CONTACT INFORMATION

Fermilab
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EMPLOYMENT AND EDUCATION

Fermilab, Wilson Fellow **2019-present**

University of Chicago, Department of Astronomy and Astrophysics, CASE Associate **2021-present**

Fermilab, Lederman Postdoctoral Fellow **2015-2019**
Advisor: Bradford Benson

Massachusetts Institute of Technology, Ph.D., Physics **2010-2015**
Advisor: Enectalí Figueroa-Feliciano

University of Chicago, A.B., Physics, Mathematics, with honors **2006-2010**
Advisor: Ed Blucher

AWARDS AND HONORS

DOE Office of Science Graduate Fellowship **2012-2015**

NSF Graduate Research Fellowship, *declined* **2012-2015**

Presidential Fellowship, MIT **2010-2011**

Lewis Prize, University of Chicago, Dept. of Physics **2010**

Phi Beta Kappa **2010**

Grainger Fellowship, University of Chicago, Dept. of Physics **2009-2010**

College Honor Scholarship, University of Chicago **2006-2010**

TEACHING

Organizer of summer student lecture series, SPT collaboration **Summer 2021**

Seminar XL lead facilitator, MIT **Fall 2011**

College Core Tutor, University of Chicago **September 2008-June 2010**

GRAD STUDENTS MENTORED

Kyle Ferguson (UCLA): Search for axions with SPT-3G **2020-2022**

Andrea Bryant (Chicago): GEM intern at Fermilab **Summer 2017**

UNDERGRADUATES MENTORED

Ebtihal Abdelaziz (Goshen): SIST intern at Fermilab **Summer 2021**

Taryn Imamura (Stanford → PhD, Carnegie Mellon): SIST intern at Fermilab **Summer 2018**

Josémanuel Hernandez (Northwestern → SM, UChicago): SIST intern at Fermilab **Summer 2018**

Cory Cotter (Wisconsin → PhD, Chicago): SULI intern at Fermilab **Summer 2017**

AJ Corso (Chicago → PhD, UPenn): summer research **Summer 2016**

Chandler Schlupf (MIT → PhD, UCLA): UROP research, senior thesis **2012-2014**

Natalia Guerrero (MIT → PhD, Royal Holloway): UROP research **Spring 2012**

High-School Students Mentored

Arielle Pfeil: QuarkNet intern at Fermilab **Summer 2017**

Antony Simonoff: QuarkNet intern at Fermilab **Summer 2017**

Ben Hardin: QuarkNet intern at Fermilab **Summer 2016**

Ryan Thornton: QuarkNet intern at Fermilab **Summer 2016**

Funding History

SPT-SLIM: The South Pole Telescope Summertime Line Intensity Mapper
co-PI, Fermilab internal LDRD
2021-2023: $683,314

High-throughput quantum sensors and materials testing at ultra-low temperature
(project within ORNL-led Quantum Science Center), DOE Office of Science
2021-2025: $ 4,149,980

Mass-Produced Detector Modules for Future Cosmic Microwave Background Experiments
PI, Fermilab internal LDRD
2021-2023: $659,706

Development of Background-Limited MKIDs for Microwave Cosmology
PI, Fermilab internal LDRD
2020: $50,000

Development of Microwave Readout Electronics for Massively Multiplexed Arrays of Transition-Edge Sensors
PI, Fermilab internal LDRD
2019 - 2022: $424,197

Conferences and Talks

COSMO-21, poster: *South Pole Telescope: Survey Status and Future Instruments* **August 2021**

DPF-21 Meeting, contributed talk: *SPT-SLIM: Intensity Mapping Pathfinder with the South Pole Telescope* **July 2021**

CPAD Instrumentation Frontier Workshop 2021, contributed talk: *Mapping the CMB at High-Frequency with Kinetic Inductance Detectors on the South Pole Telescope* **March 2021**

Perimeter Institute: Particle Physics Seminar: *CMB with SPT-3G: Recent Results and Constraining Axions with CMB Polarization Rotation* **June 2020**

SLAC, KIPAC Tea Talk: *SPT-3G: High-Resolution CMB Science at the South Pole* **April 2020**

CPAD Instrumentation Frontier Workshop 2019, contributed talk: *KIDs for Next-Generation CMB Experiments* **December 2019**

Topics in Cosmic Neutrino Physics, plenary talk: *Prospects for Neutrino Physics with SPT-3G and Future CMB Experiments* **October 2019**

