Contact Information

Dan Hooper

Fermi National Accelerator Laboratory
Theoretical Astrophysics Department

The University of Chicago
Department of Astronomy & Astrophysics

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Academic Positions

Fermi National Accelerator Laboratory

Senior Scientist	July 2015 - Present
Head, Theoretical Astrophysics Department	Mar 2017 - May 2023
Staff Scientist	July 2011 - July 2015
Associate Scientist	April 2007 - July 2011
David Schramm Fellow	July 2005 - April 2007

The University of Chicago

Professor of Astronomy & Astrophysics	Mar 2018 - Present
Associate Professor of Astronomy & Astrophysics	Feb 2012 - Mar 2018
Assistant Professor of Astronomy & Astrophysics	April 2008 - Feb 2012

Oxford University

Postdoctoral Research Fellow	Aug 2003 - July 2005

Education

PhD, Physics, **The University of Wisconsin, Madison** Mar 2003
Faculty Advisor: Dr. Francis Halzen

B.S., Physics, Minor in Mathematics, **Saint Cloud State University** May 1999

Courses Taught

The University of Chicago

Particle Astrophysics (graduate)	Fall 2022, Fall 2021
Cosmology II (graduate)	Spring 2022
Philosophical Problems in Cosmology (undergraduate)	Fall 2020, Spring 2018
The Big Bang (undergraduate)	Spring 2019, Spring 2023
High Energy Astrophysics (graduate)	Winter 2017
Matter, Energy, Space and Time (undergraduate)	Fall 2015
The Origin of the Universe & How We Know (undergraduate)	Spring 2015
Stellar Astronomy & Astrophysics (undergraduate)	Winter 2014, Winter 2011
Cosmology I (graduate)	Fall 2013, Spring 2012
The Origin and Evolution of the Universe (undergraduate)	Spring 2013

Graduate Students Supervised

The University of Chicago

Ian Holst	Current
Emily Simon	Current
Rayne Liu	Current
Fei Xu	PhD, 2023 (expected)
Celeste Keith	PhD, 2023
Olivia Bitter	PSD Masters, 2021
Carlos Blanco	PhD, 2019
Asher Berlin	PhD, 2016
Christopher Kelso	PhD, 2012
Alexander Belikov	PhD, 2011

Books Authored

Particle Cosmology and Astrophysics, Graduate-Level Textbook
Princeton University Press, 2024

At the Edge of Time: Exploring the Mysteries of our Universe's First Seconds
Princeton University Press, 2019

Nature's Blueprint: Supersymmetry and the Search for a Unified Theory of Matter and Force
Harper-Collins/Smithsonian, 2008

Dark Cosmos: In Search of our Universe's Missing Mass and Energy
Harper-Collins/Smithsonian, 2006

Other Major Efforts in Education, Outreach

Podcast: Why This Universe?
Co-Host and Co-Creator
71 Episodes and over 1,600,000 downloads (as of October 2023)

What Einstein Got Wrong
Lecture Series for The Great Courses/Wondrium, 2017

Professional Service and Awards	Division Associate Editor, Physical Review Letters, 2020-Present
	Frequent referee for many academic journals
	Head of the International Advisory Committee for the TeV Particle Astrophysics annual conference series, 2020-Present
	Elected Fellow of the American Physical Society, 2017
Major Conferences Organized	TeV Particle Astrophysics (University of Chicago, 2024)
	Next-Generation Gamma-Ray Searches for Dark Matter (University of Chicago, 2023)
	Topics in Cosmic Neutrino Phyiscs (Fermilab, 2019)
	Identification of Dark Matter (Chicago, 2012)

PUBLICATION STATISTICS

According to the **inSpireHEP** database (as of Nov 2023):

- 258 articles
- Over 25,200 total citations
- h-index: 73

PUBLICATIONS

258. F. Xue and D. Hooper, *The Dark Matter Discovery Potential of the Advanced Particle-Astrophysics Telescope (APT)*, [arXiv:2308.15538 [astro-ph.HE]].

257. D. Hooper, A. Ireland, G. Krnjaic and A. Stebbins, *Supermassive Primordial Black Holes From Inflation*, [arXiv:2308.00756 [astro-ph.CO]].

256. C. Blanco, D. Hooper, T. Linden and E. Pinetti, *On the Neutrino and Gamma-Ray Emission from NGC 1068*, [arXiv:2307.03259 [astro-ph.HE]].

255. D. Hooper and H. Xiao, *Dark matter is the new BBN*, Phys. Dark Univ. **42**, 101353 (2023), [arXiv:2306.07339 [hep-ph]].

254. A. Dekker, I. Holst, D. Hooper, G. Leone, E. Simon and H. Xiao, *Diffuse Ultra-High-Energy Gamma-Ray Emission From TeV Halos*, [arXiv:2306.00051 [astro-ph.HE]].

253. D. Hooper and K. Plant, *A Leptonic Model for Neutrino Emission From Active Galactic Nuclei*, [arXiv:2305.06375 [astro-ph.HE]].

252. I. Holst, D. Hooper, G. Krnjaic and D. Song, *Twin Sterile Neutrino Dark Matter*, [arXiv:2305.06364 [hep-ph]].

251. D. Hooper, J. Iguaz Juan and P. D. Serpico, *Signals of a new gauge boson from IceCube and the muon g-2*, Phys. Rev. D **108**, no.2, 023007 (2023), [arXiv:2302.03571 [astro-ph.HE]].

250. A. J. Evans, L. E. Strigari, O. Svenborn, A. Albert, J. P. Harding, D. Hooper, T. Linden and A. B. Pace, *On the gamma-ray emission from the core of the Sagittarius dwarf galaxy*, Mon. Not. Roy. Astron. Soc. **524**, no.3, 4574-4585 (2023), [arXiv:2212.08194 [astro-ph.HE]].

249. C. Keith, D. Hooper and T. Linden, *Cherenkov Telescope Array will test whether pulsars generate the Galactic Center gamma-ray excess*, Phys. Rev. D **107**, no.10, 103001 (2023), [arXiv:2212.08080 [astro-ph.HE]].

248. D. Hooper, A. Ireland and G. Krnjaic, *Cosmological Magnetic Fields From Primordial Kerr-Newman Black Holes*, Phys. Rev. D **107**, no.10, 103524 (2023), [arXiv:2206.04066 [astro-ph.CO]].

247. O. M. Bitter and D. Hooper, *Constraining the Milky Way's Pulsar Population with the Cosmic-Ray Positron Fraction*, JCAP **10**, 081 (2022), [arXiv:2205.05200 [astro-ph.HE]].

246. C. Keith, D. Hooper, T. Linden and R. Liu, *Sensitivity of Future Gamma-Ray Telescopes to Primordial Black Holes*, Phys. Rev. D **106**, no.4, 043003 (2022), [arXiv:2204.05337 [astro-ph.HE]].

245. R. K. Leane, S. Shin, L. Yang, G. Adhikari, H. Alhazmi, T. Aramaki, D. Baxter, F. Calore, R. Caputo and I. Cholis, *et al. Snowmass 2021 Cosmic Frontier White Paper: Puzzling Excesses in Dark Matter Searches and How to Resolve Them*, [arXiv:2203.06859 [hep-ph]].

244. J. Aalbers, K. Abe, V. Aerne, F. Agostini, S. A. Maouloud, D. S. Akerib, D. Y. Akimov, J. Akshat, A. K. A. Musalhi and F. Alder, *et al. A Next-Generation Liquid Xenon Observatory for Dark Matter and Neutrino Physics*, [arXiv:2203.02309 [physics.ins-det]].

243. F. Xu and D. Hooper, *Contribution From TeV halos to the Isotropic Gamma-Ray Background*, Phys. Rev. D **106**, no.2, 023005 (2022), [arXiv:2111.03646 [astro-ph.HE]].

242. I. Holst, D. Hooper and G. Krnjaic, *Simplest and Most Predictive Model of Muon g-2 and Thermal Dark Matter*, Phys. Rev. Lett. **128**, no.14, 141802 (2022), [arXiv:2107.09067 [hep-ph]].

241. D. Curtin, S. Gryba, D. Hooper, J. Scholtz and J. Setford, *Resurrecting the Fraternal Twin WIMP Miracle*, Phys. Rev. D **105**, no.3, 035033 (2022), [arXiv:2106.12578 [hep-ph]].

240. L. A. Anchordoqui, C. Bérat, M. E. Bertaina, A. Castellina, O. Deligny, R. Engel, G. R. Farrar, P. L. Ghia, D. Hooper and O. Kalashev, *et al. Hunting Superheavy Dark Matter with Ultra-high Energy Photons*, Astropart. Phys. **132**, 102614 (2021), [arXiv:2105.12895 [hep-ph]].

239. D. Hooper and T. Linden, *Evidence of TeV Halos Around Millisecond Pulsars*, Phys. Rev. D **105**, no.10, 103013 (2022), [arXiv:2104.00014 [astro-ph.HE]].

238. C. Keith and D. Hooper, *511 keV Excess and Primordial Black Holes*, Phys. Rev. D **104**, no.6, 063033 (2021), [arXiv:2103.08611 [astro-ph.CO]].

237. T. Sudoh, T. Linden and D. Hooper, *The Highest Energy HAWC Sources are Likely Leptonic and Powered by Pulsars*, JCAP **08**, 010 (2021), [arXiv:2101.11026 [astro-ph.HE]].

236. D. Hooper and G. Krnjaic, *GUT Baryogenesis With Primordial Black Holes*, Phys. Rev. D **103**, no.4, 043504 (2021), [arXiv:2010.01134 [hep-ph]].

235. D. Smith, D. Hooper and A. Vieregg, *Revisiting AGN as the Source of IceCube's Diffuse Neutrino Flux*, JCAP **03**, 031 (2021), [arXiv:2007.12706 [astro-ph.HE]].

234. I. Cholis, D. Hooper and T. Linden, *Constraining the Charge-Sign and Rigidity-Dependence of Solar Modulation*, [arXiv:2007.00669 [astro-ph.HE]].

233. R. Allahverdi, M. A. Amin, A. Berlin, N. Bernal, C. T. Byrnes, M. Sten Delos, A. L. Erickcek, M. Escudero, D. G. Figueroa and K. Freese, *et al. The First Three Seconds: a Review of Possible Expansion Histories of the Early Universe*, [arXiv:2006.16182 [astro-ph.CO]].

232. C. Keith, D. Hooper, N. Blinov and S. D. McDermott, *Constraints on Primordial Black Holes From Big Bang Nucleosynthesis Revisited*, Phys. Rev. D **102**, no.10, 103512 (2020), [arXiv:2006.03608 [astro-ph.CO]].

231. N. Blinov, C. Keith and D. Hooper, *Warm Decaying Dark Matter and the Hubble Tension*, JCAP **06**, 005 (2020), [arXiv:2004.06114 [astro-ph.CO]].

230. D. Hooper, G. Krnjaic, J. March-Russell, S. D. McDermott and R. Petrossian-Byrne, *Hot Gravitons and Gravitational Waves From Kerr Black Holes in the Early Universe*, [arXiv:2004.00618 [astro-ph.CO]].

229. I. Cholis, T. Linden and D. Hooper, *Antideuterons and Antihelium Nuclei From Annihilating Dark Matter*, Phys. Rev. D **102**, no.10, 103019 (2020), [arXiv:2001.08749 [astro-ph.HE]].

228. D. Hooper, R. K. Leane, Y. D. Tsai, S. Wegsman and S. J. Witte, *A Systematic Study of Hidden Sector Dark Matter: Application to the Gamma-Ray and Antiproton Excesses*, JHEP **07**, no.07, 163 (2020), [arXiv:1912.08821 [hep-ph]].

227. C. Blanco, M. Escudero, D. Hooper and S. J. Witte, *'Z' Mediated WIMPs: Dead, Dying, or Soon to be Detected?*, JCAP **11**, 024 (2019), [arXiv:1907.05893 [hep-ph]].

226. C. Blanco, M. S. Delos, A. L. Erickcek and D. Hooper, *Annihilation Signatures of Hidden Sector Dark Matter Within Early-Forming Microhalos*, Phys. Rev. D **100**, no.10, 103010 (2019), [arXiv:1906.00010 [astro-ph.CO]].

