*, **82**, 123512 (2010), arXiv:1008.1997.

A. Liam Fitzpatrick and Kathryn M. Zurek, “Dark Moments and the DAMA-CoGeNT Puzzle,” *Phys. Rev. D*, **82**, 075004 (2010), arXiv:1007.5325.

Timothy Cohen, Daniel Phalen, Aaron Pierce, and Kathryn M. Zurek, “Asymmetric Dark Matter from a GeV Hidden Sector,” *Phys. Rev. D*, **82**, 056001 (2010), arXiv:1005.1655.

Timothy Cohen, Eric Kuflik, and Kathryn M. Zurek, “Extracting the Dark Matter Mass from Single Stage Cascade Decays at the LHC,” *JHEP*, **1011**, 008 (2010), arXiv:1003.2204

Minjoon Park, Scott Watson, and Kathryn M. Zurek, “A Unified Approach to Cosmic Acceleration,” *Phys. Rev. D*, **81**, 124008 (2010), arXiv:1003.1722.

Eric Kuflik, Aaron Pierce, and Kathryn M. Zurek, “Light WIMPs: the Largest Detection Scattering Cross Sections in the MSSM,” *Phys. Rev. D*, **81**, 111710, arXiv:1003.0682.

A. Liam Fitzpatrick, Dan Hooper, and Kathryn M. Zurek, “Implications of CoGeNT and DAMA for Light WIMP Dark Matter,” *Phys. Rev. D*, **81**, 115005 (2010), arXiv:1003.0014.

Contributing Author to the White Paper “The Hunt for New Physics at the Large Hadron Collider,” arXiv:1001.2693.

Kathryn M. Zurek, “TASI 2009 Lectures: Searching for Unexpected Physics at the LHC,” arXiv:1001.2563.

Graham D. Kribs, Tuhin Roy, John Terning, and Kathryn M. Zurek, “Quirky Composite Dark Matter,” *Phys. Rev. D*, **81**, 095001 (2010), arXiv:0909.2034.

Dan Hooper and Kathryn M. Zurek, “Pamela, FGST and Sub-TeV Dark Matter,” *Phys. Lett.*, **B691**, 18 (2010), arXiv:0909.4163.

Timothy Cohen and Kathryn M. Zurek, “Leptophilic Dark Matter from the Lepton Asymmetry,” *Phys. Rev. Lett.*, **104**, 101310 (2010), arXiv:0909.2035.

Manoj Kaplinghat, Daniel Phalen, and Kathryn M. Zurek, “Pulsars as the Source of the WMAP Haze,” *JCAP*, **0912**, 010 (2009), arXiv:0905.0487.

Bruce Winstein and Kathryn M. Zurek, “Cosmic Light Matter Probes Heavy Dark Matter,” *Physics*, **2** 37 (2009).

Dan Hooper and Kathryn M. Zurek, “The PAMELA and ATIC Signals from Kaluza-Klein Dark Matter,” *Phys. Rev. D*, **79** 103529, arXiv:0802.0593 [hep-ph].

Dan Hooper, Albert Stebbins, and Kathryn M. Zurek, “The PAMELA and ATIC Excesses from a Nearby Clump of Neutralino Dark Matter,” *Phys. Rev. D*, **79**, 103513 (2009), arXiv:0812.3202 [hep-ph].

Kathryn M. Zurek, “Multi-component Dark Matter,” *Phys. Rev. D* **79**, 115002 (2009), arXiv:0811.4429 [hep-ph].

Yuri Gershtein, Frank J. Petriello, Seth Quackenbush, and Kathryn M. Zurek, “Discovering Hidden Sectors with Mono-photon Z’ Searches,” *Phys. Rev. D*, **78**, 096002 (2008), arXiv:0809.2949 [hep-ph].

Dan Hooper, Frank J. Petriello, Kathryn M. Zurek, and Marc Kamionkowski, “The New DAMA Dark-Matter Window and Energetic-Neutrino Searches,” *Phys. Rev. D*, **79**, 015010 (2009), arXiv:0808.2464.

