

TEL: (212) 992-8784
FAX: (212) 995-4903
neal.weiner@nyu.edu

Neal Weiner
Professor of Physics
DOB May 15, 1974

Center for Cosmology
& Particle Physics
New York University
New York, NY 10003

Education

Ph.D. in Physics, University of California, Berkeley,
May, 2000, Advisor: Lawrence Hall.
B.A. in Physics and Mathematics, Summa Cum Laude,
Carleton College, June 1996.

Appointments

Professor, Dept. Physics,
New York University, Sept 2014 – present;
Director, Center for Cosmology and Particle Physics,
Sept 2013 – Aug 2017;
Member, Institute for Advanced Study,
Sept 2011-Aug 2012;
Associate Professor, Dept. Physics,
New York University, Sept 2009 – Aug 2014;
Assistant Professor, Dept. Physics,
New York University, Sept 2004 – Aug 2009;
Research Associate, Theory Group,
University of Washington, Oct 2000 – Aug 2004.

Grants, Awards and Honors

Simons Fellow 2017;
Golden Dozen Award 2013;
Kavli Fellow 2009;
DOE Outstanding Junior Investigator 2006;
NSF CAREER Award 2005;
University Fellowship 1996;
Goldwater Scholarship 1995;
Phi Beta Kappa 1995.

Research Projects

- *Beyond the Minimal Dark Sector: Finding New Physics in Cosmology and Colliders* [National Science Foundation (9/1/2016-8/31/2019),(9/1/2013-8/31/2016),(7/1/2010-7/1/2013), (1/1/2005-12/31/2009)]
- *Beyond the Standard Model: The Weak Scale, Neutrino Mass and the Dark Sector* [Department of Energy (06/01/2006-05/31/2010)]
- *LHC Theory Initiative*, [National Science Foundation Subaward] (9/1/2012-8/31/2015)

Select Publications

*All author ordering alphabetical, except titles marked *.,*

- **“Halometry from Astrometry*”** , K. Van Tilburg, A. M. Taki and N. Weiner. JCAP **1807**, no. 07, 041 (2018).
- **“A viable QCD axion in the MeV mass range”** , D. S. M. Alves and N. Weiner. JHEP **1807**, 092 (2018)
- **“Light Signals from a Lighter Higgs”** , P. J. Fox and N. Weiner. , arXiv:1710.07649 [hep-ph] , FERMILAB-PUB-17-468-T, accepted for publication in JHEP.
- **“A Portalino to the Dark Sector”** , M. Schmaltz and N. Weiner. , arXiv:1709.09164 [hep-ph]
- **“US Cosmic Visions: New Ideas in Dark Matter 2017: Community Report”** , M. Battaglieri *et al.* , arXiv:1707.04591 [hep-ph] , FERMILAB-CONF-17-282-AE-PPD-T
- **“Charged Higgs Signals in $t\bar{t}H$ Searches”** , D. S. M. Alves, S. El Hedri, A. M. Taki and N. Weiner. Phys. Rev. D **96**, no. 7, 075032 (2017)
- **“X-ray line from exciting dark matter”** D. P. Finkbeiner and N. Weiner. Phys. Rev. D **94**, no. 8, 083002 (2016)
- **“Goldstone Gauginos”** D. S. M. Alves, J. Galloway, M. McCullough and N. Weiner. Phys. Rev. Lett. **115**, no. 16, 161801 (2015)
- **“Signals of a Light Dark Force in the Galactic Center”** J. Liu, N. Weiner and W. Xue. JHEP **1508**, 050 (2015)
- **“Hiding Missing Energy in Missing Energy”** D. S. M. Alves, J. Liu and N. Weiner. JHEP **1504**, 088 (2015)
- **“Supersymmetry with a sister Higgs boson”** D. S. M. Alves, P. J. Fox and N. Weiner. Phys. Rev. D **91**, 055003 (2015)
- **“Dark matter detection in two easy steps”** M. Pospelov, N. Weiner and I. Yavin. Phys. Rev. D **89**, 055008 (2014)
- **“Dark matter in light of the LUX results”** P. J. Fox, G. Jung, P. Sorensen and N. Weiner. Phys. Rev. D **89**, no. 10, 103526 (2014)
- **“Looking for new charged states at the LHC: Signatures of Magnetic and Rayleigh Dark Matter”** J. Liu, B. Shuve, N. Weiner and I. Yavin. JHEP **1307**, 144 (2013)
- **“UV Completions of Magnetic Inelastic Dark Matter and RayDM for the Fermi Line(s)”** N. Weiner and I. Yavin. Phys. Rev. D **87**, 023523 (2013)