225. D. Hooper, G. Krnjaic and S. D. McDermott, *Dark Radiation and Superheavy Dark Matter From Black Hole Domination*, JHEP **08**, 001 (2019), [arXiv:1905.01301 [hep-ph]].

224. D. Hooper, S. Wegsman, C. Deaconu and A. Vieregg, *Superheavy Dark Matter and ANITA's Anomalous Events*, Phys. Rev. D **100**, no.4, 043019 (2019), [arXiv:1904.12865 [astro-ph.HE]].

223. I. Cholis, T. Linden and D. Hooper, *A Robust Excess in the Cosmic-Ray Antiproton Spectrum: Implications for Annihilating Dark Matter*, Phys. Rev. D **99**, no.10, 103026 (2019), [arXiv:1903.02549 [astro-ph.HE]].

222. C. Blanco, D. Hooper and P. Machado, *Constraining Sterile Neutrino Interpretations of the LSND and MiniBooNE Anomalies with Coherent Neutrino Scattering Experiments*, Phys. Rev. D **101**, no.7, 075051 (2020), [arXiv:1901.08094 [hep-ph]].

221. M. Escudero, D. Hooper, G. Krnjaic and M. Pierre, *Cosmology with A Very Light $L_\mu - L_\tau$ Gauge Boson*, JHEP **03**, 071 (2019), [arXiv:1901.02010 [hep-ph]].

220. D. Hooper, *TASI Lectures on Indirect Searches For Dark Matter*, PoS **TASI2018**, 010 (2019), [arXiv:1812.02029 [hep-ph]].

219. C. Blanco and D. Hooper, *Constraints on Decaying Dark Matter From the Isotropic Gamma-Ray Background*, JCAP **03**, 019 (2019), [arXiv:1811.05988 [astro-ph.HE]].

218. D. Hooper, T. Linden and A. Vieregg, *Active Galactic Nuclei and the Origin of IceCube's Diffuse Neutrino Flux*, JCAP **02**, 012 (2019), [arXiv:1810.02823 [astro-ph.HE]].

217. D. Hooper, G. Krnjaic, A. J. Long and S. D. Mcdermott, *Can the Inflaton Also Be a Weakly Interacting Massive Particle?*, Phys. Rev. Lett. **122**, no.9, 091802 (2019), [arXiv:1807.03308 [hep-ph]].

216. D. Hooper, *Life Versus Dark Energy: How An Advanced Civilization Could Resist the Accelerating Expansion of the Universe*, Phys. Dark Univ. **22**, 74-79 (2018), [arXiv:1806.05203 [astro-ph.CO]].

215. D. Hooper and T. Linden, *Millisecond Pulsars, TeV Halos, and Implications For The Galactic Center Gamma-Ray Excess*, Phys. Rev. D **98**, no.4, 043005 (2018), [arXiv:1803.08046 [astro-ph.HE]].

214. A. Berlin, D. Hooper, G. Krnjaic and S. D. McDermott, *Severely Constraining Dark Matter Interpretations of the 21-cm Anomaly*, Phys. Rev. Lett. **121**, no.1, 011102 (2018), [arXiv:1803.02804 [hep-ph]].

213. D. Hooper and S. D. McDermott, *Robust Constraints and Novel Gamma-Ray Signatures of Dark Matter That Interacts Strongly With Nucleons*, Phys. Rev. D **97**, no.11, 115006 (2018), [arXiv:1802.03025 [hep-ph]].

212. C. Blanco, J. P. Harding and D. Hooper, *Novel Gamma-Ray Signatures of PeV-Scale Dark Matter*, JCAP **04**, 060 (2018), [arXiv:1712.02805 [hep-ph]].

211. D. Hooper and T. Linden, *Measuring the Local Diffusion Coefficient with H.E.S.S. Observations of Very High-Energy Electrons*, Phys. Rev. D **98**, no.8, 083009 (2018), [arXiv:1711.07482 [astro-ph.HE]].

210. R. Bartels, D. Hooper, T. Linden, S. Mishra-Sharma, N. L. Rodd, B. R. Safdi and 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**, 88-94 (2018), [arXiv:1710.10266 [astro-ph.HE]].

209. T. L. Chou, D. Tanoglidis and D. Hooper, *Resolving Dark Matter Subhalos With Future Sub-GeV Gamma-Ray Telescopes*, Phys. Dark Univ. **21**, 1-7 (2018), [arXiv:1709.08562 [hep-ph]].

208. M. Escudero, S. J. Witte and D. Hooper, *Hidden Sector Dark Matter and the Galactic Center Gamma-Ray Excess: A Closer Look*, JCAP **11**, 042 (2017), [arXiv:1709.07002 [hep-ph]].

207. C. Blanco and D. Hooper, *High-Energy Gamma Rays and Neutrinos From Nearby Radio Galaxies*, JCAP **12**, 017 (2017), [arXiv:1706.07047 [astro-ph.HE]].

206. D. Hooper, I. Cholis and T. Linden, *TeV Gamma Rays From Galactic Center Pulsars*, Phys. Dark Univ. **21**, 40-46 (2018), [arXiv:1705.09293 [astro-ph.HE]].

205. T. Linden, K. Auchettl, J. Bramante, I. Cholis, K. Fang, D. Hooper, T. Karwal and S. W. Li, *Using HAWC to Discover Invisible Pulsars*, Phys. Rev. D **96**, no.10, 103016 (2017), [arXiv:1703.09704 [astro-ph.HE]].

204. D. Hooper, I. Cholis, T. Linden and K. Fang, *HAWC Observations Strongly Favor Pulsar Interpretations of the Cosmic-Ray Positron Excess*, Phys. Rev. D **96**, no.10, 103013 (2017), [arXiv:1702.08436 [astro-ph.HE]].

203. I. Cholis, D. Hooper and T. Linden, *Possible Evidence for the Stochastic Acceleration of Secondary Antiprotons by Supernova Remnants*, Phys. Rev. D **95**, no.12, 123007 (2017), [arXiv:1701.04406 [astro-ph.HE]].

202. D. Haggard, C. Heinke, D. Hooper and T. Linden, *Low Mass X-Ray Binaries in the Inner Galaxy: Implications for Millisecond Pulsars and the GeV Excess*, JCAP **05**, 056 (2017), [arXiv:1701.02726 [astro-ph.HE]].

201. M. Escudero, D. Hooper and S. J. Witte, *Updated Collider and Direct Detection Constraints on Dark Matter Models for the Galactic Center Gamma-Ray Excess*, JCAP **02**, 038 (2017), [arXiv:1612.06462 [hep-ph]].

200. D. Hooper and S. J. Witte, *Gamma Rays From Dark Matter Subhalos Revisited: Refining the Predictions and Constraints*, JCAP **04**, 018 (2017), [arXiv:1610.07587 [astro-ph.HE]].

199. A. Berlin and D. Hooper, *Axion-Assisted Production of Sterile Neutrino Dark Matter*, Phys. Rev. D **95**, no.7, 075017 (2017), [arXiv:1610.03849 [hep-ph]].

198. M. Escudero, A. Berlin, D. Hooper and M. X. Lin, *Toward (Finally!) Ruling Out Z and Higgs Mediated Dark Matter Models*, JCAP **12**, 029 (2016), [arXiv:1609.09079 [hep-ph]].

197. A. Berlin, D. Hooper and G. Krnjaic, *Thermal Dark Matter From A Highly Decoupled Sector*, Phys. Rev. D **94**, no.9, 095019 (2016), [arXiv:1609.02555 [hep-ph]].

196. D. Hooper, *The Density of Dark Matter in the Galactic Bulge and Implications for Indirect Detection*, Phys. Dark Univ. **15**, 53-56 (2017), [arXiv:1608.00003 [astro-ph.HE]].

195. D. Hooper and T. Linden, *The Gamma-Ray Pulsar Population of Globular Clusters: Implications for the GeV Excess*, JCAP **08**, 018 (2016), [arXiv:1606.09250 [astro-ph.HE]].

194. D. Hooper, *A Case for Radio Galaxies as the Sources of IceCube's Astrophysical Neutrino Flux*, JCAP **09**, 002 (2016), [arXiv:1605.06504 [astro-ph.HE]].

193. G. Bertone and D. Hooper, *History of Dark Matter*, Rev. Mod. Phys. **90**, no.4, 045002 (2018), [arXiv:1605.04909 [astro-ph.CO]].

192. D. Hooper, T. Linden and A. Lopez, *Radio Galaxies Dominate the High-Energy Diffuse Gamma-Ray Background*, JCAP **08**, 019 (2016), [arXiv:1604.08505 [astro-ph.HE]].

191. A. Berlin, P. J. Fox, D. Hooper and G. Mohlabeng, *Mixed Dark Matter in Left-Right Symmetric Models*, JCAP **06**, 016 (2016), [arXiv:1604.06100 [hep-ph]].

190. A. Berlin, D. Hooper and G. Krnjaic, *PeV-Scale Dark Matter as a Thermal Relic of a Decoupled Sector*, Phys. Lett. B **760**, 106-111 (2016), [arXiv:1602.08490 [hep-ph]].

189. B. Bertoni, D. Hooper and T. Linden, *Is The Gamma-Ray Source 3FGL J2212.5+0703 A Dark Matter Subhalo?*, JCAP **05**, 049 (2016), [arXiv:1602.07303 [astro-ph.HE]].

188. D. Hooper and G. Mohlabeng, *The Gamma-Ray Luminosity Function of Millisecond Pulsars and Implications for the GeV Excess*, JCAP **03**, 049 (2016), [arXiv:1512.04966 [astro-ph.HE]].

187. A. A. Kaurov, D. Hooper and N. Y. Gnedin, *The Effects of Dark Matter Annihilation on Cosmic Reionization*, Astrophys. J. **833**, no.2, 162 (2016), [arXiv:1512.00526 [astro-ph.CO]].

186. I. Cholis, D. Hooper and T. Linden, *A Predictive Analytic Model for the Solar Modulation of Cosmic Rays*, Phys. Rev. D **93**, no.4, 043016 (2016), [arXiv:1511.01507 [astro-ph.SR]].

185. A. Berlin, D. Hooper and S. D. McDermott, *Dark matter Elastic Scattering Through Higgs Loops*, Phys. Rev. D **92**, no.12, 123531 (2015), [arXiv:1508.05390 [hep-ph]].

184. H. Davoudiasl, D. Hooper and S. D. McDermott, *Inflatable Dark Matter*, Phys. Rev. Lett. **116**, no.3, 031303 (2016), [arXiv:1507.08660 [hep-ph]].

183. A. DiFranzo and D. Hooper, *Searching for MeV-Scale Gauge Bosons with IceCube*, Phys. Rev. D **92**, no.9, 095007 (2015), [arXiv:1507.03015 [hep-ph]].

182. I. Cholis, C. Evoli, F. Calore, T. Linden, C. Weniger and D. Hooper, *The Galactic Center GeV Excess From a Series of Leptonic Cosmic-Ray Outbursts*, JCAP **12**, 005 (2015), [arXiv:1506.05119 [astro-ph.HE]].

181. A. M. Taylor, M. Ahlers and D. Hooper, *Indications of Negative Evolution for the Sources of the Highest Energy Cosmic Rays*, Phys. Rev. D **92**, no.6, 063011 (2015), [arXiv:1505.06090 [astro-ph.HE]].

180. B. Bertoni, D. Hooper and T. Linden, *Examining The Fermi-LAT Third Source Catalog In Search Of Dark Matter Subhalos*, JCAP **12**, 035 (2015), [arXiv:1504.02087 [astro-ph.HE]].

179. D. Hooper and T. Linden, *On The Gamma-Ray Emission From Reticulum II and Other Dwarf Galaxies*, JCAP **09**, 016 (2015), [arXiv:1503.06209 [astro-ph.HE]].

178. A. Berlin, A. DiFranzo and D. Hooper, *3.55 keV Line From Exciting Dark Matter Without a Hidden Sector*, Phys. Rev. D **91**, no.7, 075018 (2015), [arXiv:1501.03496 [hep-ph]].

177. D. Hooper, *Z' Mediated Dark Matter Models for the Galactic Center Gamma-Ray Excess*, Phys. Rev. D **91**, 035025 (2015), [arXiv:1411.4079 [hep-ph]].

