# Jesse Diaz Thaler

*Curriculum Vitae*
*(Updated May 15, 2025)*

## Contact Information


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## Research in Theoretical Particle Physics

- Data Science and AI/ML
- Collider Physics and QCD
- Beyond the Standard Model

## Employment

*January 2010–Present* **Massachusetts Institute of Technology**
*MIT Center for Theoretical Physics*
Professor of Physics, *2021–Present*
Associate Professor of Physics with Tenure, *2017–2021*
Associate Professor of Physics, *2015–2017*
Assistant Professor of Physics, *2010–2015*

*July 2009–December 2009* **Lawrence Berkeley National Laboratory**
*Theoretical Physics Group*
Physicist Postdoctoral Fellow

*July 2006–June 2009* **University of California, Berkeley**
*Miller Institute for Basic Research in Science*
Miller Research Fellow

## Degrees

*Fall 2002–Spring 2006* **Harvard University**
Ph.D., Physics, *June 2006*
A.M., Physics, *June 2004*
Thesis: "Symmetry Breaking at the Energy Frontier"
Advisor: Nima Arkani-Hamed

*Fall 1998–Spring 2002* **Brown University**
Sc.B., Math/Physics, *May 2002*
Advisor: Antal Jevicki

## Leadership

- Director, NSF Institute for Artificial Intelligence and Fundamental Interactions (IAIFI), *August 2020–Present*

## Affiliations

- MIT Center for Theoretical Physics (CTP), *January 2010–Present*
- MIT Laboratory for Nuclear Science (LNS), *January 2010–Present*
- MIT Statistics & Data Science Center (SDSC), *January 2020–Present*
- MIT Institute for Data, Systems & Society (IDSS), *January 2020–Present*
- Harvard Center for the Fundamental Laws of Nature, *September 2018–August 2019 sabbatical*

## Honors

- APS Fellow, *American Physical Society, 2022*
- Simons Investigator in Physics, *Simons Foundation, 2022–2027*
- Fermilab Distinguished Scholar, *Fermi National Accelerator Laboratory, 2018–2020*
- Simons Fellowship in Theoretical Physics, *Simons Foundation, 2018*
- Frank E. Perkins Award for Excellence in Graduate Advising, *MIT, 2017*
- Harold E. Edgerton Faculty Achievement Award, *MIT, 2016*
- Buechner Faculty Award for Teaching, *MIT Physics Department, 2014*
- Buechner Faculty Award for Undergraduate Advising, *MIT Physics Department, 2013*
- Sloan Research Fellowship, *Alfred P. Sloan Foundation, 2013*
- Kavli Frontiers Fellow, *Kavli Foundation, 2012*
- Presidential Early Career Award for Scientists and Engineers, *White House, 2012*
- Class of 1943 Career Development Professorship, *MIT, 2012–2015*
- Early Career Research Award, *U.S. Department of Energy, Office of Science, 2011–2016*
- Miller Research Fellowship, *University of California, Berkeley, 2006–2009*
- Giorgio Gamberini Dissertation Prize, *Scuola Normale Superiore di Pisa, 2007*
- Merit Fellowship, *Harvard Faculty of Arts and Sciences, 2006*
- Goldhaber Prize, *Harvard Physics Department, 2005*
- Graduate Research Fellowship, *National Science Foundation, 2002–2005*

## UROP Students Supervised

*Undergraduate Research Opportunities Program, MIT*

- Canis Li '28: *Spring 2025*
- Nipun Dour '27: *Fall 2024*
- Max Tan '25: *Spring 2023, Summer 2023*