- **“A Collective Breaking of R-Parity”** J. T. Ruderman, T. R. Slatyer and N. Weiner. JHEP **1309**, 094 (2013)
- **“Vectorlike Fermions and Higgs Couplings”** J. Kearney, A. Pierce and N. Weiner. Phys. Rev. D **86**, 113005 (2012)
- **“Dark Forces and Light Dark Matter”** D. Hooper, N. Weiner and W. Xue. Phys. Rev. D **86**, 056009 (2012)
- **“How Dark Are Majorana WIMPs? Signals from MiDM and Rayleigh Dark Matter”** N. Weiner and I. Yavin. Phys. Rev. D **86**, 075021 (2012)
- **“Electroweakinos Hiding in Higgs Searches”** M. Lisanti and N. Weiner. Phys. Rev. D **85**, 115005 (2012)
- **“Sommerfeld-enhanced annihilation in dark matter substructure: Consequences for constraints on cosmic-ray excesses”** T. R. Slatyer, N. Toro and N. Weiner. Phys. Rev. D **86**, 083534 (2012)
- **“A CoGeNT Modulation Analysis”** P. J. Fox, J. Kopp, M. Lisanti and N. Weiner, Phys. Rev. D **85**, 036008 (2012)
- **“Higgs friends and counterfeits at hadron colliders”** P. J. Fox, D. Tucker-Smith and N. Weiner, JHEP **1106**, 127 (2011)
- **“An Effective Z”** P. J. Fox, J. Liu, D. Tucker-Smith and N. Weiner, Phys. Rev. D **84**, 115006 (2011)
- **“The Fermi Gamma-Ray Haze from Dark Matter Annihilations and Anisotropic Diffusion*”** G. Dobler, I. Cholis and N. Weiner, Astrophys. J. **741**, 25 (2011)
- **“Cores in Dwarf Galaxies from Dark Matter with a Yukawa Potential”** A. Loeb and N. Weiner, Phys. Rev. Lett. **106**, 171302 (2011)
- **“Consistent Scenarios for Cosmic-Ray Excesses from Sommerfeld-Enhanced Dark Matter Annihilation”** D. P. Finkbeiner, L. Goodenough, T. R. Slatyer, M. Vogelsberger and N. Weiner, JCAP **1105**, 002 (2011)
- **“Integrating Out Astrophysical Uncertainties”** P. J. Fox, J. Liu and N. Weiner, Phys. Rev. D **83**, 103514 (2011)
- **“Magnetic Inelastic Dark Matter”** S. Chang, N. Weiner and I. Yavin, Phys. Rev. D **82**, 125011 (2010)
- **“Effect of Thallium Impurities in the DAMA Experiment on the Allowed Parameter Space for Inelastic Dark Matter”** S. Chang, R. F. Lang and N. Weiner, Phys. Rev. Lett. **106**, 011301 (2011)
- **“CoGeNT Interpretations”**, S. Chang, J. Liu, A. Pierce, N. Weiner and I. Yavin, JCAP **1008**, 018 (2010)