176. D. Hooper, T. Linden and P. Mertsch, *What Does The PAMELA Antiproton Spectrum Tell Us About Dark Matter?*, JCAP **03**, 021 (2015), [arXiv:1410.1527 [astro-ph.HE]].

175. E. Carlson, D. Hooper and T. Linden, *Improving the Sensitivity of Gamma-Ray Telescopes to Dark Matter Annihilation in Dwarf Spheroidal Galaxies*, Phys. Rev. D **91**, no.6, 061302 (2015), [arXiv:1409.1572 [astro-ph.HE]].

174. I. Cholis, D. Hooper and T. Linden, *A Critical Reevaluation of Radio Constraints on Annihilating Dark Matter*, Phys. Rev. D **91**, no.8, 083507 (2015), [arXiv:1408.6224 [astro-ph.HE]].

173. I. Cholis, D. Hooper and T. Linden, *A New Determination of the Spectra and Luminosity Function of Gamma-Ray Millisecond Pulsars*, [arXiv:1407.5583 [astro-ph.HE]].

172. I. Cholis, D. Hooper and T. Linden, *Challenges in Explaining the Galactic Center Gamma-Ray Excess with Millisecond Pulsars*, JCAP **06**, 043 (2015), [arXiv:1407.5625 [astro-ph.HE]].

171. A. Berlin, P. Gratia, D. Hooper and S. D. McDermott, *Hidden Sector Dark Matter Models for the Galactic Center Gamma-Ray Excess*, Phys. Rev. D **90**, no.1, 015032 (2014), [arXiv:1405.5204 [hep-ph]].

170. P. Agrawal, B. Batell, D. Hooper and T. Lin, *Flavored Dark Matter and the Galactic Center Gamma-Ray Excess*, Phys. Rev. D **90**, no.6, 063512 (2014), [arXiv:1404.1373 [hep-ph]].

169. A. Berlin, D. Hooper and S. D. McDermott, *Simplified Dark Matter Models for the Galactic Center Gamma-Ray Excess*, Phys. Rev. D **89**, no.11, 115022 (2014), [arXiv:1404.0022 [hep-ph]].

168. T. Daylan, D. P. Finkbeiner, D. Hooper, T. Linden, S. K. N. Portillo, N. L. Rodd and T. R. Slatyer, *The Characterization of the Gamma-Ray Signal From the Central Milky Way: A Case for Annihilating Dark Matter*, Phys. Dark Univ. **12**, 1-23 (2016), [arXiv:1402.6703 [astro-ph.HE]].

167. J. L. Feng, S. Ritz, J. J. Beatty, J. Buckley, D. F. Cowen, P. Cushman, S. Dodelson, C. Galbiati, K. Honscheid and D. Hooper, *et al.*, *Planning the Future of U.S. Particle Physics (Snowmass 2013): Chapter 4: Cosmic Frontier*, [arXiv:1401.6085 [hep-ex]].

166. L. A. Anchordoqui, V. Barger, I. Cholis, H. Goldberg, D. Hooper, A. Kusenko, J. G. Learned, D. Marfatia, S. Pakvasa and T. C. Paul, *et al. Cosmic Neutrino Pevatrons: A Brand New Pathway to Astronomy, Astrophysics, and Particle Physics*, JHEAp **1-2**, 1-30 (2014), [arXiv:1312.6587 [astro-ph.HE]].

165. I. Cholis and D. Hooper, *Constraining the Origin of the Rising Cosmic Ray Positron Fraction with the Boron-to-Carbon Ratio*, Phys. Rev. D **89**, no.4, 043013 (2014), [arXiv:1312.2952 [astro-ph.HE]].

164. I. Cholis, D. Hooper and S. D. McDermott, *Dissecting the Gamma-Ray Background in Search of Dark Matter*, JCAP **02**, 014 (2014), [arXiv:1312.0608 [astro-ph.CO]].

163. S. Arrenberg, H. Baer, V. Barger, L. Baudis, D. Bauer, J. Buckley, M. Cahill-Rowley, R. Cotta, A. Drlica-Wagner and J. L. Feng, *et al.*, *Snowmass Working Group Report: Dark Matter Complementarity*, [arXiv:1310.8621 [hep-ph]].

162. C. He, K. Bechtol, A. P. Hearin and D. Hooper, *Prospects for Detecting Gamma Rays From Annihilating Dark Matter in Dwarf Galaxies in the Era of the Dark Energy Survey and Large Synoptic Survey Telescope*, Phys. Rev. D **91**, no.6, 063515 (2015), [arXiv:1309.4780 [astro-ph.HE]].

161. A. Berlin and D. Hooper, *Stringent Constraints on the Dark Matter Annihilation Cross Section From Subhalo Searches with the Fermi Gamma-Ray Space Telescope*, Phys. Rev. D **89**, no.1, 016014 (2014), [arXiv:1309.0525 [hep-ph]].

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9. D. Hooper, *Measuring High-Energy Neutrino-Nucleon Cross-Sections with Future Neutrino Telescopes*, Phys. Rev. D **65**, 097303 (2002), [arXiv:hep-ph/0203239 [hep-ph]].

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5. V. D. Barger, F. Halzen, D. Hooper and C. Kao, *Indirect Search for Neutralino Dark Matter with High-Energy Neutrinos*, Phys. Rev. D **65**, 075022 (2002), [arXiv:hep-ph/0105182 [hep-ph]].

4. D. W. Hooper, *Gamma-Rays From Near Solar WIMP Annihilations*, [arXiv:hep-ph/0103277 [hep-ph]].

3. D. Hooper, *Indirect Detection of Neutralino Dark Matter up to the TeV Scale*, Nucl. Phys. B Proc. Suppl. **101**, 347-356 (2001), [arXiv:hep-ph/0102011 [hep-ph]].

2. J. Alvarez-Muniz, F. Halzen and D. W. Hooper, *High-Energy Neutrinos From Gamma-Ray Bursts: Event Rates in Neutrino Telescopes*, Phys. Rev. D **62**, 093015 (2000), [arXiv:astro-ph/0006027 [astro-ph]].

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Popular Science Publications

What is the Standard Model of Particle Physics and why are Scientists Looking Beyond it?
Astronomy 19 May, 2022

The Beginning of the End of the Universe: It Started With a Bang
Astronomy 7 Jan, 2021

Four Puzzles That Tell Us a Cosmological Revolution is Coming
New Scientist 22 July, 2020

Is the Big Bang in Crisis?
Astronomy 14 May, 2020

To Understand Our Universe, Look to its First Moments
BBC Science Focus 8 Feb, 2020

Will We Ever Find Dark Matter in the Universe?
Time Magazine 6 Dec, 2019

Why Dark Matter's No-Show Could Mean a Big Bang Rethink
New Scientist 13 Nov, 2019

A Well-Deserved Physics Nobel
Scientific American 12 Oct, 2019

How Will Our Species Survive in an Ever-Expanding Universe?
Scientific American 11 July, 2018

The Relentless Hunt for Dark Matter
Physics 30 Oct, 2017

The Mystery Substance Physics Still Can't Identify That Makes Up the Majority of Our Universe
The Conversation 13 Oct, 2017

Spot marks the "X"
The Economist 11 Nov, 2015

Instant Expert: Dark Matter
New Scientist 2 Nov, 2011

Conference Talks

The Status of the Galactic Center Gamma-Ray Excess
TeV Particle Astrophysics Workshop (TeVPA) 2023
Naples, Italy — Sept 2023

Pondering Cosmic Rays with Subir
SubirFest
University of Oxford, UK — Sept 2023

The Status of the Galactic Center Gamma-Ray Excess
Nobel Symposium on Dark Matter
Ranas Slott, Sweden — Aug 2023

The Status of the Galactic Center Gamma-Ray Excess
LCTP Symposium on Astrophysical Signatures of Dark Matter
University of Michigan, Ann Arbor, USA — May 2023

The Status of the Galactic Center Gamma-Ray Excess
New Lampposts for Dark Matter and BSM Workshop
Simons Center for Geometry and Physics, Stony Brook, USA — March 2023

The Status of the Galactic Center Gamma-Ray Excess
TeV Particle Astrophysics Workshop (TeVPA) 2022
Queens University, Kingston, Canada — Aug 2022

Signals of Annihilating Dark Matter
Invited Talk, PASCOS 2022
Max Planck Institute for Nuclear Physics, Heidelberg, Germany — July 2022

The Status of the Galactic Center Gamma-Ray Excess
Identification of Dark Matter 2022
Vienna, Germany — July 2022

Signals of Annihilating Dark Matter
Invited Talk, Particle Physics and Cosmology (PPC) 2022
Washington University, Saint Louis, USA — June 2022

New Eras in Astro-Particle Physics
Invited Talk, Pheno 2022 Symposium
University of Pittsburg, USA — May 2022

Dark Matter, Pulsars, and the Galactic Center Gamma-Ray Excess
Invited Talk, Beyond the Standard Model Workshop (Virtual)
Chung-Ang University, Seoul, Korea — Feb 2022

Dark Matter, Pulsars, and the Galactic Center Gamma-Ray Excess
Invited Talk, AstroDark 2021 (Virtual) Workshop
IMPU, Tokyo, Japan — Dec 2021

Dark Matter and Dark Radiation from Black Holes in the Early Universe
Invited Talk, Astrophysical Windows on Dark Matter Workshop
The Royal Society, London, UK Nov 2021

Hidden Sector WIMPs
Invited Talk, New Directions in Heavy Dark Matter Workshop
DESY, Hamburg, Germany Feb 2020

Revisiting the Status of WIMP Dark Matter
Antideuteron Workshop
UCLA, Los Angeles, USA Oct 2019

Dark Radiation and Dark Matter from Primordial Black Holes
Invited Talk, GGI Dark Matter Workshop
GGI Institute, Florence, Italy Sept 2019

Hidden Sector WIMPs
Invited Talk, Signals of Dark Matter in its Natural Habitat Workshop
TRIUMF, Vancouver, Canada Mar 2019

Signals of Dark Matter
Invited Talk, Workshop on Direct Detection
Peking University, Beijing, China Feb 2019

The WIMP is Dead! Long Live the WIMP!
Invited Talk, Light Dark World Workshop 2018
KAIST, Daejeon, Korea Dec 2018

The Galactic Center Gamma-Ray Excess and its Interpretations
TeV Particle Astrophysics Workshop (TeVPA) 2018
Berlin, Germany Aug 2018

The Galactic Center Gamma-Ray Excess and its Interpretations: A Status Report
Identification of Dark Matter (IDM) Workshop 2018
Providence, USA July 2018

In Defense of Dark Matter
Invited Talk, KITP Conference on Dark Matter Detection & Detectability
Santa Barbara, USA April 2018

Pulsars and the Galactic Center Gamma-Ray Excess
UCLA Dark Matter Meeting
UCLA, Los Angeles, USA Feb 2018

The WIMP is Dead! Long Live the WIMP!
Invited Talk, Lake Louise Winter Institute
Lake Louise, Canada Feb 2018

The Status of WIMP Dark Matter
Developing New Tools for Dark Matter Searches Workshop
Aspen Center for Physics, Aspen, USA Aug 2017

Nearby Pulsars and the Cosmic-Ray Positron Excess
TeV Particle Astrophysics Workshop 2017
Columbus, USA Aug 2017

Conference Summary
Invited Talk, Particle Physics and Cosmology (PPC) 2017
Corpus Christi, USA May 2017

Nearby Pulsars and the Cosmic-Ray Positron Excess
IceCube Particle Astrophysics Symposium
Madison, USA May 2017

The Status of the Indirect Detection of Dark Matter
Invited Talk, Origin of Mass Workshop
Odense, Denmark May 2017

The Future of the Indirect Detection of Dark Matter
Invited Talk, Royal Society Workshop on Dark Matter
Chicheley Hall, UK May 2017

The Status of the Indirect Detection of Dark Matter
Invited Talk, Bethe Center Particle Physics Meets Cosmology Workshop
Bad Honef, Germany Oct 2016

Dark Matter Annihilation in the Galactic Center
Invited Talk, IAU Workshop on the Galactic Center
Cairns, Australia July 2016

Dark Matter Annihilation in the Galactic Center
UCLA Dark Matter Workshop
Los Angeles, USA Feb 2016