Frank J. Petriello and Kathryn M. Zurek, “DAMA and WIMP Dark Matter,” *JHEP*, **0809**, 047 (2008), arXiv:0806.3989 [hep-ph].

Lisa L. Everett, Ian-Woo Kim, Peter Ouyang and Kathryn M. Zurek, “Deflected Mirage Mediation: a Framework for Generalized Supersymmetry Breaking,” *JHEP*, **0808**, 102 (2008), arXiv:0806.2330 [hep-ph].

Lisa L. Everett, Ian-Woo Kim, Peter Ouyang and Kathryn M. Zurek, “Deflected Mirage Mediation: a Framework for Generalized Supersymmetry Breaking,” *Phys. Rev. Lett.*, **101**:101803 (2008), arXiv:0804.0592 [hep-ph].

Frank J. Petriello, Seth Quackenbush, and Kathryn M. Zurek, “The Invisible Z’ at the LHC,” *Phys. Rev. D*, **77**, 115020 (2008), arXiv:0803.4005 [hep-ph].

Paul McGuirk, Gary Shiu, and Kathryn M. Zurek, “Phenomenology of Infrared Smooth Warped Extra Dimensions,” *JHEP*, **0803**, 012 (2008), arXiv:0712.2264 [hep-ph].

Tao Han, Zongguo Si, Kathryn M. Zurek, and Matthew J. Strassler, “Phenomenology of Hidden Valleys at Hadron Colliders,” *JHEP*, **0807**, 008 (2008), arXiv:0712.2041 [hep-ph].

Gary Shiu, Bret Underwood, Devin G.E. Walker, and Kathryn Zurek, “Probing the Geometry of Warped String Compactifications at the LHC,” *Phys. Rev. Lett.*, **100**, 031601 (2008), arXiv:0704.4097 [hep-ph].

Alexander Friedland, Kathryn M. Zurek and Sergei Bashinsky, “Constraining models of neutrino mass and neutrino interactions with the Planck satellite,” arXiv:0704.3271 [astro-ph].

Dan Hooper, Manoj Kaplinghat, Louis Strigari, and Kathryn M. Zurek, “MeV dark matter and small scale structure,” *Phys. Rev. D*, **76**, 103515 (2007), arXiv:0704.2558 [astro-ph].

Kathryn M. Zurek and Craig J. Hogan, “White noise from dark matter: 21 cm observations of early baryon collapse,” *Phys. Rev. D*, **75**, 043511 (2007), astro-ph/0703624.

Kathryn M. Zurek, Craig J. Hogan, and Thomas R. Quinn, “Astrophysical effects of scalar dark matter miniclusters,” *Phys. Rev. D*, **75**, 043511 (2007), astro-ph/0607341.

Matthew J. Strassler and Kathryn M. Zurek, “Discovering the Higgs through highly-displaced vertices,” *Phys. Lett. B*, **661**, 263 (2008), hep-ph/0605193.

Neal Weiner and Kathryn Zurek, “New matter effects and BBN constraints for mass varying neutrinos,” *Phys. Rev. D*, **74**, 023517 (2006), hep-ph/0509201.

Wick C. Haxton, Kenneth M. Nollett, and Kathryn M. Zurek, “The piecewise moments method: a generalized Lanczos technique for nuclear response surfaces,” *Phys. Rev. C*, **72**, 065501 (2005), nucl-th/0508034.

David B. Kaplan and Kathryn M. Zurek, “Exotic axion cosmology in theories with a phase transition below the QCD scale,” *Phys. Rev. Lett.*, **96**, 041301 (2006), hep-ph/0507236.

Kathryn M. Zurek, “New matter effects in terrestrial neutrino oscillation experiments,” *JHEP* **0410**, 058 (2004), hep-ph/0405141.

Grants

PI, 3-year NASA Astrophysics Theory Grant. “Astrophysical Probes of New Models of Dark Matter.” \$192K. 2011-2014.

PI, 5-year NSF CAREER Grant. “From the Cosmos to Colliders.” \$400K. 2011-2014.