- Ammar Fayad '25: *Summer 2023, Summer 2024*
- Mohit Dighamber '23: *Fall 2022, Spring 2023*
  After MIT: EECS M.Eng. Candidate, *MIT*
- Octavio Vega '22: *Spring 2021, Summer 2021, Fall 2021*
  After MIT: Research Assistant, *University of Hamburg*
  Currently: Physics Ph.D. Candidate, *University of Illinois, Urbana-Champaign*
- Nishat Protyasha '23: *Summer 2020, Fall 2020, Spring 2021, Summer 2021*
  After MIT: EECS M.Eng., *MIT*
  Currently: Research Assistant, *MIT Media Lab*
  FUTURE of Physics Participant, *Caltech, 2020*
- Serhii Kryhin '22: *Spring 2020, Summer 2020, Spring 2021, Summer 2021* (see below)
- Christopher Miller '21: *Fall 2020*
  After MIT: Technical Instructor II, *MIT*
- Debaditya Pramanik '21: *Spring 2020, Summer 2020, Fall 2020* (see below)
- Ziqi Zhou '20: *Fall 2018*
  After MIT: Physics Ph.D. Candidate, *Stony Brook*
- Talya Klinger '20: *Spring 2017*
  After MIT: Marshall Scholar, *University of Cambridge and Cardiff University*
  Currently: Physics Ph.D. Candidate, *Caltech*
- Radha Mastandrea '19: *Spring 2017, Fall 2017, Spring 2018, Summer 2018* (see below)
- Eleanor Hall '18: *Spring 2017, Summer 2017, Fall 2017* (see below)
- Matthew Burns '18: *Fall 2014, Spring 2015*
- Kevin Zhou '17: *IAP 2016, Spring 2016, Summer 2016, Fall 2016, Spring 2017*
  After MIT: Marshall Scholarship, *U. Cambridge and U. Oxford*
  Currently: Postdoctoral Researcher, *UC Berkeley*
  Joel Matthew Orloff Award for Outstanding Research, *MIT Physics Department, 2017*
- Aashish Tripathee '17: *Spring 2015, Summer 2015, Fall 2015, IAP 2016, Spring 2016, Summer 2016, Fall 2016* (see below)
- Trung Phan '15: *Spring 2014, Summer 2014* (see below)
- T.J. Wilkason '15: *Fall 2013, Spring 2014, Summer 2014* (see below)
- Mobolaji Williams '13: *Fall 2010, Spring 2011, Summer 2012* (see below)
- Dustin Katzin '12: *Fall 2011, IAP 2012* (see below)
- Tucker Chan '12: *Summer 2011, Fall 2011, Spring 2012* (deceased)
  After MIT: Physics Ph.D. Candidate, *Stanford*
- Ken Van Tilburg '11: *Summer 2010, Fall 2010* (see below)

### B.S. Student Theses Supervised

- Serhii Kryhin, *B.S. 2022*
  Thesis: "Application of Unsupervised Machine Learning for Event Classification"
  After MIT: Physics Ph.D. Candidate, *Harvard*
  Morse/Orloff Research Award, *MIT Physics Department, 2022*

- Debaditya Pramanik, *B.S. 2021*
  Thesis: "Collinear Supergravity at Linear Order"
  After MIT: Physics Ph.D. Candidate, *Princeton*
- Radha Mastandrea, *B.S. 2019*
  Thesis: "Analyzing CMS Open Collider Data through Topic Modeling"
  After MIT: Marshall Scholarship, *U. Cambridge*
  Currently: Schmidt AI Fellow, *U. Chicago*
  Joel Matthew Orloff Award for Outstanding Service, *MIT Physics Department, 2019*
  Physics Research Fellowship, *Heising-Simons Foundation, 2018*
  FUTURE of Physics Participant, *Caltech, 2018*
- Eleanor Hall, *B.S. 2018*
  Thesis: "Photon Isolation and Jet Substructure"
  After MIT: Physics Ph.D. Candidate, *U.C. Berkeley*
  Joel Matthew Orloff Award for Outstanding Service, *MIT Physics Department, 2017*
- Aashish Tripathee, *B.S. 2017*
  Thesis: "Jet Substructure at the Large Hadron Collider"
  After MIT: Physics Ph.D., *U. Michigan*
  Currently: Postdoctoral Researcher, *U. Michigan*
  Philip Morse Memorial Award, *MIT Physics Department, 2017*
- Trung Phan, *B.S. 2015*
  Thesis: "Relativistic Quantum Fields in Theoretical Physics"
  After MIT: Physics Ph.D., *Princeton*
  Currently: Assistant Professor, *Claremont Colleges*
- T.J. Wilkason, *B.S. 2015*
  Thesis: "Exclusive Cone Jet Algorithms for High Energy Particle Colliders"
  After MIT: Physics Ph.D., *Stanford*
  Currently: Senior Quantum Engineer, *Atom Computing*
  Joel Matthew Orloff Award for Outstanding Service, *MIT Physics Department, 2015*
- Mobolaji Williams, *B.S. 2013*
  Thesis: "Pseudo-Goldstino to Gravitino Decay: An Implication of Multiple Supersymmetry Breaking"
  After MIT: Physics Ph.D., *Harvard*
  Currently: Data Scientist, *Jellyfish*
- Dustin Katzin, *B.S. 2012*
  Thesis: "The DarkLight Experiment: Searching for the Dark Photon"
  After MIT: Part III, *University of Cambridge*
  Currently: Software Engineering Team Lead, *Bloomberg*
- Lin Fei, *B.S. 2011*
  Thesis: "Dark Matter Dynamics in the Early Universe"
  After MIT: Physics Ph.D., *Princeton*
- Ken Van Tilburg, *B.S. 2011*
  Thesis: "Identifying Boosted Objects with N-subjettiness and Linear k-means Clustering"
  After MIT: Physics Ph.D., *Stanford*
  Currently: Assistant Professor, *NYU*
  Apker Award Finalist, *American Physical Society, 2011*
  Joel Matthew Orloff Award for Outstanding Research in Physics, *MIT Physics Department, 2011*