Dark Matter Annihilation in the Galactic Center
Invited Talk, Dark Matter Cairo Workshop
Cairo, Egypt Dec 2015

The Case for a Dark Matter Interpretation of the Galactic Center Excess
Invited Talk, Gamma Rays and Dark Matter Workshop
Obergurgl, Austria Dec 2015

Searching for Dark Matter Subhalos with Fermi
University of Chicago Dark Matter Hub Meeting
Chicago, USA Nov 2015

The Search for Dark Matter's Particle Identity (Circa 2015)
Invited Talk, DESY Theory Workshop Workshop
Hamburg, Germany Sept 2015

Dark Matter Annihilation in the Galactic Center
Invited Talk, Inνisibles15 Workshop
Madrid, Spain June 2015

The Search for Dark Matter's Particle Identity (Circa 2015)
Invited Talk, 48th Annual Fermilab Users Meeting
Batavia, USA June 2015

The Case for a Dark Matter Interpretation of the Galactic Center Excess
Invited Talk, Extended Workshop on Identification of Dark Matter
Madrid, Spain May 2015

Dark Matter Annihilation in the Galactic Center
Fermi Symposium
Nagoya, Japan Oct 2014

The Search for Annihilating Dark Matter
Invited talk, IBS-MultiDark Joint Focus Program on WIMPs and Axions
Daejeon, South Korea Oct 2014

Dark Matter Annihilation in the Galactic Center
Invited talk, Michigan Dark Matter Workshop
University of Michigan, Ann Arbor, US Sept 2014

Anomalies in the Indirect Detection of Dark Matter
SLAC Summer Institute, Shining Light on Dark Matter
SLAC, Menlo Park, USA Aug 2014

Conference Summary
Invited Summary Talk, Joint TeV Particle Astrophysics/Identification of Dark Matter Workshop
Amsterdam, Netherlands June 2014

Dark Matter Annihilation in the Galactic Center
Invited Talk, Dark Interactions Workshop
Brookhaven National Laboratory, USA June 2014

Dark Matter Annihilation in the Galactic Center
Invited talk, CIFIR Cosmology and Gravity Program Meeting
Quebec City, Canada May 2014

Dark Matter Annihilation in the Galactic Center
Invited talk, Sackler Debates on the Nature of Dark Matter
Harvard/CfA, Boston, USA May 2014

Dark Matter Annihilation in the Galactic Center
Invited talk, New Perspectives on Dark Matter
Fermilab, Batavia, USA April 2014

Anomalous Gamma-Ray Emission from the Central Milky Way: A Compelling Case for Annihilating Dark Matter
UCLA Dark Matter Workshop
UCLA, Los Angeles, USA Feb 2014

Dark Matter Annihilation in the Galactic Center and Inner Galaxy
Invited talk, Violent Universe Workshop
Institute for Physics, London, England Nov 2013

Dark Matter Annihilation in the Galactic Center and Inner Galaxy
Invited talk, The Dark Matter Paradigm, Status and Challenges Workshop
Princeton, USA Oct 2013

Dark Matter Annihilation in the Galactic Center and Inner Galaxy
Invited talk, What are we Learning from the Gamma-Ray Sky Workshop
Minneapolis, USA Oct 2013

Dark Matter in the Coming Decade: Complementary Paths to Discovery and Beyond
Community Summer Study (Snowmass 2013), CF4 Summary Talk
Minneapolis, USA Aug 2013

Dark Matter in the Discovery Age
Invited talk, Planck 2013 Workshop
Bonn, Germany May 2013

Gamma Rays From Dark Matter in the Galactic Center and in the Inner Galaxy
Invited talk, University of Michigan Dark Matter Workshop
University of Michigan, Ann Arbor, USA April 2013

Indirect Searches for Dark Matter in the Discovery Age
Closing in on Dark Matter Workshop
Aspen, USA Jan 2013

Dark Matter and Galactic Center Gamma Rays
TeV Particle-Astrophysics 2012 Workshop
Mumbai, India Dec 2012

Searching for Dark Matter in the Discovery Age
7th TeV Scale Physics Workshop, Tshinghua Univeristy
Beijing, China Nov 2012

Lectures on Particle Dark Matter
DPG School on Heavy Particles at the LHC
Bad Honef, Germany Sept 2012

Searching for Dark Matter in the Discovery Age
Aspen Center for Physics, Physics Colloquium
Aspen, USA Aug 2012

Lectures on Particle Dark Matter
SLAC Summer Institute
SLAC, Menlo Park, USA July 2012

Dark Forces and Light Dark Matter
PATRAS Workshop
Chicago, USA July 2012

Indirect Evidence For Light WIMPs
SnowDOG Workshop
Salt Lake City, USA April 2012

Dark Matter in the Discovery Age
Fermilab Dark Matter Workshop, Opening Talk,
Fermilab, Batavia, USA April 2012

Indirect Evidence For Light WIMPs
UCLA Dark Matter Workshop,
Marina Del Ray, USA Feb 2012

Indirect Evidence For Light Dark Matter
University of Pittsburg Light Dark Matter Workshop
Pittsburg, USA Nov 2011

Light WIMPs!
SUSY 2011 Workshop
Chicago, USA Sept 2011

Closing In On Dark Matter
Dark Workshop
Copenhagen, Denmark Aug 2011

Light WIMPs!
TeV Particle Astrophysics 2011 Workshop
Stockholm, Sweden Aug 2011

Closing In On Dark Matter
April Americal Physical Society, Plenary Talk
Annaheim, USA May 2011

The Observational Case For 8-10 GeV Dark Matter
Princeton Dark Matter Direct Detection Workshop
Princeton, USA Nov 2010

Indirect Searches For Dark Matter
Darkness Visible Workshop
Cambridge, England Aug 2010

Dark Matter Subhalos In The First Fermi Source Catalog
Identification of Dark Matter (IDM) 2010 Workshop
Montpellier, France July 2010

Dark Matter Subhalos In The First Fermi Source Catalog
TeV Particle-Astrophysics IV Workshop
Paris, France July 2010

Gamma Ray Searches For Dark Matter
2010 UCLA Dark Matter Workshop
UCLA, Los Angeles, USA Feb 2010

Recent Developments in the Indirect Detection of Dark Matter
Focus Week on Indirect Dark Matter Searches
University of Tokyo (IPMU), Japan Dec 2009

Did Dark Matter Annihilations Reionize The Universe?
New Lights on Dark Matter Conference
Perimeter Institute, Waterloo, Canada June 2009

Direct and Indirect Searches For Particle Dark Matter (The discovery era begins)
Invited Talk, Pheno 2007 Symposium
University of Wisconsin, Madison, USA May 2009

Direct and Indirect Searches For Particle Dark Matter (The discovery era begins)
Invited Talk, American Physical Society Meeting
Denver, USA May 2009

Particle Dark Matter and Charged Cosmic Rays
Understanding the Dark Sector: Dark Matter and Dark Energy
Aspen Center for Physics, Aspen, USA April 2009

Opening Talk/Introduction
Detecting Dark Matter in the Milky Way Workshop
Case Western Reserve University, Cleveland, USA April 2009

Particle Dark Matter and Charged Cosmic Rays
Shedding Light on Dark Matter Workshop
University of Maryland, College Park, USA Mar 2009

Particle Dark Matter and Charged Cosmic Rays
International Linear Collider Workshop
University of Illinois, Chicago, USA Nov 2008

Particle Dark Matter and Charged Cosmic Rays
KICP Workshop on High Energy Astrophysics Experiments & Cosmological Physics
University of Chicago, Chicago, USA Oct 2008

Direct and Indirect Searches For Particle Dark Matter
Invited Talk, COSMO 2008
University of Wisconsin, Madison, USA Aug 2008

Dark Matter Annihilations in the WMAP Sky
Identification of Dark Matter 2008 Conference
University of Stockholm, Sweden Aug 2008

Dark Matter Annihilations in the WMAP Sky
UCLA Dark Matter 2008 Conference
University of California, Los Angeles (UCLA), USA Feb 2008

Dark Matter Annihilations in the WMAP Sky
Royal Astronomy Society Meeting on Dark matter
Royal Astronomy Society, London, England Nov 2007

Dark Matter Annihilations in the WMAP Sky
Dark Matter and Colliders Ultra-Mini Workshop
University of Edinburgh, Scotland Nov 2007

The First Extragalactic High Energy Neutrinos
TeV Astroparticle Physics III Workshop
Istituto Veneto, Venice, Italy Aug 2007

Indirect Searches For Particle Dark Matter
Invited talk, SUSY 2007
University of Karlsruhe, Germany July 2007

The Hunt For The Identity of Dark Matter
Fermilab User's Meeting
Fermilab, USA May 2007

Exotic Physics With The First High Energy Cosmic Neutrinos
Invited talk, PPC 2007 Workshop
Texas A&M University, College Station, USA May 2007

The Hunt For Dark Matter: Conference Summary
The Hunt For Dark Matter Workshop
Fermilab, USA May 2007

The Small Scale Structure of MeV Dark Matter
Pheno 2007 Symposium,
University of Wisconsin, Madison, USA May 2007

The Small Scale Structure of MeV Dark Matter
Midwest Theory Conference
University of Kansas, Lawrence, USA April 2007

Ultrahigh Energy Cosmic Ray Nuclei and Neutrinos
Aspen Workshop on Cosmic Rays April 2007
Aspen, USA April 2007

The Small Scale Structure of MeV Dark Matter
Astrophysical Probes of the Nature of Dark Matter Workshop
University of California, Irvine, USA Mar 2007

Exotic Physics With The First High Energy Neutrinos
Aspen 2007 Meeting on Neutrinos in Physics and Astrophysics
Aspen, USA Jan 2007

The Hunt For Dark Matter
XII-th IFT-Christmas Workshop
Instituto de Fisica Teorica, Madrid, Spain Dec 2006

Kaluza-Klein Dark Matter
Exotic Neutrino Workshop
Uppsala, Sweden Sept 2006

Direct and Indirect Detection and Supersymmetry
Identification of Dark Matter 2006
Rhodes, Greece Sept 2006

Neutrino Astronomy Working Group Summary Talk
TeV Particle-Astrophysics II Workshop
University of Wisconsin, Madison, USA Aug 2006

Determining SUSY Parameters Using Dark Matter
TeV Particle-Astrophysics II Workshop
University of Wisconsin, Madison, USA Aug 2006

Cosmology and the International Linear Collider, Summary Talk
Vancouver Linear Collider Workshop
University of British Columbia, Vancouver, Canada July 2006

What Can We Learn About Supersymmetry From Astrophysics Experiments?
Cosmo/Astro Mini-Workshop
University of Oregon, Eugene, USA May 2006

Implications of Direct Dark Matter Experiments for MSSM Higgs Searches at the Tevatron
Pheno 2006 Symposium
University of Wisconsin, Madison, USA May 2006

Probing Supersymmetric Parameters With Astrophysical Observations
Dark Matter 2006 Conference
UCLA, Los Angeles, USA Feb 2006

Lecture Series on Particle Dark Matter and its Detection
4th KAIST-KIAS Workshop on Particle Physics and Cosmology
Korea Institute for Advanced Study (KIAS), Seoul, South Korea Oct 2005

Probing Exotic Physics With Cosmic Neutrinos
From Colliders to Cosmic Rays 2005 Workshop
Prague, Czech Republic Sept 2005

Annihilation of Heavy Dark Matter in the Galactic Center
GLAST Collaboration Workshop
SLAC, Menlo Park, USA Aug 2005

Lecture Series on Particle Dark Matter and its Detection
6th APC Summer School
Paris, France June 2005

Annihilation of Heavy Dark Matter in the Galactic Center
5th International APC Workshop
Paris, France June 2005

Hot on the Trail of Particle Dark Matter: Indirect Searches
Invited Talk, UK High Energy Physics Forum - Dark Matter
Abingdon, UK May 2005

Unexplained Astrophysics? Hints of Dark Matter?
Invited Talk, SUSY Research Meeting (GDR)
Grenoble, France April 2005

Particle Dark Matter: Alternatives to Superpartners
European Network of Theoretical Astroparticle Physics Dark Matter Visitor's Programme
CERN, Switzerland Jan 2005