Co-PI, DOE High Energy Theory Umbrella Grant at University of Michigan. 2012-2015. Supported for one postdoc at 0.5 FTE effort.

Colloquia and Plenary Talks

Theory Colloquium, CERN. August 2016.

Plenary Talk, Dark Side of the Universe, Bergen, Norway. July 2016.

Plenary Talk, Flavor Physics and CP Violation, Caltech. June 2016.

Invited Talk, April 2016 Meeting of APS.

Plenary Talk, Lake Louise Winter Institute. February 2016.

Colloquium, University of Illinois, Urbana-Champaign. January 2016.

Invited Talk, LZ Collaboration Meeting. January 2016.

Colloquium, FNAL. November 2015.

Plenary Talk, Galileo Galilei Institute, Florence. October 2015.

Colloquium, Cornell University. September 2015.

Plenary Talk, Division of Particles and Fields of American Physical Society, Ann Arbor. August 2015.

Plenary Talk, PASCOS 2015, Trieste. June 2015.

Plenary Talk, “Beyond the WIMP” workshop, Israel. May 2015.

Colloquium, University of California, Santa Cruz. April 2015.

Colloquium, Royal Academies for Science and the Arts of Belgium, Dedicated to Englert and Brout. March 2015.

Public Talk, “Dark Matter Hunter’s Guider to the Universe, ” Simons Foundation. March 2015.

Colloquium, University of California, Los Angeles. November 2014.

Colloquium, Center for High Energy Physics, Tsinghua University, China. November 2014.

Plenary Talk, Physics of the Universe Summit, New York City. September 2014.

Plenary Talk, Brookhaven National Laboratory Dark Interactions Workshop. May 2014.

Plenary Talk, Sackler Symposium on Dark Matter, Harvard Smithsonian Center for Astrophysics. May 2014

Colloquium, California Institute of Technology. April 2014.

Plenary Talk, Korean Institute for Advanced Study Phenomenology Workshop. October 2013.

Plenary Talk, Princeton Center for Theoretical Science “The Dark Matter Paradigm: Current Status and Challenges.” October 2013.

Plenary Talk, “LHC—the First Part of the Journey,” KITP Santa Barbara. July 2013.

Plenary Talk, Lepton Photon. July 2013.

Rapporteur Talk on Dark Sectors, Snowmass pre-meeting, KITP Santa Barbara. May 2013.

Colloquium, University of Washington. February 2013.

Research Progress Meeting Talk, Lawrence Berkeley National Laboratory. January 2013.

Colloquium, Tel Aviv University. November 2012.

Colloquium, National Academy of Science Sackler Symposium, “Dark Matter Universe: On the Threshold of Discovery.” October 2012.

Plenary Talk, Planck 2012. Warsaw, Poland. May 2012.

Plenary Talk, Phenomenology Symposium 2012. Pittsburgh, Pennsylvania. May 2012

Colloquium, Goddard Space Flight Center. April 2012.

Dark Matter Overview Talk, “Near Field Cosmology as a Probe of Early Universe, Dark Matter and Gravity,” Anapolis, MD. November 2011.

Plenary Talk, Brookhaven Forum 2011, Brookhaven National Laboratory. October 2011.

Plenary Talk, The Dark Universe Conference. Heidelberg, Germany. October 2011.

Plenary Talk on Dark Matter Theory, Annual Meeting of the High Energy Astrophysics Division of the American Astronomical Society. Newport, Rhode Island. September 2011.

Plenary Talk, Annual Users’ Meeting, Fermi National Accelerator Laboratory. June 2011.

Colloquium, Northwestern University Physics Department. May 2011.

Colloquium, University of Arizona. Part of the Junior Scientist Lecture Series. March 2011.

Plenary Talk, “Physics of the Universe Summit,” SpaceX/Caltech. January 2011.

Plenary Talk, Princeton Center for Theoretical Science Dark Matter Direct Detection workshop. November 2010.

