

# Ameen Ismail

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## Employment & education

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<b>University of Chicago</b> , Chicago, IL. Oehme Postdoctoral Fellow.	Aug. 2024–present
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<b>Cornell University</b> , Ithaca, New York. Ph.D. in Physics. <i>Advisor</i> : Csaba Csáki.	Aug. 2024
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<b>Carleton University</b> , Ottawa, Ontario, Canada. B.Sc. Honours with High Distinction, Biology and Physics, Minor in Mathematics. <i>Undergraduate thesis advisor</i> : Jeff Dawson.	June 2018
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## Papers

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*Gauge hierarchy and metastability from Higgs-driven crunching*  
S. Benevedes, **A. Ismail**, and T. Steingasser  
arXiv: 2502.07876 [hep-ph]

*Holographic Energy Correlators for Soft Walls*  
C. Csáki, S. Ferrante, and **A. Ismail**  
arXiv: 2412.02738 [hep-ph]

*Holographic Energy Correlators for Confining Theories*  
C. Csáki and **A. Ismail**  
JHEP **11** 140 (2024); arXiv: 2403.12123 [hep-ph]

*Axion dark matter from inflation-driven quantum phase transition*

S. Ferrante, **A. Ismail**, S. J. Lee, and B. Yu  
arXiv: 2402.08716 [hep-ph]

*Forbidden conformal dark matter at a GeV*

S. Ferrante, **A. Ismail**, S. J. Lee, and Y. Lee  
JHEP **11** 186 (2023); arXiv: 2308.16219 [hep-ph]

*FIMPzilla dark matter and conformal sectors*

**A. Ismail**  
Phys. Rev. D **108**, 095049 (2023); arXiv: 2306.06161 [hep-ph]

*Relevant dilaton stabilization*

C. Csáki, M. Geller, Z. Heller-Algazi, and **A. Ismail**  
JHEP **06** 202 (2023); arXiv: 2301.10247 [hep-ph]

*The continuum dark matter zoo*

C. Csáki, **A. Ismail**, and S. J. Lee  
JHEP **02** 053 (2023); arXiv: 2210.16326 [hep-ph]

*Higgs squared*

C. Csáki, **A. Ismail**, M. Ruhdorfer, and J. Tooby-Smith  
JHEP **04** 082 (2023); arXiv: 2210.02456 [hep-ph]

*$\alpha$ -anomalous interactions of the holographic dilaton*

C. Csáki, J. Hubisz, **A. Ismail**, G. Rigo, and F. Sgarlata  
Phys. Rev. D **106**, 055004 (2022); arXiv: 2205.15324 [hep-ph]

*The Forward Physics Facility at the High-Luminosity LHC*

FPF collaboration paper; contribution to Snowmass 2021  
J. Phys. G **50** 3, 030501 (2023); arXiv: 2203.05090 [hep-ex]

*CKM substructure from the weak to the Planck scale*

Y. Grossman, **A. Ismail**, J. T. Ruderman, and T.-H. Tsai  
JHEP **06** 065 (2022); arXiv: 2201.10561 [hep-ph]

*The Forward Physics Facility: Sites, experiments, and physics potential*

FPF collaboration paper  
Phys. Rept. **968**, 1-50 (2022); arXiv: 2109.10905 [hep-ph]

*Crunching Dilaton, Hidden Naturalness*

C. Csáki, R. T. D'Agnolo, M. Geller, and **A. Ismail**  
Phys. Rev. Lett. **126**, 091801 (2021); arXiv: 2007.14396 [hep-ph]

*Benchmark for LHC searches for low-mass custodial fiveplet scalars in the Georgi-Machacek model*