Recent Developments in Indirect Searches for Dark Matter
The Search for Dark Matter and Dark Energy in the Universe: Royal Society Meeting
Royal Society, London, UK Nov 2004

Neutrino Telescopes and Dark Matter: Beyond Neutralinos
IceCube/AMANDA collaboration meeting
Uppsala, Sweden Oct 2004

Indirect Searches for Kaluza-Klein Dark Matter
Identification of Dark Matter 2004
Edinburgh, Scotland Sept 2004

Indirect Searches for Kaluza-Klein Dark Matter
New Trends in Particle Physics and Cosmology Summer Workshop
University of Sheffield, UK Sept 2004

Kaluza-Klein Dark Matter and the Positron Excess
Pheno 2004 Symposium
University of Wisconsin, Madison, USA April 2004

High-Energy Neutrino Astrophysics
Invited Talk, Cracow Epiphany Conference on Astroparticle Physics
Cracow, Poland Jan 2004

Dark Matter in Little Higgs Models
Oxford-Princeton Cosmology Workshop
University of Oxford, UK Jan 2004

Detection of MeV Dark Matter? Astrophysics and Particle Physics Implications
Workshop on Dark Matter and Dark Energy
Physikzentrum in Bad Honnef, Germany Dec 2003

The Possibility of MeV Dark Matter
UK Cosmology Meeting
University of Portsmith, UK Nov 2003

Limits on Supersymmetric Dark Matter From EGRET Observations Of The Galactic Center Region
COSMO 2003
Lake District, UK Aug 2003

Limits on Supersymmetric Dark Matter From EGRET Observations Of The Galactic Center Region
Pheno 2003 Symposium
University of Wisconsin, Madison, USA May 2003

Limits on Supersymmetric Dark Matter From EGRET Observations of the Galactic Center Region
34th COSPAR Scientific Assembly
Houston, USA Oct 2002

Neutrinos Associated With Cosmic Rays of Top-Down Origin
COSMO 2002
University of Chicago, Chicago, USA Sept 2002

Observing Microscopic Black Holes In Neutrino Telescopes
Pheno 2002 Symposium
University of Wisconsin, Madison, USA April 2002

Neutrinos From The Decay Or Annihilation Of Superheavy Dark Matter Particles
Dark Matter 2002 Conference
UCLA, Los Angeles, USA Feb 2002

Supersymmetry And Extra Dimensions With Neutrino Telescopes
SUSY and Extra Dimensions Workshop
Argonne National Lab, USA June 2001

Phenomenology Of High-Energy Neutrinos In Models With Low Energy Quantum Gravity
Pheno 2001 Symposium
University of Wisconsin, Madison, USA May 2001

High-Energy Neutrino Signals From Gamma-Ray Bursts
Frontiers In Contemporary Physics II Workshop
Vanderbilt University, Nashville, USA March 2001

TeV Supersymmetric Dark Matter And Indirect Detection
30 Years of Supersymmetry Workshop
University of Minnesota, Minneapolis, USA Oct 2000

Seminars and Colloquia	*The Galactic Center Gamma-Ray Excess* Caltech, Physics Colloquium	April 2023
	The Galactic Center Gamma-Ray Excess University of California, Davis, Physics Colloquium	Jan 2023
	Dark Matter, Pulsars, and the Galactic Center Gamma-Ray Excess University of Michigan, Physics Colloquium	March 2022
	Dark Matter, Pulsars, and the Galactic Center Gamma-Ray Excess Copernicus (Virtual) Colloquium Series	Nov 2022
	Black Holes in the Early Universe Peking University Center for High Energy Physics, (Virtual) Colloquium	Oct 2021
	Why I'm Excited About WIMPs Texas A&M, Physics Colloquium	Sept 2021
	Black Holes in the Early Universe Texas A&M, Theory Seminar	Sept 2021
	Why I'm Excited About WIMPs LZ Collaboration All Hands Meeting (Virtual)	Apr 2021
	Dark Matter, Pulsars, and the Galactic Center Gamma-Ray Excess SLAC EPP Theory Seminar	Apr 2021
	Black Holes in the Early Universe Gran Sasso Science Institute, Astroparticle Colloquium (Virtual)	Feb 2021
	Black Holes in the Early Universe Northern Illinois University, Physics Colloquium (Virtual)	Feb 2021
	Black Holes in the Early Universe University of Texas, Austin, Theory Seminar (Virtual)	Sept 2020
	Black Holes in the Early Universe Fermilab, Colloquium (Virtual)	April 2020
	The WIMP is Dead! Long Live the WIMP! DESY Hamburg, Particle and Astroparticle Physics Colloquium	Feb 2020
	Dark Radiation and Dark Matter from Black Holes in the Early Universe Rutgers University, High-Energy Physics Seminar	Dec 2019
	Dark Radiation and Dark Matter from Black Holes in the Early Universe New York University, High-Energy Physics Seminar	Nov 2019

The WIMP is Dead! Long Live the WIMP!
Indiana University, Physics Colloquium — Feb 2019

The WIMP is Dead! Long Live the WIMP!
University of Oregon, ITS/CHEP Seminar — Feb 2019

Could the Inflaton also be the Dark Matter
Wichita State University, Physics Seminar — Oct 2018

Could the Inflaton also be the Dark Matter
University of Michigan, Physics Colloquium — Sept 2018

The WIMP is Dead! Long Live the WIMP!
Case Western Reserve University, Physics Colloquium — Sept 2018

The WIMP is Dead! Long Live the WIMP!
Brown University, Physics Colloquium — April 2018

The WIMP is Dead! Long Live the WIMP!
Carnegie Observatories, Colloquium — Jan 2018

HAWC, Nearby Pulsars and Implications for the High-Energy Universe
Penn State, High-Energy Physics Seminar — Dec 2017

The WIMP is Dead! Long Live the WIMP!
University of Chicago, Astronomy and Astrophysics Colloquium — Nov 2017

The WIMP is Dead! Long Live the WIMP!
Lawrence Berkeley National Laboratory, High-Energy Theory Seminar — Oct 2017

The WIMP is Dead! Long Live the WIMP!
Harvard Center for Astrophysics, Colloquium — Oct 2017

HAWC, Pulsars and the Cosmic-Ray Positron Excess
Harvard University, ITC Luncheon Talk — Oct 2017

HAWC, Pulsars and the Cosmic-Ray Positron Excess
Los Alamos National Laboratory, Physics and Theory Division Colloquium — Oct 2017

The Galactic Center Gamma-Ray Excess
University of Oxford, Particle Theory Seminar — April 2017

New Insights Into the Cosmic-Ray Positron Excess
Fermilab, Particle-Astrophysics Seminar — April 2017

New Insights Into the Cosmic-Ray Positron Excess
Fermilab, Particle-Astrophysics Seminar — April 2017

Making Sense of Recent Results from Cosmic-Ray Experiments
Fermilab, LHC Physics Center (LPC) Forum — March 2017

New Insights Into the Cosmic-Ray Positron Excess
University of California, Irvine, Joint Particle Seminar — March 2017

Dark Matter Annihilation in the Gamma-Ray Sky
University of North Carolina, Physics Colloquium — Feb 2017

Dark Matter Annihilation in the Gamma-Ray Sky
University of Maryland, Physics Colloquium — Feb 2016

Dark Matter Annihilation in the Gamma-Ray Sky
LPTHE Campus Jussieu, Paris, Theory Seminar — Dec 2015

Dark Matter Annihilation in the Gamma-Ray Sky
University of Wisconsin, Physics Colloquium — Oct 2015

Dark Matter Annihilation in the Galactic Center
Laboratory Astroparticule et Cosmologie, Paris, Theory Seminar — May 2015

Dark Matter Annihilation in the Galactic Center (and Dwarf Galaxies?)
Princeton Institute for Advanced Study, Seminar — March 2015

Dark Matter Annihilation in the Galactic Center
Washington University, Theory Seminar — Dec 2014

Dark Matter Annihilation in the Galactic Center
Massachusetts Institute of Technology, Astrophysics Division Colloquium — Nov 2014

Dark Matter Annihilation in the Galactic Center
KEK, Theory Seminar — Oct 2014

Dark Matter Annihilation in the Galactic Center
Argonne National Laboratory, High Energy Physics Seminar — June 2014

Dark Matter Annihilation in the Galactic Center
Florida Institute of Technology, Physics Colloquium — Jan 2014

Searching for Dark Matter in the Discovery Age
Purdue University, Physics Colloquium — Nov 2013

Searching for Dark Matter in the Discovery Age
Indiana University, Physics Colloquium — Nov 2013

Particle Dark Matter
Lectures at International PhD Course, Niels Bohr Institute, Copenhagen — Oct 2013

Gamma Rays from Dark Matter in the Galactic Center and Inner Galaxy
University of Chicago, Physics Colloquium Oct 2013

Searching for Dark Matter in the Discovery Age
University of Illinois, Urbana-Champagne, Physics Colloquium April 2013

Gamma Rays from Dark Matter in the Galactic Center and Inner Galaxy
Fermilab Particle-Astrophysics Seminar March 2013

Searching for Dark Matter in the Discovery Age
Syracuse University, Physics Colloquium Feb 2013

Searching for Dark Matter in the Discovery Age
University of Washington, Physics Colloquium Dec 2013

Searching for Dark Matter in the Discovery Age
Carnegie Mellon University, High-Energy Physics Seminar Oct 2012

Dark Matter in the Discovery Age
Argonne National Laboratory, Astrophysics Lunch Talk April 2012

Dark Matter in the Discovery Age
McGill University, Physics Colloquium March 2012

Dark Matter in the Discovery Age
New York University, Physics Colloquium March 2012

The Empirical Case For 10 GeV Dark Matter
New York University, High-Energy Physics Seminar Feb 2012

The Empirical Case For 10 GeV Dark Matter
University of Wisconsin, Phenomenology Seminar Feb 2012

The Empirical Case For 10 GeV Dark Matter
Princeton Institute for Advanced Study, Astrophysics Seminar Jan 2012

The Hunt For Dark Matter
University of North Florida, Physics Colloquium Jan 2012

Light WIMPs!
Harvard University, High-Energy Physics Seminar Dec 2011

Closing in on Dark Matter
Case Western Reserve University, Physics Colloquium Nov 2011

Closing in on Dark Matter
University of Alberta, Physics Colloquium Oct 2011

Light WIMPs!
Northwestern University, Astrophysics Seminar — Sept 2011

Light WIMPs!
University of Maryland, High Energy Physics Seminar — Sept 2011

Light WIMPs!
Argonne National Laboratory, High Energy Physics Seminar — Sept 2011

Light WIMPs!
CERN, Theory Division Seminar — May 2011

Light WIMPs!
Ohio State, CCAPP Seminar — April 2011

Light WIMPs!
University of California, Particle Theory Seminar. — April 2011

Closing In On Dark Matter
University of Illinois, Urbana-Champagne, Astrophysics Colloquium — March 2011

Closing In On Dark Matter
Illinois Institute of Technology, Physics Colloquium — Jan 2011

The Observational Case For 8-10 GeV Dark Matter
University of California, High Energy Physics Seminar — Dec 2010

The Observational Case For 8-10 GeV Dark Matter
Virginia Tech, Physics Colloquium — Dec 2010

The Hunt For Dark Matter Continues
Aspen Center for Physics Colloquium — June 2010

The Hunt For Dark Matter Continues
Uppsala University, Physics and Astronomy Colloquium — May 2010

The Hunt For Dark Matter Continues
University of Stockholm, Joint Physics Colloquium — May 2010

The Hunt For Dark Matter Continues
University of Texas, Austin, High Energy Physics Seminar — March 2010

The Hunt For Dark Matter Continues
University of Chicago, Physics Colloquium — March 2010

Charged Cosmic Rays And Dark Matter
University of Chicago, KICP Seminar — Jan 2010

The Hunt For Dark Matter's Particle Identity
University of Notre Dame, Physics Colloquium — Sept 2009

Charged Cosmic Rays And Dark Matter
University of Notre Dame, High Energy Physics Seminar — Sept 2009

Did Dark Matter Annihilations Reionize The Universe?
University of Toronto (CITA), Cosmology Seminar — June 2009

Particle Dark Matter and Charged Cosmic Rays
Rutgers University, High Energy Physics Seminar — April 2009