Plenary Talk, 18th International Symposium on Supersymmetry and Unification of Fundamental Forces, Bonn Germany. August 2010.

Plenary Talk, 3rd International Workshop on the Interconnection between Particle Physics and Cosmology, Norman, OK. May 2009

Plenary Talk, Moriond Electroweak Session, La Thuile, Italy. March 2009.

Colloquium, Brown University. February 2008.

Schools

Lecturer, ICTP Summer School on Particle Physics. June 2015.

Lecturer, SLAC Summer Institute. August 2014.

Lecturer, Prospects in Theoretical Physics, Institute for Advanced Study, Princeton. July 2013.

Lecturer, Theoretical Advanced Study Institute, Boulder, CO. June 2009.

Invited Talks

Invited Talk, "Theoretical Advances in Particle Cosmology," KICP, University of Chicago. October 2016.

Seminar, TRIUMF. June 2016.

Seminar, Caltech. April 2016.

Seminar, Laboratoire Astroparticule & Cosmologie, Paris. March 2015.

Seminar, Theory Group, Saclay. March 2015.

Seminar, Theory Group, Harvard University. March 2015.

Seminar, Theory Group, Boston University. March 2015.

Invited Talk, Workshop on Nuclear Aspects of Dark Matter Searches, Institute for Nuclear Theory, Seattle. December 2014.

Seminar, Peking University. November 2014.

Dark Matter Overview Talk, INPAC-MRPI meeting, Asilomar Conference Center. December 2014.

Dark Matter Overview Talk, APS Division of Nuclear Physics Workshop on Double Beta Decay and Neutrinos. October 2014.

Seminar, Theory Group, Princeton University. September 2014.

Seminar, Theory Group, Michigan State University. April 2014.

Seminar, Theory Group, University of Texas at Austin. February 2014.

Seminar, High Energy Experiment Seminar, SLAC National Accelerator Laboratory. January 2014.

Invited Talk, Frontiers in Particle Physics: From Dark Matter to the LHC and Beyond, Aspen Center for Physics. January 2014.

Talk on non-Supersymmetric Dark Matter at SLAC Snowmass pre-meeting. March 2013.

Seminar, Theory Group, University of Washington. February 2013.

Seminar, University of California, Berkeley. January 2013.

Seminar, University of Zurich. Zurich, Switzerland. October 2012.

Seminar, Theory Group, Rutgers University. October 2012.

Seminar, Theory Group, Princeton University. September 2012.

Seminar, Institute for Advanced Study. September 2012.

Invited Talk, American Astronomical Society Meeting-in-a-Meeting Session "Bridging Laboratory and Astrophysics: Particles." June 2012.

Seminar, Berkeley Center for Theoretical Physics. May 2012.

Seminar, Theory Group, University of Washington. April 2012.

Seminar, Theory Group, SLAC National Laboratory. February 2012.

Seminar, Theory Group, Johns Hopkins University. February 2012.

Seminar, Massachusetts Institute of Technology Center for Theoretical Physics. February 2012.

Seminar, Massachusetts Institute of Technology. November 2011.

Seminar, Institute for the Physics and Mathematics of the Universe. Tokyo, Japan. August 2011.

Lecturer, Summer Institute 2011, Fujiyoshida, Japan. August 2011.

Public Lecture on Large Hadron Collider, Aspen Center for Physics, Aspen, CO. June 2011.

Seminar, Theory Group, Fermi National Accelerator Laboratory. May 2011.

Seminar, California Institute of Technology. May 2011.

Seminar, Rutgers University. April 2011.

Seminar, Massachusetts Institute of Technology. April 2011.

Member, Opening Panel Discussion, Fermilab Symposium on Experiments on the Cosmic Frontier. March 2011.

Seminar, Berkeley Center for Theoretical Physics. January 2011.

Invited Talk, 13th International Conference on Advanced Technology and Particle Physics, "Cosmic Rays for Particle and Astroparticle Physics." October 2010.

Invited Talk, Stanford Linear Accelerator Center, “Topologies for Early LHC Searches.” September 2010.