## M.Eng. Student Theses Supervised

- Raymond Wynne, *M.Eng. 2023*
  Thesis: "Anomaly Detection in Collider Physics via Factorized Observables"
  After MIT: Physics Ph.D. Candidate, *Caltech*
- Nilai Sarda, *M.Eng. 2020*
  Thesis: "On Anomaly Detection in Particle Accelerators" *(jointly advised with Justin Solomon)*
  After MIT: Researcher, *D.E. Shaw Group*
  Currently: Algorithm Developer, *Hudson River Trading*
  Johnson Artificial Intelligence and Decision Making Thesis Award, *MIT EECS Department, 2020*
- Preksha Naik, *M.Eng. 2019*
  Thesis: "Exploring the Space of Jets with CMS Open Data"
  After MIT: Physics Ph.D. Candidate, *Caltech*

## Ph.D. Students Supervised

- Pamela Pajarillo, *anticipated Ph.D. 2028*
- Sean Benevedes, *anticipated Ph.D. 2026*
- Rikab Gambhir, *anticipated Ph.D. 2025*
  Thesis: "Metrics, Muons, Moments, Models, Machine Learning, Measurements, and More: A Manifesto on Collider Physics"
  MIT Prize for Open Data (Honorable Mention), *MIT Libraries and School of Science, 2022*
- Samuel Alipour-fard, *anticipated Ph.D. 2025*
  Thesis: "Particles Inside Particles: The Flow of Energy in Quarks, Gluons, and Jets"
- Patrick Komiske, *Ph.D. 2021*
  Thesis: "Machine Learning for High-Energy Collider Physics"
  After MIT: Researcher, *PDT Partners*
  Currently: Research Scientist, *River Run Trading*
- Eric Metodiev, *Ph.D. 2020*
  Thesis: "Energy Flow in Particle Collisions"
  After MIT: Research Scientist, *Renaissance Technologies*
- Benjamin Elder, *Ph.D. 2018*
  Thesis: "Jet Fragmentation at the LHC"
  After MIT: Cognitive Software Developer, *IBM*
  Currently: Research Scientist, *IBM*
- Lina Necib, *Ph.D. 2017*
  Thesis: "Boosting (In)direct Detection of Dark Matter"
  After MIT: Fairchild Postdoctoral Scholar, *Caltech*
  Currently: Assistant Professor, *MIT*
  Vazquez Award for Outstanding Research, *MIT Physics Department, 2016*
- Yonatan Kahn, *Ph.D. 2015*
  Thesis: "Forces and Gauge Groups Beyond the Standard Model"
  After MIT: Postdoctoral Researcher, *Princeton*
  Currently: Assistant Professor, *U. Toronto*
  Andrew M. Lockett III Memorial Fund Award, *MIT Physics Department, 2014*
  J.J. and Noriko Sakurai Dissertation Award, *American Physical Society, 2016*

- Daniele Bertolini, *Ph.D. 2014*
  Thesis: "Electroweak Symmetry Breaking in the Era of the Higgs Boson Discovery"
  After MIT: Postdoctoral Researcher, *U.C. Berkeley*
  Currently: Machine Learning Scientist, *Unlearn*
  LHC-TI Graduate Fellowship, *LHC Theory Initiative, 2013*
- Zoe Thomas, *Ph.D. 2014*
  Thesis: "Supersymmetry at the Dawn of the LHC Era"
  After MIT: Postdoctoral Researcher, *U. Minnesota*
  Currently: Applied Research Mathematician, *Department of Defense*
- Francesco D'Eramo, *Ph.D. 2012*
  Thesis: "Hot and Dark Matter" *(jointly advised with Krishna Rajagopal and Hong Liu)*
  After MIT: Miller Research Fellow, *U.C. Berkeley*
  Currently: Associate Professor, *U. Padova*
  Vazquez Award for Outstanding Research, *MIT Physics Department, 2011*