Particle Dark Matter and Charged Cosmic Rays
Fermi National Accelerator Laboratory, Colloquium — April 2009

Particle Dark Matter and Charged Cosmic Rays
Michigan State University, Astrophysics Seminar — March 2009

Particle Dark Matter and Charged Cosmic Rays
Stanford University, Fermi/GLAST Seminar — March 2009

The Hunt For Dark Matter
Stanford University, Theoretical Physics Seminar — March 2009

Particle Dark Matter and Charged Cosmic Rays
University of Chicago, KICP Colloquium — Jan 2009

The Hunt For Dark Matter
Argonne National Laboratory, Physics Colloquium — Nov 2008

The Hunt For Dark Matter
University of Kentucky, Lexington, Physics Colloquium — Nov 2008

Hot on the Trail of Particle Dark Matter
University of Arizona, Tuscon, Physics Colloquium — Nov 2008

Particle Dark Matter
University of Colorado, Boulder, TASI Lectures — July 2008

Hot on the Trail of Particle Dark Matter
Lawrence Berkeley National Laboratory, Astrophysics Colloquium — June 2008

Hot on the Trail of Particle Dark Matter
Brookhaven National Laboratory, High Energy Physics Seminar — May 2008

Hot on the Trail of Particle Dark Matter
Arizona State University, Particle Physics and Astrophysics Seminar — April 2008

Hot on the Trail of Particle Dark Matter
Los Alamos National Laboratory, Astrophysics Seminar April 2008

Hot on the Trail of Particle Dark Matter
Cornell University, High Energy Physics Seminar April 2008

Hot on the Trail of Particle Dark Matter
University of Wisconsin, Madison, Physics Colloquium Feb 2008

Hot on the Trail of Particle Dark Matter
Carleton University, Ottawa, Physics Colloquium Jan 2008

Hot on the Trail of Particle Dark Matter
University of Chicago, Astronomy and Astrophysics Colloquium Dec 2007

Hot on the Trail of Particle Dark Matter
Harvard University, Astronomy Colloquium Oct 2007

Dark Matter Annihilations in the WMAP Sky
Harvard University, Particle Physics Seminar Oct 2007

Dark Matter Annihilations in the WMAP Sky
University of Wisconsin, Madison, Astrophysics Seminar Oct 2007

Dark Matter Annihilations in the WMAP Sky
Argonne National Laboratory, Particle Physics Seminar Oct 2007

Dark Matter Annihilations in the WMAP Sky
University of Edinburgh, Particle Physics Colloquium Aug 2007

The Hunt For The Identity Of Dark Matter
Ohio University, Athens, Particle/Nuclear/Astrophysics Seminar April 2007

The Hunt For The Identity Of Dark Matter
Brown University, Theoretical Physics Seminar March 2007

The Hunt For The Identity Of Dark Matter
Columbia University, Special Seminar March 2007

Studing Supersymmetry With Dark Matter
DESY, Hamburg, Particle-Cosmology Seminar Dec 2006

Studing Supersymmetry With Dark Matter
University of Illinois, Urbana-Champaign, High-Energy Physics Seminar Dec 2006

The Hunt For Dark Matter
University of Wisconsin, Milwaukee, Physics Colloquium Dec 2006

Kaluza-Klein Dark Matter
University of Wisconsin, Milwaukee, Gravity/Particle Physics Seminar Dec 2006

Studing Supersymmetry With Dark Matter
Vanderbilt University, Particle-Cosmology Seminar Nov 2006

Studing Supersymmetry With Dark Matter
New York University, High Energy Physics Seminar Nov 2006

Studing Supersymmetry With Dark Matter
Perimeter Institute, Cosmology Seminar Oct 2006

Studing Supersymmetry With Dark Matter
University of Oxford, BIPAC Particle-Astrophysics Seminar Sept 2006

Studing Supersymmetry With Dark Matter
Fermi National Accelerator Laboratory, Wine and Cheese Seminar Sept 2006

Probing Exotic Physics With High-Energy Neutrinos
University of Kansas, Lawrence, Seminar April 2006

Hot on the Trail of Particle Dark Matter
University of Kansas, Lawrence, Physics Colloquium April 2006

Searching for Dark Matter
Massachusettes Institute of Technology, Nuclear/Particle Theory Seminar March 2006

In Search of Particle Dark Matter
Case Western Reserve University, Particle Astrophysics Seminar Feb 2006

In Search of Particle Dark Matter
University of Maryland, College Park, Seminar Feb 2006

In Search of Particle Dark Matter
SLAC/Stanford University, KIPAC Seminar Feb 2006

Searching for the Identity of Dark Matter
California Institute of Technology, Theory Seminar Feb 2006

Searching for the Identity of Dark Matter
Northwestern University, High Energy Physics Seminar Jan 2006

Searching for the Identity of Dark Matter
University of Rochester, High Energy/Nuclear Physics Seminar Dec 2005

Searching for the Identity of Dark Matter
University of Maryland, College Park, Elementary Particle Theory Seminar Nov 2005

Hot on the Trail of Particle Dark Matter
Cambridge Institute of Astronomy, Cambridge University, Colloquium May 2005

Particle Dark Matter: Alternatives to Superpartners
University of Sussex, Particle Physics/Cosmology Seminar March 2005

Particle Dark Matter: Alternatives to Superpartners
University of Lancaster, Cosmology Seminar Feb 2005

Hot on the Trail of Particle Dark Matter: Indirect Searches
University of Wisconsin, Madison, Phenomenology Seminar Dec 2004

Hot on the Trail of Particle Dark Matter: Indirect Searches
University of California, Davis, High-Energy Physics Seminar Dec 2004

Hot on the Trail of Particle Dark Matter: Indirect Searches
Institute for Advanced Study, Princeton, Astrophysics Seminar Dec 2004

The Particle Physics Reach of High-Energy Neutrino Astronomy
University of Sheffield, Astroparticle Physics and Cosmology Seminar Nov 2004

The Particle Physics Reach of High-Energy Neutrino Astronomy
University of Liverpool, Particle Physics Seminar Oct 2004

Recent Developments in the Indirect Detection of Particle Dark Matter
Imperial College, London, Astrophysics Group Seminar May 2004

Recent Developments in the Indirect Detection of Particle Dark Matter
Fermi National Accelerator Laboratory, Theoretical Astrophysics Seminar May 2004

Indirect Detection of Particle Dark Matter
Massachusetts Institute of Technology, Joint Theoretical Physics Seminar April 2004

Indirect Detection of Particle Dark Matter
Uppsala University, High-Energy Physics Seminar Feb 2004

Indirect Detection of Particle Dark Matter
Stockholm University, Astro-Particle Physics Seminar Feb 2004

Direct and Indirect Searches For Supersymmetric Dark Matter
Fermi National Accelerator Laboratory, Astrophysics Lunch Seminar June 2003

Limits on Supersymmetric Dark Matter From EGRET Observations Of The Galactic Center Region
CERN, Phenomenology Journal Club Jan 2003

Neutrinos From Gamma-Ray Bursts and Gamma-Rays From The Galactic Center
Osservatorio Astrofisico di Arcetri, Florence, Astrophysics Theory Seminar Jan 2003

High-Energy Neutrino Astrophysics
University of Wisconsin, Wilwaukee, Theory Seminar Nov 2002

Searches For Supersymmetry And Extra Dimensions With High-Energy Neutrino Telescopes
Fermi National Accelerator Laboratory, Astrophysics Seminar May 2001

Selected Public Lectures and Events

Life Beyond Earth (Panel Moderator) Chicago Humanities Festival	Nov 2023
Alan Lightman on Spirituality and Science (Panel Moderator) Chicago Humanities Festival	May 2023
At the Edge of Time Naperville Astronomical Society	July 2022
Saturday Morning Physics Program Fermilab	2016-2021
The Biggest Mysteries in Physics Online event, through New Scientist Magazine	Oct 2020
At the Edge of Time Fermilab Arts and Lecture Series (Virtual)	July 2020
At the Edge of Time Royal Institution, London	Feb 2020
At the Edge of Time Uncommon Core, University of Chicago Alumni Event, St. Petersburg	Jan 2020
At the Edge of Time Town Hall Seattle	Nov 2019
At the Edge of Time Oregon Museum of Science and Industry, Portland	Nov 2019
At the Edge of Time Hayden Planetarium, New York	Nov 2019
At the Edge of Time Smithsonian Associates, Hirshhorn Museum, Washington	Oct 2019
Our Dark Universe Science Cafe, Dark Matter Coffee, Chicago	Oct 2017
Our Evolving Universe Fermilab Physics Slam	Dec 2016
Revealing the Nature of Dark Matter International Conference on High Energy Physics (ICHEP), Physics Slam	Aug 2016
Revealing the Nature of Dark Matter Aspen Center for Physics	Aug 2015

The Mysteries of Dark Matter, Dark Energy, and the Accelerating Universe
Chicago Science Festival June 2015

Revealing the Nature of Dark Matter
Fermilab Arts and Lecture Series Jan 2015

In Search of our Universe's Missing Mass and Energy
Chicago Astronomical Society Meeting, Adler Planetarium March 2014

Forum on Dark Matter and Dark Energy
Aspen Ideas Festival June 2013

In Search of our Universe's Missing Mass and Energy
First Annual Duncan Lecture, Auburn University April 2013

The Higgs Boson
TED-X Event Talk, Naperville, IL Nov 2012

Symmetry and Beauty In Particle Physics
Pecha Kucha Event, RTKL Architects, Chicago May 2012

Origins
Zygon Center Epic of Creation Lecture Series, University of Chicago Sept 2011

Our Dark Universe
Mid-Atlantic Planetarium Society Annual Conference, Warminster, PA May 2011

Our Dark Universe
Maryland Science Center, Lanham, MD May 2011

Our Dark Universe
Science Cafe, The Maproom Bar, Chicago April 2011

Our Dark Universe
Astrofest, Chicago Astronomical Society Sept 2010

Origins
Zygon Center Epic of Creation Lecture Series, University of Chicago Sept 2010

In Search of our Universe's Missing Mass and Energy
Naperville Astronomical Society Oct 2009

Origins
Zygon Center Epic of Creation Lecture Series, University of Chicago Sept 2009

In Search of our Universe's Missing Mass and Energy
Chicago Astronomical Society May 2009

In Search of our Universe's Missing Mass and Energy
St. Cloud State University Feb 2009

In Search of our Universe's Missing Mass and Energy
Great Lakes Planetarium Association Annual Meeting, Milwaukee Oct 2008

In Search of our Universe's Missing Mass and Energy
Naperville Astronomical Society May 2008

In Search of our Universe's Missing Mass and Energy
University of South Dakota, Vermillion May 2008

In Search of our Universe's Missing Mass and Energy
University of Wisconsin, Madison Feb 2008

In Search of our Universe's Missing Mass and Energy
Fermilab Arts and Lecture Series Nov 2007

PUBLICATION STATISTICS

According to the **inSpireHEP** database (as of Nov 2023):

- 258 articles
- Over 25,200 total citations
- h-index: 73

PUBLICATIONS

258. F. Xue and D. Hooper, *The Dark Matter Discovery Potential of the Advanced Particle-Astrophysics Telescope (APT)*, [arXiv:2308.15538 [astro-ph.HE]].

257. D. Hooper, A. Ireland, G. Krnjaic and A. Stebbins, *Supermassive Primordial Black Holes From Inflation*, [arXiv:2308.00756 [astro-ph.CO]].

256. C. Blanco, D. Hooper, T. Linden and E. Pinetti, *On the Neutrino and Gamma-Ray Emission from NGC 1068*, [arXiv:2307.03259 [astro-ph.HE]].

255. D. Hooper and H. Xiao, *Dark matter is the new BBN*, Phys. Dark Univ. **42**, 101353 (2023), [arXiv:2306.07339 [hep-ph]].

254. A. Dekker, I. Holst, D. Hooper, G. Leone, E. Simon and H. Xiao, *Diffuse Ultra-High-Energy Gamma-Ray Emission From TeV Halos*, [arXiv:2306.00051 [astro-ph.HE]].

253. D. Hooper and K. Plant, *A Leptonic Model for Neutrino Emission From Active Galactic Nuclei*, [arXiv:2305.06375 [astro-ph.HE]].

