

# Ameen Ismail

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INSPIRE: <http://inspirehep.net/authors/1797161>

## Education

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**Cornell University**, Ithaca, New York.

Ph.D. in Physics (*ongoing*).

*Advisor*: Csaba Csáki.

Sept. 2018–present

**Carleton University**, Ottawa, Ontario, Canada.

B.Sc. Honours with High Distinction, Biology and Physics,  
Minor in Mathematics.

*Undergraduate thesis advisor*: Jeff Dawson.

June 2018

## Papers

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*The Continuum Dark Matter Zoo*

C. Csáki, **A. Ismail**, S. J. Lee

arXiv: 2210.16326 [hep-ph]

*Higgs Squared*

C. Csáki, **A. Ismail**, M. Ruhdorfer, and J. Tooby-Smith

arXiv: 2210.02456 [hep-ph]

*a-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.  
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]

*A 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]

## Conferences, schools, & talks

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Z-portal continuum dark matter models

Cornell-Syracuse (CoSy) HEP theory meeting

Nov. 2022

Participant, TASI 2022: Ten Years After the Higgs Discovery,  
University of Colorado, Boulder, Colorado.

June 2022

Holographic dilaton action: the  $a$ -term

Pheno 2022 parallel talk

May 2022

Applying for NSERC PGS D

Presentation for first-year graduate students

Sept. 2021

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	Mar. 2020
Participant, Lectures on the Theory of Fundamental Interactions, Galileo Galilei Institute, 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

## Research positions

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<b>Particle Theory Group</b> , Cornell University. Graduate student. Advisor: Csaba Csáki.	May 2019–present
<b>Theoretical Particle Physics Group</b> , Carleton University. Undergraduate researcher. Supervisor: Heather Logan.	May 2018–Aug. 2018
<b>Insect Flight Group</b> , Carleton University. Undergraduate thesis work. Supervisor: Jeff Dawson.	Sept. 2017–Apr. 2018
<b>DEAP-3600 Collaboration</b> , Carleton University. Undergraduate researcher. Supervisor: Kevin Graham.	May 2017–Aug. 2017

## Other activities

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Referee, <i>European Physical Journal C</i> .	2021–present
GMCALC: a calculator for the Georgi-Machacek model, v 1.5.0.	2021
Snowmass 2021 Letter of Interest: Forward Physics Facility.	2020
3D kinematic analysis of stationary flight in <i>Locusta migratoria</i> , undergraduate thesis.	2018
<i>Science Blog</i> : Shining a light on dark matter, popular article for the Charlatan.	2018
SPE calibration and other studies of the muon veto PMTs in DEAP-3600, internal report for the DEAP collaboration.	2017