## Postdoctoral Researchers Supervised

- So Chigusa, CTP Postdoctoral Researcher, *Fall 2024–Spring 2027*
- Kyle Lee, CTP Postdoctoral Researcher, *Fall 2022–Spring 2025*
- Cari Cesarotti, CTP Postdoctoral Researcher, *Fall 2022–Spring 2025*
  J.J. and Noriko Sakurai Dissertation Award, *American Physical Society, 2023*
  Science 30 Under 30, *Forbes, 2024*
  Leona Woods Distinguished Postdoctoral Lectureship, *Brookhaven National Laboratory, 2024*
- Sokratis Trifinopoulos, Postdoc.Mobility Fellow, *Fall 2022–Spring 2024*
  CTP Postdoctoral Researcher, *Spring 2024–Spring 2025*
- Siddharth Mishra-Sharma, IAIFI Fellow, *Fall 2021–Spring 2024*
  After MIT: Member of Technical Staff, *Anthropic*
  Currently: Assistant Professor, *Boston U.*
- Lena Funcke, CTP Postdoctoral Researcher, *Fall 2021–Fall 2022*
  After MIT: Assistant Professor, *U. Bonn*
- Katelin Schutz, Pappalardo Fellow, *Fall 2019–Fall 2020*
  NASA Einstein Fellow, *Spring 2021*
  After MIT: Assistant Professor, Canada Research Chair, *McGill*
- Pouya Asadi, CTP Postdoctoral Researcher, *Fall 2019–Spring 2022*
  After MIT: Postdoctoral Researcher, *U. Oregon*
- Bernhard Mistlberger, Pappalardo Fellow, *Fall 2018–Spring 2020*
  After MIT: Associate Staff Scientist, *SLAC*
  Currently: Staff Scientist, *SLAC*
- Frédéric Dreyer, Early Postdoc.Mobility Fellow, *Fall 2016–Spring 2018*
  After MIT: Postdoctoral Researcher, *Oxford*
  Currently: Senior Machine Learning Scientist, *Prescient Design*
- Yotam Soreq, Rothschild Fellow, *Fall 2015–Spring 2018*
  After MIT: Postdoctoral Researcher, *CERN*
  Currently: Associate Professor, *Technion*

- Benjamin Safdi, Pappalardo Fellow, *Fall 2014–Spring 2017*
  After MIT: Assistant Professor, *U. Michigan*
  Currently: Associate Professor, *U.C. Berkeley*
- Wei Xue, CTP Postdoctoral Researcher, *Fall 2014–Spring 2017*
  After MIT: Postdoctoral Fellow, *CERN*
  Currently: Assistant Professor, *U. Florida*
- Simone Marzani, LHC Theory Initiative Postdoctoral Fellow, *Fall 2014–Spring 2015*
  After MIT: Assistant Professor, *U. Buffalo*
  Currently: Associate Professor, *U. Genova*
- Gilly Elor, CTP Postdoctoral Researcher, *Fall 2013–Spring 2016*
  After MIT: Postdoctoral Researcher, *U. Oregon*
  Currently: Research Fellow, *UT Austin*
- Duff Neill, Pappalardo Fellow, *Fall 2012–Spring 2015*
  CTP Postdoctoral Researcher, *Spring 2015–Spring 2016*
  After MIT: Director's Fellow, *Los Alamos National Laboratory*
  Currently: Staff Scientist, *Los Alamos National Laboratory*
- Andrew Larkoski, CTP Postdoctoral Researcher, *Fall 2012–Spring 2015*
  After MIT: LHC Theoretical Initiative Postdoctoral Fellow, *Harvard*
  Currently: Associate Editor, *Physical Review D*
  Wu-Ki Tung Award for Early Career Research on QCD, *CTEQ Collaboration, 2017*
- Matthew McCullough, Simons Postdoctoral Fellow, *Fall 2011–Spring 2014*
  After MIT: COFUND Fellowship, *CERN*
  Currently: Staff Scientist, *CERN*
- Keith Rehermann, CTP Postdoctoral Researcher, *Fall 2010–Spring 2012*
  After MIT: Consultant, *Ab Initio Software Corporation*
  Currently: Software Engineer, *Chainlink Labs*

## Visitors Hosted

- Anne Galda, Fulbright Scholarship, *Spring 2025*
  Project: "Unveiling the Discovery Potential for ALPs using Machine Learning"
  Home Institution: *Johannes Gutenberg University*
- Nathaniel Santiago, MIT Summer Research Program, *Summer 2024*
  Project: "Graph Neural Network Particle Reconstruction for DUNE's Prototype Near Detector"
  Home Institution: *Northeastern Illinois U.*
- Yiding Song, Research Science Institute, *Summer 2023*
  Project: "Towards an Understanding of Scientific Data with Multimodal Language Models"
  Home Institution: *Harrow School*
- Edward Gu, Research Internship, *Summer 2023*
  Home Institution: *Cornell*
- Xinyue (Stella) Wu, MIT Summer Research Program, *Summer 2023*
  Project: "Measuring the Size of Quark and Gluon Jets in CMS Open Data"
  Home Institution: *U. Rochester*
- Brian Nord, MIT MLK Visiting Professor, *Fall 2022–Spring 2023*
  Home Institution: *Fermilab and U. Chicago*