- **“Peaked Signals from Dark Matter Velocity Structures in Direct Detection Experiments”**, R. F. Lang and N. Weiner, *JCAP* **1006**, 032 (2010)
- **“Dark Matter Direct Detection with Non-Maxwellian Velocity Structure*”**, M. Kuhlen, N. Weiner *et al.*, *JCAP* **1002**, 030 (2010)
- **“The Fermi Haze: A Gamma-Ray Counterpart to the Microwave Haze*”**, G. Dobler, D. P. Finkbeiner, I. Cholis, T. R. Slatyer and N. Weiner, *Astrophys. J.* **717**, 825 (2010)
- **“Momentum Dependent Dark Matter Scattering”**, S. Chang, A. Pierce and N. Weiner, *JCAP* **1001**, 006 (2010)
- **“PAMELA, DAMA, INTEGRAL and Signatures of Metastable Excited WIMPs”**, D. P. Finkbeiner, T. R. Slatyer, N. Weiner and I. Yavin, *JCAP* **0909**, 037 (2009)
- **“The Case for a 700+ GeV WIMP: Cosmic Ray Spectra from ATIC and PAMELA”**, I. Cholis, G. Dobler, D. P. Finkbeiner, L. Goodenough and N. Weiner, *Phys. Rev. D* **80**, 123518 (2009)
- **“The PAMELA Positron Excess from Annihilations into a Light Boson”**, I. Cholis, D. P. Finkbeiner, L. Goodenough and N. Weiner, *JCAP* **0912**, 007 (2009)
- **“LHC Signals for a SuperUnified Theory of Dark Matter”**, N. Arkani-Hamed and N. Weiner, *JHEP* **0812**, 104 (2008)
- **“A Theory of Dark Matter”**, N. Arkani-Hamed, D. P. Finkbeiner, T. R. Slatyer and N. Weiner, *Phys. Rev. D* **79**, 015014 (2009)
- **“Using the Energy Spectrum at DAMA/LIBRA to Probe Light Dark Matter”**, S. Chang, A. Pierce and N. Weiner, *Phys. Rev. D* **79**, 115011 (2009)
- **“Inelastic Dark Matter in Light of DAMA/LIBRA”**, S. Chang, G. D. Kribs, D. Tucker-Smith and N. Weiner, *Phys. Rev. D* **79**, 043513 (2009)
- **“CMB and 21-cm Signals for Dark Matter with a Long-Lived Excited State”**, D. P. Finkbeiner, N. Padmanabhan and N. Weiner, *Phys. Rev. D* **78**, 063530 (2008)
- **“High Energy Positrons and the WMAP Haze from Exciting Dark Matter”**, I. Cholis, L. Goodenough and N. Weiner, *Phys. Rev. D* **79**, 123505 (2009)
- **“Nonstandard Higgs Boson Decays”**, S. Chang, R. Dermisek, J. F. Gunion and N. Weiner, *Ann. Rev. Nucl. Part. Sci.* **58**, 75 (2008)
- **“Flavor in supersymmetry with an extended R-symmetry”**, G. D. Kribs, E. Poppitz and N. Weiner, *Phys. Rev. D* **78**, 055010 (2008)
- **“Nonstandard Higgs Decays with Visible and Missing Energy”**, S. Chang and N. Weiner, *JHEP* **0805**, 074 (2008)