Low-Temperature Detectors 18, poster: *Performance of Al-Mn Transition-Edge Sensor Bolometers in SPT-3G* **July 2019**

Fermilab, Particle Astrophysics Seminar: *SPT-3G and Next-Generation CMB Experiments* **April 2019**

University of Toronto, Astro Seminar: *Probing Fundamental Physics with the South Pole Telescope and Beyond* **February 2019**

Rencontres de Blois, parallel talk: *SPT-3G and Recent Results from the South Pole Telescope* **June 2018**

Low-Temperature Detectors 17, plenary talk: *SPT3G: A Multichroic Receiver for the South Pole Telescope* **July 2017**

Princeton University, Gravity Group Seminar: *SPT3G: Deployment and Science of a New Camera for the South Pole Telescope* **April 2017**

8th INFIERI Workshop, plenary talk: *SPT3G: A New Receiver for the South Pole Telescope* **October 2016**

University of Michigan, HEP/Astro/Nuclear Seminar: *SPT3G: Fundamental Physics with a New Receiver for the South Pole Telescope* **September 2016**

Fermilab Users Meeting, plenary talk: *Cosmology with the South Pole Telescope* **June 2016**

Yale University, Weak Interactions Discussion Group: *Light WIMPs and Sterile Neutrinos with Cryogenic Detectors* **May 2015**

Lawrence Berkeley National Lab, Research Progress Meeting: *Extending the Reach of SuperCDMS for Dark Matter Searches* **December 2014**

International Conference on Particle Physics and Cosmology, parallel talk: *Low-Energy Analysis of Data from SuperCDMS Soudan* **August 2014**

Brookhaven National Lab, Particle Physics Seminar: *Probing Light WIMPs with SuperCDMS* **May 2014**

APS April Meeting, contributed talk: *Backgrounds and Discrimination Algorithms for Low-energy SuperCDMS Soudan Data* **April 2014**

Rencontres de Moriond, Electroweak, plenary talk: *Constraints on Light WIMPs with SuperCDMS* **March 2014**

Low-Temperature Detectors 15, poster: *Phonon Event Analysis in SuperCDMS iZIP Detectors* **June 2013**

APS April Meeting, contributed talk: *Underground Performance of SuperCDMS iZIP Detectors* **April 2013**

Rencontres de Moriond, Electroweak, student talk: *Coherent Neutrino Scattering with Cryogenic Semiconductor Detectors* **March 2012**

Low-Temperature Detectors 14, poster: *Simulations of Phase-Separated Transition-Edge Sensors for SuperCDMS* **August 2011**

APS April Meeting, contributed talk: *Simulations of Transition-Edge Sensors for SuperCDMS* **May 2011**

Professional Service

Referee for: Applied Physics Letters, Journal of Cosmology and Astroparticle Physics, Journal of Low Temperature Physics

Editorial reviewer for: Cambridge University Press

Public Talks

Fermilab Saturday Morning Physics: *Cosmology* **November 2020**

After School Matters: *Looking Back in Time: Cosmology from the South Pole* **June 2020**

Fermilab Ask-a-Scientist: *Looking Back in Time: Cosmology from the South Pole* **June 2020**

Fermilab Saturday Morning Physics: *Extragalactic Astronomy* **April 2020**

Fermilab Saturday Morning Physics: *Cosmology* **November 2019**

Lifelong Learning Institute: *Cosmology and the Early Universe* **September 2018**

MIT Kavli Institute IAP Seminar: *Hunting Dark Matter*	**January 2015**
MIT Kavli Institute IAP Seminar: *Hunting Dark Matter*	**January 2014**
MIT Astronomical Event: *Dark Matter Searches*	**October 2012**

Outreach Activities

Co-Director, Saturday Morning Physics, Fermilab	**Fall 2019-present**
Volunteer for Ask-a-Scientist, Fermilab	**March 2018**
Dark Matter Day Panelist, Dark Matter Coffee	**October 2017**
Organizer for Saturday Morning Physics, Fermilab	**Fall 2015-Spring 2019**
Career panelist for "High Energy... High Ambition," Fermilab	**April 2017**
Volunteer with Quarknet Radio Telescope, Fermilab	**October 2015-August 2016**
Fermilab Family Open House: panelist for "A Day in the Life"	**February 2016**