- Kaća Bradonjić, Visiting Artist, *Fall 2022*
  Home Institution: *Hampshire College*
- Sergio Diaz, MIT Summer Research Program, *Summer 2022*
  Project: "Determination of the W Mass Parameter using Machine Learning"
  Home Institution: *U. Maryland, Baltimore County*
- Pedro Rivera-Cardona, MIT Summer Research Program, *Summer 2021*
  Project: "Implementation of U(1) Group Symmetry on Energy Flow Networks"
  Home Institution: *U. Puerto Rico, Mayaguez*
- Athis Osathapan, Research Internship, *Spring 2021, Summer 2021, Summer 2022*
  Home Institution: *Bowdoin College*
- Shira Jackson, MIT Summer Research Program, *Summer 2020*
  Project: "Estimating the Energy Mover's Distance with Exclusive Jet Clustering"
  Home Institution: *U. Cincinnati*
- Andrew Turner, Tushar Shah and Sara Zion Physics Fellowship, *2018–2019*
  Home Institution: *MIT (Washington Taylor)*
- Maximilian Henderson, International Research Opportunities Programme, *Summer 2018*
  Home Institution: *Imperial College London*
- Edward Hirst, International Research Opportunities Programme, *Summer 2018*
  Home Institution: *Imperial College London*
- Rahim Leung, International Research Opportunities Programme, *Summer 2017*
  Home Institution: *Imperial College London*
- Markus Schulze, Visiting Postdoc, *Fall 2015*
  Home Institution: *CERN*
- Alexis Romero, MIT Summer Research Program, *Summer 2015*
  Project: "Jet Physics Measurements on CMS Open Data"
  Home Institution: *San Diego State University*
- Nayara Fonseca, FAPESP Fellowship, *Spring 2014–Fall 2014*
  Home Institution: *U. Sao Paulo, Brazil (Gustavo Burdman)*

## Teaching Experience

- 8.831 — Supersymmetric Quantum Field Theories
  Lecture: *Spring 2017, Fall 2019, Fall 2024*
- 8.398 — Selected Topics in Graduate Physics
  Instructor: *Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023, Spring 2024*
- 8.03 — Physics III, Waves and Vibrations
  Recitation: *Fall 2020*
- 8.044 — Statistical Physics I
  Recitation: *Spring 2020*
- 8.05 — Quantum Mechanics II
  Instructor (MITx-based 8.051): *Spring 2018*
  Recitation: *Fall 2010, Fall 2012*

- 8.033 — Relativity
  Lecture: *Fall 2017*
  Recitation: *Fall 2016*
- 8.02 — Physics II, Electricity and Magnetism
  TEAL (studio class): *Spring 2014, Spring 2015, Spring 2016*
- 8.012 — Physics I, Classical Mechanics
  Recitation: *Fall 2014*
- 8.06 — Quantum Mechanics III
  Lecture: *Spring 2011, Spring 2012, Spring 2013*
  Recitation: *Spring 2010*

## Advising

- MIT Physics Ph.D. Thesis Committees:
  - Enrique Toloza *(Mark Harnett & Mehran Kardar, February 2025)*
  - Ouail Kitouni *(Mike Williams, August 2024)*
  - Stella Schindler *(Iain Stewart, August 2024)*
  - Evgenii Kniazev *(Vladan Vuletic, June 2024)*
  - Yitian Sun *(Tracy Slatyer, April 2024)*
  - Cristian Zanoci *(Mikhail Lukin & Aram W. Harrow, May 2023)*
  - Eva Huang *(Salvatore Vitale, January 2023)*
  - Gregory Ridgway *(Tracy Slatyer, June 2022)*
  - Patrick Fitzpatrick *(Tracy Slatyer & David Kaiser, July 2021)*
  - Joseph Johnston *(Lindley Winslow & Joseph Formaggio, May 2021)*
  - Chih-Liang Wu *(Tracy Slatyer, April 2021)*
  - Constantin Weisser *(Mike Williams, March 2021)*
  - J. Owen Andrews *(Ibrahim Cisse, November 2020)*
  - Gherardo Vita *(Iain Stewart, August 2020)*
  - Jasmine Brewer *(Krishna Rajagopal, July 2020)*
  - Hongwan Liu *(Tracy Slatyer, May 2019)*
  - Charles Epstein *(Richard Milner, August 2018)*
  - Nicholas Rodd *(Tracy Slatyer, April 2018)*
  - David Hernandez *(Edmund Bertschinger, April 2018)*
  - Aram Apyan *(Markus Klute, November 2016)*
  - Daniel Roberts *(Allan Adams, April 2016)*
  - Ian Moult *(Iain Stewart, April 2016)*
  - Daniel Kolodrubetz *(Iain Stewart, April 2016)*
  - Mingming Yang *(Christoph Paus, January 2015)*
  - Shawn Henderson *(Peter Fisher, July 2013)*
  - Teng Ma *(Boleslaw Wyslouch, May 2013)*
  - Kevin Sung *(Steven Nahn, March 2013)*
  - Christopher Jones *(Janet Conrad, June 2012)*
  - Riccardo Abbate *(Iain Stewart, May 2012)*
  - Abolhassan Vaezi *(Xiao-Gang Wen, January 2011)*