252. I. Holst, D. Hooper, G. Krnjaic and D. Song, *Twin Sterile Neutrino Dark Matter*, [arXiv:2305.06364 [hep-ph]].

251. D. Hooper, J. Iguaz Juan and P. D. Serpico, *Signals of a new gauge boson from IceCube and the muon g-2*, Phys. Rev. D **108**, no.2, 023007 (2023), [arXiv:2302.03571 [astro-ph.HE]].

250. A. J. Evans, L. E. Strigari, O. Svenborn, A. Albert, J. P. Harding, D. Hooper, T. Linden and A. B. Pace, *On the gamma-ray emission from the core of the Sagittarius dwarf galaxy*, Mon. Not. Roy. Astron. Soc. **524**, no.3, 4574-4585 (2023), [arXiv:2212.08194 [astro-ph.HE]].

249. C. Keith, D. Hooper and T. Linden, *Cherenkov Telescope Array will test whether pulsars generate the Galactic Center gamma-ray excess*, Phys. Rev. D **107**, no.10, 103001 (2023), [arXiv:2212.08080 [astro-ph.HE]].

248. D. Hooper, A. Ireland and G. Krnjaic, *Cosmological Magnetic Fields From Primordial Kerr-Newman Black Holes*, Phys. Rev. D **107**, no.10, 103524 (2023), [arXiv:2206.04066 [astro-ph.CO]].

247. O. M. Bitter and D. Hooper, *Constraining the Milky Way's Pulsar Population with the Cosmic-Ray Positron Fraction*, JCAP **10**, 081 (2022), [arXiv:2205.05200 [astro-ph.HE]].

246. C. Keith, D. Hooper, T. Linden and R. Liu, *Sensitivity of Future Gamma-Ray Telescopes to Primordial Black Holes*, Phys. Rev. D **106**, no.4, 043003 (2022), [arXiv:2204.05337 [astro-ph.HE]].

245. R. K. Leane, S. Shin, L. Yang, G. Adhikari, H. Alhazmi, T. Aramaki, D. Baxter, F. Calore, R. Caputo and I. Cholis, *et al. Snowmass 2021 Cosmic Frontier White Paper: Puzzling Excesses in Dark Matter Searches and How to Resolve Them*, [arXiv:2203.06859 [hep-ph]].

244. J. Aalbers, K. Abe, V. Aerne, F. Agostini, S. A. Maouloud, D. S. Akerib, D. Y. Akimov, J. Akshat, A. K. A. Musalhi and F. Alder, *et al. A Next-Generation Liquid Xenon Observatory for Dark Matter and Neutrino Physics*, [arXiv:2203.02309 [physics.ins-det]].

243. F. Xu and D. Hooper, *Contribution From TeV halos to the Isotropic Gamma-Ray Background*, Phys. Rev. D **106**, no.2, 023005 (2022), [arXiv:2111.03646 [astro-ph.HE]].

242. I. Holst, D. Hooper and G. Krnjaic, *Simplest and Most Predictive Model of Muon g-2 and Thermal Dark Matter*, Phys. Rev. Lett. **128**, no.14, 141802 (2022), [arXiv:2107.09067 [hep-ph]].

241. D. Curtin, S. Gryba, D. Hooper, J. Scholtz and J. Setford, *Resurrecting the Fraternal Twin WIMP Miracle*, Phys. Rev. D **105**, no.3, 035033 (2022), [arXiv:2106.12578 [hep-ph]].

240. L. A. Anchordoqui, C. Bérat, M. E. Bertaina, A. Castellina, O. Deligny, R. Engel, G. R. Farrar, P. L. Ghia, D. Hooper and O. Kalashev, *et al. Hunting Superheavy Dark Matter with Ultra-high Energy Photons*, Astropart. Phys. **132**, 102614 (2021), [arXiv:2105.12895 [hep-ph]].

239. D. Hooper and T. Linden, *Evidence of TeV Halos Around Millisecond Pulsars*, Phys. Rev. D **105**, no.10, 103013 (2022), [arXiv:2104.00014 [astro-ph.HE]].

238. C. Keith and D. Hooper, *511 keV Excess and Primordial Black Holes*, Phys. Rev. D **104**, no.6, 063033 (2021), [arXiv:2103.08611 [astro-ph.CO]].

237. T. Sudoh, T. Linden and D. Hooper, *The Highest Energy HAWC Sources are Likely Leptonic and Powered by Pulsars*, JCAP **08**, 010 (2021), [arXiv:2101.11026 [astro-ph.HE]].

236. D. Hooper and G. Krnjaic, *GUT Baryogenesis With Primordial Black Holes*, Phys. Rev. D **103**, no.4, 043504 (2021), [arXiv:2010.01134 [hep-ph]].

235. D. Smith, D. Hooper and A. Vieregg, *Revisiting AGN as the Source of IceCube's Diffuse Neutrino Flux*, JCAP **03**, 031 (2021), [arXiv:2007.12706 [astro-ph.HE]].

234. I. Cholis, D. Hooper and T. Linden, *Constraining the Charge-Sign and Rigidity-Dependence of Solar Modulation*, [arXiv:2007.00669 [astro-ph.HE]].

233. R. Allahverdi, M. A. Amin, A. Berlin, N. Bernal, C. T. Byrnes, M. Sten Delos, A. L. Erickcek, M. Escudero, D. G. Figueroa and K. Freese, *et al. The First Three Seconds: a Review of Possible Expansion Histories of the Early Universe*, [arXiv:2006.16182 [astro-ph.CO]].

232. C. Keith, D. Hooper, N. Blinov and S. D. McDermott, *Constraints on Primordial Black Holes From Big Bang Nucleosynthesis Revisited*, Phys. Rev. D **102**, no.10, 103512 (2020), [arXiv:2006.03608 [astro-ph.CO]].

231. N. Blinov, C. Keith and D. Hooper, *Warm Decaying Dark Matter and the Hubble Tension*, JCAP **06**, 005 (2020), [arXiv:2004.06114 [astro-ph.CO]].

230. D. Hooper, G. Krnjaic, J. March-Russell, S. D. McDermott and R. Petrossian-Byrne, *Hot Gravitons and Gravitational Waves From Kerr Black Holes in the Early Universe*, [arXiv:2004.00618 [astro-ph.CO]].

229. I. Cholis, T. Linden and D. Hooper, *Antideuterons and Antihelium Nuclei From Annihilating Dark Matter*, Phys. Rev. D **102**, no.10, 103019 (2020), [arXiv:2001.08749 [astro-ph.HE]].

228. D. Hooper, R. K. Leane, Y. D. Tsai, S. Wegsman and S. J. Witte, *A Systematic Study of Hidden Sector Dark Matter: Application to the Gamma-Ray and Antiproton Excesses*, JHEP **07**, no.07, 163 (2020), [arXiv:1912.08821 [hep-ph]].

227. C. Blanco, M. Escudero, D. Hooper and S. J. Witte, *'Z' Mediated WIMPs: Dead, Dying, or Soon to be Detected?*, JCAP **11**, 024 (2019), [arXiv:1907.05893 [hep-ph]].

226. C. Blanco, M. S. Delos, A. L. Erickcek and D. Hooper, *Annihilation Signatures of Hidden Sector Dark Matter Within Early-Forming Microhalos*, Phys. Rev. D **100**, no.10, 103010 (2019), [arXiv:1906.00010 [astro-ph.CO]].

225. D. Hooper, G. Krnjaic and S. D. McDermott, *Dark Radiation and Superheavy Dark Matter From Black Hole Domination*, JHEP **08**, 001 (2019), [arXiv:1905.01301 [hep-ph]].

224. D. Hooper, S. Wegsman, C. Deaconu and A. Vieregg, *Superheavy Dark Matter and ANITA's Anomalous Events*, Phys. Rev. D **100**, no.4, 043019 (2019), [arXiv:1904.12865 [astro-ph.HE]].

223. I. Cholis, T. Linden and D. Hooper, *A Robust Excess in the Cosmic-Ray Antiproton Spectrum: Implications for Annihilating Dark Matter*, Phys. Rev. D **99**, no.10, 103026 (2019), [arXiv:1903.02549 [astro-ph.HE]].

222. C. Blanco, D. Hooper and P. Machado, *Constraining Sterile Neutrino Interpretations of the LSND and MiniBooNE Anomalies with Coherent Neutrino Scattering Experiments*, Phys. Rev. D **101**, no.7, 075051 (2020), [arXiv:1901.08094 [hep-ph]].

221. M. Escudero, D. Hooper, G. Krnjaic and M. Pierre, *Cosmology with A Very Light $L_\mu - L_\tau$ Gauge Boson*, JHEP **03**, 071 (2019), [arXiv:1901.02010 [hep-ph]].

220. D. Hooper, *TASI Lectures on Indirect Searches For Dark Matter*, PoS **TASI2018**, 010 (2019), [arXiv:1812.02029 [hep-ph]].

219. C. Blanco and D. Hooper, *Constraints on Decaying Dark Matter From the Isotropic Gamma-Ray Background*, JCAP **03**, 019 (2019), [arXiv:1811.05988 [astro-ph.HE]].

218. D. Hooper, T. Linden and A. Vieregg, *Active Galactic Nuclei and the Origin of IceCube's Diffuse Neutrino Flux*, JCAP **02**, 012 (2019), [arXiv:1810.02823 [astro-ph.HE]].

217. D. Hooper, G. Krnjaic, A. J. Long and S. D. Mcdermott, *Can the Inflaton Also Be a Weakly Interacting Massive Particle?*, Phys. Rev. Lett. **122**, no.9, 091802 (2019), [arXiv:1807.03308 [hep-ph]].

216. D. Hooper, *Life Versus Dark Energy: How An Advanced Civilization Could Resist the Accelerating Expansion of the Universe*, Phys. Dark Univ. **22**, 74-79 (2018), [arXiv:1806.05203 [astro-ph.CO]].

215. D. Hooper and T. Linden, *Millisecond Pulsars, TeV Halos, and Implications For The Galactic Center Gamma-Ray Excess*, Phys. Rev. D **98**, no.4, 043005 (2018), [arXiv:1803.08046 [astro-ph.HE]].

214. A. Berlin, D. Hooper, G. Krnjaic and S. D. McDermott, *Severely Constraining Dark Matter Interpretations of the 21-cm Anomaly*, Phys. Rev. Lett. **121**, no.1, 011102 (2018), [arXiv:1803.02804 [hep-ph]].

213. D. Hooper and S. D. McDermott, *Robust Constraints and Novel Gamma-Ray Signatures of Dark Matter That Interacts Strongly With Nucleons*, Phys. Rev. D **97**, no.11, 115006 (2018), [arXiv:1802.03025 [hep-ph]].

212. C. Blanco, J. P. Harding and D. Hooper, *Novel Gamma-Ray Signatures of PeV-Scale Dark Matter*, JCAP **04**, 060 (2018), [arXiv:1712.02805 [hep-ph]].

211. D. Hooper and T. Linden, *Measuring the Local Diffusion Coefficient with H.E.S.S. Observations of Very High-Energy Electrons*, Phys. Rev. D **98**, no.8, 083009 (2018), [arXiv:1711.07482 [astro-ph.HE]].

210. R. Bartels, D. Hooper, T. Linden, S. Mishra-Sharma, N. L. Rodd, B. R. Safdi and 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**, 88-94 (2018), [arXiv:1710.10266 [astro-ph.HE]].

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Books Authored

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Teaching and Mentorship Statement

Dan Hooper

Teaching Experience and Background

I consider classroom teaching and the mentorship of students and junior researchers to be incredibly important aspects of my profession. I take these roles extremely seriously and derive great personal satisfaction from performing them well.

I have significant teaching experience, at both the undergraduate and graduate levels. I have taught undergraduate courses that introduce cosmology, physics, and astronomy in various combinations to students of different backgrounds and interests. In preparation for such courses, I prepare detailed lecture notes which enable me to cover the material in a way that is as clear and easy to understand as possible. In addition, I read supplementary material beforehand which I use to make the subject matter more interesting to my students. This could be a book about the history of the subject, or other contextual information that might otherwise not make it into a typical physics lecture. I have always found that orbital mechanics is more interesting if one injects the occasional story about Tycho Brahe's extravagances, or about how Neptune was discovered through its gravitational perturbation of Uranus. This kind of preparation takes time and effort, but it also makes for a more impactful learning experience.