Seminar, Theory Group, Yale University. April 2010.

Seminar, Theory Group, Boston University. April 2010.

Seminar, Center for Cosmology and Particle Physics, New York University. April 2010.

Seminar, Institute for Advanced Study, Princeton, NJ. April 2010.

Seminar, Particle Phenomenology Group, University of Wisconsin, Madison. March 2010.

Seminar, High Energy Theory Group, Stanford Linear Accelerator Center. February 2010.

Invited Talk, “The Revolution in Particle Physics is Here,” Aspen Center for Physics. January 2010.

Invited Talk, “Physics of the Universe Summit,” SpaceX/Caltech. January 2010.

Seminar, High Energy Theory Group, Brookhaven National Laboratory. January 2010.

Seminar, High Energy Theory Group, Michigan State University. November 2009.

Seminar, High Energy Theory Group, University of Pittsburgh and Carnegie Mellon University. November 2009.

Invited Talk, Dark Matter Annihilation in the Interstellar Medium, Fermi National Accelerator Laboratory. September 2009.

Seminar, Aspen Center for Physics, Aspen, CO. July 2009.

Invited Talk, Perimeter Institute Dark Matter Workshop, Waterloo, CA. June 2009.

Invited Talk, Unusual Dark Matter: Theory, Experiment and the LHC, Eugene, OR. June 2009.

Seminar, Particle Theory Group, University of Washington. April 2009.

Seminar, High Energy Theory Group, University of Maryland. February 2009.

Seminar, Rutgers University. February 2009.

Seminar, High Energy Experiment Group, University of Chicago. February 2009.

Invited Talk, Fermi Guest Investigator Workshop, University of Chicago. January 2009.

Seminar, Kavli Institute for Cosmological Physics, University of Chicago. January 2009.

Seminar, Stanford Institute for Theoretical Physics. January 2009.

Seminar, High Energy Physics Group, University of California at Irvine. January 2009.

Invited Talk, “Dark Matter and LHC” Workshop, University of Michigan. January 2009.

Seminar, Harvard Center for the Fundamental Laws of Nature. December 2008.

Invited Talk, High Energy Physics Group, Syracuse University. October 2008.

Invited Talk, EWSB@LHC@IPhT Workshop, Institut de Physique Théorique, Saclay, France. October 2008.

Seminar, High Energy Theory Group, California Institute of Technology. April 2008.

Seminar, Kavli Institute for Theoretical Physics, University of California, Santa Barbara. April 2008.

Seminar, High Energy Theory group, University of Michigan. February 2008.

Invited Talk, “Revealing the Nature of Electroweak Symmetry Breaking,” Aspen Winter Workshop. January 2008.

Seminar, High Energy Theory Group, University of Chicago. November 2007.

Invited Talk, “Detecting the Unexpected” Workshop, University of California, Davis. November 2007.

Seminar, High Energy Theory Group, Cornell University. September 2007.

Seminar, High Energy Theory Group, University of Illinois, Urbana-Champaign. September 2007.

Seminar, CERN Theory Group, LHC and Cosmology Workshop. July 2007.

Seminar, Particle Astrophysics Group, Max Planck Institute for Physics, Munich, Germany. July 2007.

Seminar, Theory Group, Fermi National Accelerator Laboratory. March 2007.

Seminar, Theory Group, Argonne National Laboratory. March 2007.

Invited talk, Aspen 2007 Program on Neutrinos in Physics and Astrophysics. January 2007.

Seminar, High Energy Theory Group, University of California, Berkeley. December 2006.

Seminar, Theoretical Physics Institute, University of Minnesota. November 2006.

Invited Talk, CERN Axion Solar Telescope Collaboration meeting (Patras, Greece). May 2006.

TRIUMF Seminar, TRIUMF Laboratory (Vancouver, BC, Canada). January 2006.

Seminar, Theoretical Astrophysics Group, Fermi National Accelerator Laboratory. December 2005.

Seminar, Los Alamos National Laboratory. December 2005.

Particle Theory Seminar, Columbia University. November 2005.