  - Georgia Karagiorgi *(Janet Conrad, July 2010)*
- MIT Physics Graduate Academic Advisor, *Fall 2017–Present*
  - Anticipated Ph.D. 2029: Aneca Sun, Adam Wills
  - Anticipated Ph.D. 2027: Alexander Schmidhuber, Manu Srivastava, Rachel Steinhorst
  - Anticipated Ph.D. 2025: Ryan Abbott
  - Ph.D. 2024: Bruno Scheihing Hitschfeld, Stella Schindler, Annie Wei
  - Ph.D. 2023: Eric Anschuetz
  - Ph.D. 2022: Gregory Ridgway, Samuel Leutheusser
  - Ph.D. 2020: Jasmine Brewer
- MIT Physics Undergraduate Academic Advisor, *Fall 2011–Present*
  - Class of 2024/2025: Omar Abdelghani, Nishant Dhankar, Chirag Falor, Gosha Geogdzhayeva, Lily Moseni, Dylan Raphael, David Suarez, Chris Viets
  - Class of 2018/2019/2020: Robert Arnott, Zachary Bogorad, Hannah Field, Rodmy Paredes Alfaro, Saranesh Prembabu, Joshua Rhodes, Kevin Tang, Michael Winer
  - Class of 2014/2015: Allison Christian, Jay Lawhorn, Joseph Perricone, Jeffrey Prouty, Melih Ucer, Pranjal Vachaspati, Prashanth Venkataram
- MIT First-Year Advisor, *Fall 2019–Spring 2020*
  - Class of 2023: Richter Brzeski, Megha Maran, Catalina Monsalve Rodriguez, Dylan Weber
- External Ph.D. Examiner:
  - Pim de Haan *(Max Welling & Taco Cohen, U. Amsterdam, May 2025)*
  - Pedro Cal *(Wouter Waalewijn, U. Amsterdam, September 2021)*
  - Thea Aarrestad *(Ben Kilminster, U. Zurich, March 2019)*
  - Ignacio Garcia Garcia *(Eduardo Ros & Marcel Vos, U. Valencia, December 2016)*
  - Brian Walsh *(Tobias Golling, Yale, February 2013)*
  - Travis Martin *(Thomas Gregoire & Stephen Godfrey, Carleton U., August 2012)*
- External Mentoring:
  - Ilias Cholis, PI Academy for Research and Engagement, *Fall 2018–Fall 2019*

## Internal Service

- MIT Rapid Response Task Force on Large Scale Proposal Development, *Summer 2024*
- MIT Faculty Committee on Curricula, *Fall 2017–Spring 2020*
- MIT Physics Major Design Committee, *Chair: Spring 2025*
- MIT Physics Council, Member at Large, *Fall 2024–Spring 2025*
- MIT Physics Ad Hoc Committee on Graduate Student Professional Development, *Spring 2023*
- MIT Physics Graduate Admissions Committee, *Spring 2021, Spring 2024, Spring 2025*
- MIT Physics Communic.8 Faculty Liaison, *Fall 2020–Fall 2023*
- MIT Physics Promotion Committee, *Fall 2019; Chair: Fall 2020, Fall 2021, Fall 2022*
- MIT Physics Pappalardo Fellowships Executive Committee, *Fall 2016, Fall 2017*
- MIT Physics Colloquium Committee, *Spring 2010–Spring 2012; Chair: Fall 2012–Spring 2014*
- MIT Physics Part II Qualifying Written Exam Committee, *Spring 2012–Spring 2013; Chair: Fall 2013–Spring 2014*

- MIT Physics Part II Qualifying Written Exam Grading Committee, *September 2010, January 2020*
- MIT LNS Advisory Group, *Fall 2017, Spring 2020–Spring 2024*
- MIT LNS Colloquium Committee, *Fall 2015–Spring 2017; Chair: Fall 2017–Spring 2018*
- MIT CTP Part III Oral Qualifying Exam Committee, *Spring 2015–Spring 2017, Fall 2022–Spring 2023*
- MIT CTP Faculty Mentor, *Spring 2021–Present*
- MIT CTP Faculty Search Committee, *Fall 2017, Fall 2021, Fall 2023; Chair: Fall 2019*
- MIT CTP Deputy Group Leader in High-Energy Physics, *Spring 2020–Present*
- MIT CTP Visitor Coordinator, *Fall 2016–Present*
- MIT CTP Nuclear/Particle Seminar Committee, *Fall 2010–Fall 2016, Fall 2020–Spring 2021, Fall 2022–Spring 2025*
- MIT CTP Postdoc Selection Committee, *Fall 2009–Present*
- MIT GenAI Consortium (MGAIC) Grant Review, *Spring 2025*
- MIT SCOC Tayebati Postdoctoral Fellowship Selection, *Spring 2025*
- MIT Physics, Statistics, and Data Science (PhysSDS) Committee, *Co–Chair: Fall 2020–Present*
- MIT SERC Seed Grant Selection Committee, *Spring 2024*
- MIT EECS Junior Faculty Mentoring Committee, *Spring 2024–Present*
- MISTI Global Seed Funds Evaluation Committee, *Fall 2012, Fall 2013, Fall 2014*