In addition to these pre-existing undergraduate courses, I have also developed and taught a course called Philosophical Problems in Cosmology. This course has been quite popular and attracts undergraduate students from a wide range of majors. It covers the philosophy and history of science in the Western tradition, from the ancient Greeks to the contemporary era, exploring a wide range of topics in epistemology and metaphysics. Essential to this course is not only what astronomers and physicists have learned about the universe, but *how* they learned it and why they think it is true (and well as what it means to make such claims). I have had great success in facilitating active debate and discussion in this course and thoroughly enjoy the opportunities it offers me to think outside of my normal modes of academic thought.

At the graduate level, I have taught courses that are part of the astrophysics core curriculum (Cosmology I, High-Energy Astrophysics) as well as courses on more advanced and specialized topics (Cosmology II, Particle Astrophysics). These courses have each been among the most popular of those taught in my department's graduate program and have been consistently well received. Like undergraduate courses, I realize that it takes time and effort to teach these classes well. I also know that a good course can significantly impact the future of a young scientist, making me entirely willing to go the extra mile. I also apply this enthusiasm to summer and winter school lectures, and to other similar opportunities that might arise.

The effort that I have put into preparing graduate courses and lectures ultimately motivated me to write my first textbook, *Particle Cosmology and Astrophysics*, which

will be published this spring by Princeton University Press. My aspiration for this book is that it will play a role similar to that once played by Kolb and Turner's *The Early Universe*, presenting the reader with an approachable but challenging introduction to these topics, while bridging some of the many gaps between cosmology, particle physics, and high-energy astrophysics.

If you would like to see copies of my course evaluations from the University of Chicago, please let me know. I would also be happy to provide an advanced copy of my textbook if you would find that useful.

Mentorship and Supervision

I take great pleasure in watching graduate students transform from enthusiastic novices into subject matter experts with their own capacity for original scientific research. Stewarding this progression, however, requires not only instruction in science, but also attention to human factors. On their own, students can be uncertain of how they fit into the academic world, of the expectations of others, and of how they can become the scientist (or other professional) that they wish to become. Thoughtful and empathetic mentorship can help to alleviate – or at least mitigate – these issues, enabling students to make better choices, to feel more motivated about their research, and to progress more rapidly in their academic development.

I do not adopt a one-size-fits-all approach to mentorship. Some students benefit from frequent and regular conversations about their progress and performance, while others require less attention of this kind. In some instances, a student might be dealing with problems that would benefit from mental health, medical, or other professional services, and a mentor can help them to access those resources. While I meet at least weekly with every graduate student and postdoc in my research group, I try to be available more often for those who would benefit from a greater degree of supervision.

In the case of postdocs and more senior graduate students, mentors play an important role in helping to navigate job applications, grant proposals, talk preparation, and other professional activities. As the academic job market has grown increasingly competitive in recent years, this kind of information has become only more important. I strive to provide every student and postdoc that I mentor with all the tools that they will need to reach their goals – whatever those goals may be.

Commitment to Diversity, Equity, and Inclusion

I am fully and wholeheartedly committed to the values of diversity, equity, and inclusion (DEI). My colleagues recognize me as someone who is dedicated to the promotion of these values and have placed me in positions which reflect that fact. Between 2020 and 2023, I served as a deputy co-chair for DEI in my department at the University of Chicago. At Fermilab, I have served on the Scientific Hiring Task Force, whose goal is to diversity the lab's scientific workforce. I am also on the committee at Fermilab that oversees the awarding of the Gates Fellowship, which "prioritizes the inclusion of first-generation

college graduates, and the representation of historically and contemporarily minoritized individuals underrepresented in theoretical physics."

Throughout my adult life, I considered myself to be a supporter of civil rights, a feminist, and someone who was on the right side of history, recognizing America's legacy of slavery and segregation as abhorrent. At time went on, I have come to view these stances as well intentioned, but insufficient. Like many Americans, I have been deeply moved by events of recent years, including the murder of George Floyd at the hands of the Minneapolis police. This ultimately motivated me to revisit my thinking on race, and to change from being merely not racist, into an anti-racist. I am determined to apply conscious effort and deliberate action toward the goal of ensuring that equal opportunities are available to people of all races and all backgrounds. On a personal note, my daughter and two granddaughters are black. My interactions with them have taught me a great deal about the black experience in America and have left me unable to ignore racism in any of its forms.

I believe that it is possible to make substantive progress on DEI issues as they pertain to the fields of physics and astronomy. When I started graduate school, only 12% of the PhDs awarded in physics were earned by women. Today, that number has risen to 21%. This reflects a meaningful, but unacceptably slow, rate of change. At this pace, we will attain gender parity only around the year 2100, illustrating just how imperative it is that we do everything we can to accelerate this progress.

At the University of Chicago, I have worked to implement several initiatives intended to advance DEI issues. I was part of a small group that commissioned our department's first climate survey. I also worked to implement a mentorship program, and to reform the graduate admissions process. While individual steps such as these are unlikely to dramatically change the culture of our field, they can collectively increase the rate of this change, moving us incrementally closer to building the kind of academic culture that we all deserve.

Public Outreach

When it comes to science communication and outreach, I am an unabashed enthusiast. To date, I have written three books for non-technical audiences (*Dark Cosmos*, *Nature's Blueprint*, and *At the Edge of Time*), as well as numerous articles for popular magazines, including Scientific American, the Economist, Astronomy, New Scientist, and Time. For the last three years, I have co-hosted the podcast *Why This Universe*, which over its run of 72 episodes has received more than 1,600,000 downloads. I have also given many public lectures and rarely turn down an invitation to communicate my enthusiasm for science to the public.

Statement of Research

Dan Hooper

Executive Summary

For many years, I have been running a world-class research group at Fermilab and at the Kavli Institute for Cosmological Physics at the University of Chicago. These efforts have included the supervision of approximately 10 graduate students and close collaboration with dozens of postdocs and other junior researchers. Scientifically, my research program has been and continues to be broader than most, spanning a diversity of topics within the fields of high-energy astrophysics, dark matter phenomenology, early universe cosmology, and particle physics theory. I am most well known for my work in the areas of high-energy neutrino astronomy, gamma-ray astronomy, and direct and indirect searches for particle dark matter.

The directions of my research have long been driven by the anticipation and realization of new data. As new experiments and telescopes come online, the focus of my science adjusts. The breath of my scientific interests and background have made it possible for me to adapt more easily than most to a changing scientific landscape. Although I have worked on a wide variety of projects ranging from data analysis to pure theory, I most frequently perform research that is situated near the mid-point along this axis. This allows me to fully engage and interact with experimentalists, observers, phenomenologists, and more formal theorists.

I have taken on a variety of leadership roles over the years, in addition to those directly related to the management of my research group. I was the head of my department at Fermilab for six years (2017-23), was active in the Snowmass community planning exercise, and have organized several major international conferences. I have also served as the chair of several committees at the University of Chicago, including one that conducted a successful faculty search.

High-Energy Astrophysics

I began my scientific career as a theorist working primarily in the area of high-energy neutrino astronomy, and this subject continues to be close to my heart. We are currently living in an exciting time in which the IceCube Neutrino Observatory has been making the first detections of high-energy astrophysical neutrinos, and the first identifications of their sources. I have authored papers about many prospective sources of high-energy neutrinos, including active galactic nuclei (AGN) [1–5], gamma-ray bursts (GRB) [6–10], cosmogenic production [11,12], and dark matter annihilation or decay [13–23]. I consider

the origin of IceCube's diffuse neutrino flux to be one of the most interesting outstanding questions in all of modern astrophysics.

More broadly speaking, neutrino astronomy is but one part of the modern program of multimessenger astrophysics, which utilizes photons, cosmic rays, neutrinos, and gravitational waves to probe our universe's most extreme environments. I have been deeply involved in many of the facets of this research, including efforts to understand the origin, propagation, and composition of Galactic [24–29] and ultra-high energy [30–35] cosmic rays. I have also worked extensively in the field of gamma-ray astronomy, having studied the high- and very high-energy emission from AGN, pulsars, TeV halos, and other such sources [36–40]. In the case of TeV halos, my collaborators and I played a central role in identifying and understanding this strange class of objects [41–47]. With additional data anticipated from existing experiments and telescopes (IceCube, ARA, AMS, Fermi, HAWC, LHAASO, etc.), as well as from new high-energy neutrino telescopes (IceCube-Gen2, RNO-G, GRAND, POEMMA, PUEO, etc.) and ground- and space-based gamma-ray telescopes (CTA, AMIGO, e-ASTROGAM, APT, etc.), I can predict with confidence that high-energy multimessenger astrophysics will continue to be a central part of my research program for many years to come.

I have also done seminal work on how neutrino and gamma-ray telescopes can be used to test the limits of the Standard Model, and to search for evidence of exotic physics. In particular, I have authored pioneering papers proposing that neutrino telescopes could be used to search for a neutrino absorption feature from a new MeV-scale gauge boson [48–50], and that the propagation of gamma rays could be impacted by interactions with an axion-like particle [51–53]. I also wrote the first papers describing how neutrino telescopes could be used to measure the cross section for neutrino-nucleon scattering at very high-energies [54–59], and to measure the flavor ratios of astrophysical neutrinos [60–66], allowing us to probe a wide range of exotic physics scenarios.

Searches for Particle Dark Matter

Despite the diversity of compelling evidence in favor of dark matter's existence and abundance in the universe, the particle identity of this substance remains unknown. Much of my career has been centered around this important outstanding question. My work on dark matter has covered an exceptionally broad range of topics, and includes studies related to its direct detection in underground laboratories [67–74], searches for dark matter at the Large Hadron Collider (LHC) and other accelerator experiments [75–79], the impact of dark matter on various astrophysical observables [80–88], and efforts to detect the dark matter's annihilation and decay products using cosmic-ray detectors [89–105], neutrino telescopes [13–23, 106], gamma-ray telescopes [107–138], and instruments capable of detecting photons at other wavelengths [139–143].

My most well-known scientific contributions have been connected to the discovery and analysis of the signal known as the Galactic Center Gamma-Ray Excess. With Lisa Goodenough, I discovered this excess in 2009 in the publicly available data collected

by the Fermi Gamma-Ray Space Telescope [144], and coauthored many of the seminal papers describing its characteristics [145–148]. The spectral shape, angular distribution, and overall intensity of this signal are each in good agreement with that expected from annihilating dark matter (in the form of a $\sim 50\,\text{GeV}$ thermal relic), and this has resulted in a great deal of interest from the broader scientific community. I have also worked to determine how future observations and other information could be used to confirm or rule out dark matter interpretations of this signal [149–158].

Early Universe Cosmology

In recent years, I have become more interested in the physics of the early universe, motivated in large part by anticipated measurements of the cosmic microwave background (CMB) by telescopes such as SPT-3G, the Simons Observatory, and Stage IV CMB. These instruments will offer unprecedented sensitivity to B-mode polarization, the spectrum of primordial density perturbations, and the energy density in radiation at early times (i.e. N_{eff}), each of which carry valuable information about our universe's early composition and evolution. My work in this area has included studies exploring the possibility that our universe may have experienced a matter-dominated era prior to Big Bang nucleosynthesis [159–161], that there could be a connection between inflation and the origin of dark matter [162, 163], and that inflation could have led to the formation of supermassive primordial black holes [164]. My collaborators and I have also considered the role that primordial black holes may have played in generating the dark matter [165], or the baryon asymmetry of our universe [166], as well as other related signals [167, 168] and constraints [169] that could pertain to such scenarios. I have also collaborated on a number of studies exploring the cosmological signals that would be associated with a variety of exotic physics scenarios [170–172].

Particle Theory and Phenomenology

Most of my work on particle physics theory and phenomenology has been focused on dark matter candidates and related model building. This includes my work on supersymmetric dark matter [173–186], dark matter in Twin Higgs theories [187, 188], Kaluza-Klein dark matter [189–191], hidden sector dark matter models [192–195], and other such scenarios [196–204]. I closely follow the latest results from the LHC and other particle physics experiments and allow that information to inform the future directions of my research. I am enthusiastic about collaborating with particle physicists, astrophysicists, and cosmologists alike, as required by the research problem at hand.

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