Seminar, Stanford Linear Accelerator Center. November 2005.

Particle Theory Seminar, Johns Hopkins University. November 2005.

Center for Cosmology and Particle Physics Seminar, New York University. November 2005.

Teaching

Fall 2016, Physics 233B, Standard Model and Beyond II. Graduate Course, UC Berkeley.

Spring 2015, Physics 232B, Field Theory II. Graduate Course, UC Berkeley.

Winter 2014, Physics 525, Astrophysics I. Graduate Course, University of Michigan.

Fall 2013, Physics 540, Particle Physics II. Graduate Course, University of Michigan.

Winter 2013, Physics 526, Astrophysics II. Graduate Course, University of Michigan.

Winter 2012, Physics 457, Particles and Cosmology. Undergraduate Course, University of Michigan.

Winter 2011, Physics 526, Astrophysics II. Graduate Course, University of Michigan.

Fall 2010, Physics 401, Mechanics. Undergraduate Course, University of Michigan.

Fall 2009, Physics 401, Mechanics. Undergraduate Course, University of Michigan.

Service

Organizer, “High Energy Physics at the Sensitivity Frontier,” KITP Santa Barbara, Spring 2018.

Organizer, “New Ideas in Dark Matter Detection,” Aspen Center for Physics, Summer 2017.

Organizer, “Sub-eV 2016,” LBNL, December 2016.

Organizer, Berkeley Workshop on Dark Matter Detection, June 2015.

Organizer, University of Michigan Light Dark Matter workshop, April 2013.

Organizer, University of Michigan High Energy Theory Seminars, 2010-2014.

Organizer, Aspen Center for Physics workshop on “New Particle Physics at the LHC and its Connection to Dark Matter.” August 2012.

Organizer, Aspen Center for Physics conference on “Direct and Indirect Detection of Dark Matter.” February 2011.

Referee for *Phys. Rev. Lett.*, *Journal of High Energy Physics*, *Physics Letters B* and *Phys. Rev. D*. Named one of the most valued reviewers of 2011 by *Physics Letters B*.

Undergraduate Curriculum and Concerns Committee, University of Michigan, 2011-2014.

Member of International Scientific Organizing Committee for the 13th International Conference on Advanced Technology and Particle Physics, “Cosmic Rays for Particle and Astroparticle Physics.” October 2010.

Organizer, Michigan Center for Theoretical Physics Conference on Non-thermal Dark Matter Histories. October 2010.

Scientific Organizing Committee, Great Lakes Cosmology Conference, June 2010.

Co-organizer of three Michigan Center for Theoretical Physics dark matter workshops, 2009-2010.

Organizer, 2007 and 2008 Pheno Symposia.

**Recently in
the Press**

“New Techniques Could Target More Exotic Materials,” 13 October 2016 in *Scientific American*.

“Spotting Dark Matter with Supermaterials,” 13 September 2016 in *Physics - Synopsis*.

“Forty Under Forty in the East Bay,” 16 August 2016 in *Diablo Magazine*.

“Hunting for Dark Matter’s Hidden Valley,” 24 May 2016 in Berkeley Lab News Center.

“Physicists Look Beyond WIMPs for Dark Matter,” 29 April 2016 in *Inside Science*.

“Dark Matter Hunt Appears to be Zeroing In on a Leading Contender,” 22 July 2013 in *Wired Science*.

“Portraits of Darkness,” 31 August 2013 in *New Scientist*.

“Tentative Dark Matter Hits Fit with Shadow Dark Sector,” 16 April 2013 in *New Scientist*.

“Peering Back 13 Billion Years, Through a Gravitational Lens,” 29 April 2011 in *Science*.

“The Dark Side of Antimatter,” by Rachel Courtland, 25 November 2010 in *New Scientist*.

“Quirky Particles Could Explain Universe’s Missing Mass,” by Jon Cartwright, 1 June 2010 in *Physics World*.

“Super-sensitive Tool Key to Dark Matter Claim,” 9 July 2008 in *Nature*.