## External Service

- Aspen Center for Physics (ACP)
  - General Member, *Summer 2020–Summer 2025*
  - Public Lectures Committee, *Chair: Summer 2025*
  - Admissions Committee, *Summer 2024*
  - Nominations Committee, *Summer 2021; Chair: Summer 2022; Ex officio: Summer 2023*
  - Summer Program Committee, *Summer 2020*
  - Conference Liaison, "Theoretical Physics for Machine Learning", *Winter 2023*
  - Workshop Organizer, "Interplay of Fundamental Physics and Machine Learning", *Summer 2022*
  - Workshop Organizer, "The LHC Awakens: A New Energy Frontier", *Summer 2016*
  - Workshop Organizer, "Year One of the LHC", *Summer 2011*
  - Conference Organizer, "New Data from the Energy Frontier", *Winter 2011*
- American Physical Society (APS)
  - Fellow, *2022–Present*
  - Sakurai Dissertation Award Selection Committee, *Fall 2016; Vice Chair: Fall 2022; Chair: Fall 2023*
  - Member, *2002–Present*
- High Energy Physics Advisory Panel (HEPAP)
  - Particle Physics Project Prioritization Panel (P5), *December 2022–December 2023*
  - HEPAP Member (Second Term), *April 2024–March 2027*
  - HEPAP Member, *August 2021–March 2024*
  - HEPAP Presentation, "The NSF AI Institute for Artificial Intelligence and Fundamental Interactions", *December 2020*

  - HEPAP Presentation, "The High Energy Physics Landscape in 2019", *May 2019*
- Machine Learning for Jet Physics (ML4Jets)
  - Advisory Committee, "ML4Jets", *DESY, November 2023*
  - Advisory Committee, "ML4Jets", *Rutgers, November 2022*
  - Advisory Committee, "ML4Jets", *Heidelberg, July 2021*
  - Advisory Committee, "ML4Jets", *New York, January 2020*
- International Workshop on Boosted Object Phenomenology (BOOST)
  - Advisory Committee and Ombuds Team (with Ayana Arce), "Boost 2022", *Hamburg, August 2022*
  - Advisory Committee and Ombuds Team (with Ayana Arce), "Boost 2021", *Online, August 2021*
  - Advisory Committee and Ombuds Team (with Ayana Arce), "Boost 2020", *Hamburg, July 2020*
  - Local Organizing Committee, "Boost 2019", *MIT, July 2019*
  - Advisory Committee, "Boost 2018", *Paris, July 2018*
  - Advisory Committee, "Boost 2017", *Buffalo, July 2017*
  - Advisory Committee, "Boost 2016", *Zurich, July 2016*
  - Advisory Committee, "Boost 2015", *Chicago, August 2015*
  - Advisory Committee, "Boost 2014", *London, August 2014*
  - Advisory Committee, "Boost 2013", *Flagstaff, August 2013*
  - Advisory Committee, "Boost 2012", *Valencia, July 2012*
  - Advisory Committee, "Boost 2010", *Oxford U., June 2010*
- Organizer, "NSF Workshop on the Future of AI and the Mathematical and Physical Sciences", *MIT, March 2025*
- Scientific Committee, "PHYSTAT: Statistics Meets Machine Learning", *Imperial College London, September 2024*
- Organizer, "TASI 2024: The Frontiers of Particle Theory", *CU Boulder, June 2024*
- Topical Convener, "Collider Phenomenology", *Snowmass Theory Frontier, July 2021, July 2022*
- Organizer, "Machine Learning at GGI", *Galileo Galilei Institute, August/September 2022*
- Organizer, "CMS Open Data for Theorists", *Fermilab/Virtual, September 2020*
- Advisory Committee, "Machine Learning for Particle Physics", *Mainz, May 2020 → June 2021*
- Local Organizing Committee, "Rising Stars in Physics", *MIT, April 2018*
- Jet Convener, "Physics at TeV Colliders", *Les Houches, June 2017*
- Advisory Committee, "BLV 2017", *Cleveland, May 2017*
- Scientific Organizing Committee, "Lattice for BSM Physics 2017", *Boston, April 2017*
- Organizer, "Gearing up for LHC13", *Galileo Galilei Institute, Fall 2015*
- Jet Convener, "Physics at TeV Colliders", *Les Houches, June 2015*
- Organizer, "Boston Jet Physics", *Harvard/MIT, January 2014*
- Conference Program Committee, "PANIC 2011: Particle and Nuclei International Conference", *Boston, July 2011*
- Organizer, "Boston Jet Physics", *Harvard/MIT, January 2011*
- Organizer, "Implications of First LHC Data", *MIT/Berkeley, August 2010*
- Visiting Committee Co-Chair, Division of Physics, Mathematics and Astronomy, *Caltech, March 2025*
- Selection Committee, Margot and Tom Pritzker Prize for AI in Science Research Excellence, *Pritzker Foundation, 2024*