- **“Exciting Dark Matter and the INTEGRAL/SPI 511 keV signal”**, D. P. Finkbeiner and N. Weiner, Phys. Rev. D **76**, 083519 (2007)
- **“Visible cascade Higgs decays to four photons at hadron colliders”**, S. Chang, P. J. Fox and N. Weiner, Phys. Rev. Lett. **98**, 111802 (2007)
- **“Naturalness and Higgs decays in the MSSM with a singlet”**, S. Chang, P. J. Fox and N. Weiner, JHEP **0608**, 068 (2006)
- **“Supersymmetric theories of neutrino dark energy”**, R. Fardon, A. E. Nelson and N. Weiner, JHEP **0603**, 042 (2006)
- **“The Status of inelastic dark matter”** D. Tucker-Smith and N. Weiner. Phys. Rev. D **72**, 063509 (2005)
- **“Neutrino oscillations as a probe of dark energy”** D. B. Kaplan, A. E. Nelson and N. Weiner. Phys. Rev. Lett. **93**, 091801 (2004)
- **“Dark energy from mass varying neutrinos”** R. Fardon, A. E. Nelson and N. Weiner. JCAP **0410**, 005 (2004)
- **“Little inflatons and gauge inflation”** D. E. Kaplan and N. J. Weiner. JCAP **0402**, 005 (2004)
- **“Hadron masses and screening from AdS Wilson loops”** A. Karch, E. Katz and N. Weiner. Phys. Rev. Lett. **90**, 091601 (2003)
- **“Extended anomaly mediation and new physics at 10-TeV”** A. E. Nelson and N. J. Weiner. hep-ph/0210288
- **“Inelastic dark matter at DAMA, CDMS and future experiments”** D. Tucker-Smith and N. Weiner. Nucl. Phys. Proc. Suppl. **124**, 197 (2003)
- **“Deconstruction and gauge theories in AdS(5)”** L. Randall, Y. Shadmi and N. Weiner. JHEP **0301**, 055 (2003)
- **“Dirac gaugino masses and supersoft supersymmetry breaking”** P. J. Fox, A. E. Nelson and N. Weiner. JHEP **0208**, 035 (2002)
- **“Electroweak unification into a five-dimensional SU(3) at a TeV”** S. Dimopoulos, D. E. Kaplan and N. Weiner. Phys. Lett. B **534**, 124 (2002)
- **“Gauge / anomaly Syzygy and generalized brane world models of supersymmetry breaking”** A. E. Nelson and N. J. Weiner. Phys. Rev. Lett. **88**, 231802 (2002)
- **“Radion mediated supersymmetry breaking as a Scherk-Schwarz theory”** D. E. Kaplan and N. Weiner. hep-ph/0108001
- **“Large extra dimensions from a small extra dimension”** Z. Chacko, P. J. Fox, A. E. Nelson and N. Weiner. JHEP **0203**, 001 (2002)

- **“Unification without unification”** N. Weiner. hep-ph/0106097
- **“Ineffective supersymmetry: Electroweak symmetry breaking from extra dimensions”** N. Weiner. hep-ph/0106021
- **“GUT breaking on the brane”** Y. Nomura, D. Tucker-Smith and N. Weiner. Nucl. Phys. B **613**, 147 (2001)
- **“Finite radiative electroweak symmetry breaking from the bulk”** N. Arkani-Hamed, L. J. Hall, Y. Nomura, D. Tucker-Smith and N. Weiner. Nucl. Phys. B **605**, 81 (2001)
- **“Inelastic dark matter”** D. Tucker-Smith and N. Weiner. Phys. Rev. D **64**, 043502 (2001)
- **“Neutrino masses at $\nu^{**}(3/2)$ ”** N. Arkani-Hamed, L. J. Hall, H. Murayama, D. Tucker-Smith and N. Weiner. hep-ph/0007001
- **“Small neutrino masses from supersymmetry breaking”** N. Arkani-Hamed, L. J. Hall, H. Murayama, D. Tucker-Smith and N. Weiner. Phys. Rev. D **64**, 115011 (2001)
- **“Solving the hierarchy problem with exponentially large dimensions”** N. Arkani-Hamed, L. J. Hall, D. Tucker-Smith and N. Weiner. Phys. Rev. D **62**, 105002 (2000)
- **“Exponentially small supersymmetry breaking from extra dimensions”** N. Arkani-Hamed, L. J. Hall, D. Tucker-Smith and N. Weiner. Phys. Rev. D **63**, 056003 (2001)
- **“Neutrino mass anarchy”** L. J. Hall, H. Murayama and N. Weiner. Phys. Rev. Lett. **84**, 2572 (2000)
- **“Flavor at the TeV scale with extra dimensions”** N. Arkani-Hamed, L. J. Hall, D. Tucker-Smith and N. Weiner. Phys. Rev. D **61**, 116003 (2000)
- **“U(2) and maximal mixing of muon-neutrino”** L. J. Hall and N. Weiner. Phys. Rev. D **60**, 033005 (1999)
- **“Oscillations of solar and atmospheric neutrinos”** R. Barbieri, L. J. Hall, D. Tucker-Smith, A. Strumia and N. Weiner. JHEP **9812**, 017 (1998)
- **“Alternative theories of CP violation”** R. Barbieri, L. J. Hall, A. Stocchi and N. Weiner. Phys. Lett. B **425**, 119 (1998)