**A. Ismail**, B. Keeshan, H. E. Logan, and Y. Wu  
Phys. Rev. D **103**, 095010 (2021); arXiv: 2003.05536 [hep-ph]

*Updated constraints on the Georgi-Machacek model from LHC Run 2*

**A. Ismail**, H. E. Logan, and Y. Wu  
arXiv: 2003.02272 [hep-ph]

## Seminars & talks

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Crunchy critical natural Higgs	
McDonald Institute (Queen's U.) Seminar	May 2025
Perimeter Institute Particle Physics Seminar	Apr. 2025
U. of Toronto THEP Seminar	Apr. 2025
No Stone Unturned 2025	Mar. 2025
Confining conformal colliders: towards QCD energy correlators from holography	
Energy Operators in Particle Physics, QFT and Gravity	Dec. 2024
PIKIMO Fall 2024 meeting	Nov. 2024
Notre Dame Particle Physics Seminar	Oct. 2024
2024 Seoul Particle Theory Workshop	May 2024
DPF-Pheno 2024 parallel talk	May 2024
Cornell-Syracuse (CoSy) HEP theory meeting	Apr. 2024
Relevant dilaton stabilization	
New York U. Informal HEP Seminar	Oct. 2023
UC Berkeley 4D Seminar	Oct. 2023
UC Irvine Joint Particle Seminar	Oct. 2023
UC Riverside HEP Seminar	Oct. 2023
U. of Maryland EPT Seminar	Mar. 2023
Cornell U. LEPP Theory Seminar	Feb. 2023
Z-portal continuum dark matter models	
Pheno 2023 parallel talk	May 2023
Cornell HEP experiment/theory workshop	Feb. 2023
Cornell-Syracuse (CoSy) HEP theory meeting	Nov. 2022
Holographic dilaton action: the $a$ -term	
Pheno 2022 parallel talk	May 2022
Crunching dilaton, hidden naturalness: a new approach to the hierarchy problem	
2 <sup>nd</sup> Forward Physics Facility Meeting parallel talk	May 2021
Pheno 2021 parallel talk	May 2021
Carleton U. Particle Seminar	Sept. 2020
Cornell U. LEPP Theory Seminar	Sept. 2020
Updated constraints on the Georgi-Machacek model	
Pheno 2020 parallel talk	May 2020

## Conferences, schools, & workshops

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Navigating New Horizons (MIAPbP, Munich, Germany)	May 2025
No Stone Unturned 2025 (U. of Utah, UT)	Mar. 2025
Energy Operators in Particle Physics, QFT, and Gravity (Simons Center, NY)	Dec. 2024
PIKIMO Fall 2024 meeting (U. of Michigan, MI)	Nov. 2024
2024 Seoul Particle Theory Workshop (KIAS, Seoul, South Korea)	May 2024
DPF-Pheno 2024 (U. of Pittsburgh, PA)	May 2024
Cornell-Syracuse (CoSy) HEP theory meeting (Cornell U., NY)	Apr. 2024
Phenomenology 2023 symposium (U. of Pittsburgh, PA)	May 2023
Cornell HEP experiment/theory workshop (Cornell U., NY)	Feb. 2023
Cornell-Syracuse (CoSy) HEP theory meeting (Syracuse U., NY)	Nov. 2022
TASI 2022: Ten Years After the Higgs Discovery (CU Boulder, CO)	June 2022
Phenomenology 2022 symposium (U. Pittsburgh, PA)	May 2022
4 <sup>th</sup> Forward Physics Facility meeting (virtual)	Jan. 2022
3 <sup>rd</sup> Forward Physics Facility meeting (virtual)	Oct. 2021
2 <sup>nd</sup> Forward Physics Facility meeting (virtual)	May 2021
Phenomenology 2021 symposium (virtual)	May 2021
Phenomenology 2020 symposium (virtual)	May 2020
Lectures on the Theory of Fundamental Interactions (GGI, Florence, Italy)	Jan. 2020

## Awards & honours

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Stirling A. Colgate Award (Cornell University)	2022
NSERC Postgraduate Scholarships—Doctoral	2021
NSERC Alexander Graham Bell Canada Graduate Scholarships (declined)	2021
Cornell Fellowship (Cornell University; awarded 2018, deferred)	2020
Presidential Life Science Fellowship (Cornell University)	2018
NSERC Canada Graduate Scholarships—Master's (declined)	2018
NSERC Undergraduate Student Research Award	2018
C.A.B. Betts Memorial Award in Physics (Carleton University)	2017
NSERC Undergraduate Student Research Award	2017
Trevor A. Harwood Memorial Award in Physics (Carleton University)	2016
NSERC Undergraduate Student Research Award	2016

## Teaching

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Grader, PHYS 7681: <b>Quantum Information Processing</b>	Fall 2022
Grader, PHYS 6554: <b>General Relativity II</b>	Spring 2021
Grader, PHYS 7652: <b>Relativistic Quantum Field Theory II</b>	Spring 2020
Teaching assistant, PHYS 2217: <b>Physics II: Electricity and Magnetism</b>	Spring 2020
Teaching assistant, PHYS 1101: <b>General Physics I</b>	Fall 2019

## Other activities

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Friend of arXiv for services rendered to open science	2025
Organizer, Cornell-Syracuse (CoSy) HEP theory meeting	2024
Author, GMCALC: a calculator for the Georgi-Machacek model, v 1.5.0.	2021