- International Scientific Advisory Board, AI for Science and Science for AI (AISSAI) Center, *French CNRS, 2022–Present*
- International Advisory Committee, Machine Learning Physics, *JSPS/MEXT Grant-in-Aid for Transformative Research Areas, 2022–2026*
- Science Advisory Board, USQCD Collaboration, *Spring 2013–Fall 2016*
- Fellowship Selection Committee, LHC Theory Initiative, *Fall 2013–Fall 2014; Chair: Fall 2014*
- Editorial Board, Journal of High Energy Physics, *Fall 2019–Present*
- Editorial College, SciPost Physics, *Fall 2019–Spring 2024*
- Co-Topic Editor, "Efficient AI in Particle Physics and Astrophysics", *Frontiers in Artificial Intelligence, Spring 2022*
- Peer Review:
  *Physical Review Letters; Journal of High Energy Physics; Physical Review D; SciPost Physics; Journal of Cosmology and Astroparticle Physics; Physics of the Dark Universe; Nuclear Physics B; Physics Letters B; European Physical Journal C; Journal of Physics G; Physics Reports; Annals of Physics; Particle Data Group*
- Funding Agency Review:
  *U.S. Department of Energy (DOE); National Science Foundation (NSF); European Research Council (ERC); Heising-Simons Foundation; Research Corporation for Science Advancement (Cottrell); The Royal Society; Swiss National Science Foundation; Natural Sciences & Engineering Research Council of Canada; Israel Science Foundation; Netherlands Organisation for Scientific Research; German Academic Exchange Service (DAAD); French National Research Agency; Hungarian National Research, Development & Innovation Office*

## Public Engagement

- Artificial Intelligence Advocacy
  - "Transcript of Physics, AI, and the Future of Discovery" (with France Córdova, Walter Copan, Valerie Browning, and Evgeni Gousev), *Physics Today 77(11):30 (2024)*
  - "Institute for Artificial Intelligence and Fundamental Interactions (IAIFI): Infusing physics intelligence into artificial intelligence" (with Mike Williams and Marisa LaFleur), *AI Magazine, February 2024*
  - "Deep Learning + Deep Thinking = Deeper Understanding" (with Mike Williams), *Physics@MIT Journal, Fall 2023*
  - "Expanding the Space of Machine Learning for Physics", *APS Topical Group on Data Science Newsletter, Winter 2023*
  - "Designing an AI Physicist", Opinion Viewpoint, *CERN Courier, September 2021*
- Open Data Advocacy
  - "Slow and Steady" (with Matthew Strassler), Correspondence, *Nature Physics 15:725 (2019)*
  - "Guest Case Study 6: Particle Collisions" (with Felice Frankel), Picturing Science and Engineering, *MIT Press, 2018*
  - "The Future of Particle Physics is 'Open"', Guest Blog Post, The Cylindrical Onion, *CMS Experiment, December 2017*

## Publications and Preprints

See http://www.jthaler.net/research for these publications organized by topic. Following the convention in particle physics, all authors are listed alphabetically, except those indicated by [§].

[*] = Paper arising from a supervised Ph.D. thesis
[†] = Paper arising from a supervised B.S. or M.Eng. thesis
[§] = Authors ordered by contribution

[137] [*] Rikab Gambhir, Radha Mastandrea, Benjamin Nachman, Jesse Thaler, *Isolating Unisolated Upsilons with Anomaly Detection in CMS Open Data* [arXiv:2502.14036].

[136] Benoît Assi, Stefan Höche, Kyle Lee, and Jesse Thaler, *QCD Theory meets Information Theory* [arXiv:2501.17219].

[135] Johann Brehmer, Víctor Bresó, Pim de Haan, Tilman Plehn, Huilin Qu, Jonas Spinner, and Jesse Thaler, *A Lorentz-Equivariant Transformer for All of the LHC* [arXiv:2411.00446].

[134] Jesse Thaler and Sokratis Trifinopoulos, *Flavor Patterns of Fundamental Particles from Quantum Entanglement?*, Phys. Rev. D111:056021 (2025) [arXiv:2410.23343].

[133] [*] Samuel Alipour-fard, Ankita Budhraja, Jesse Thaler, and Wouter J. Waalewijn, *New Angles on Energy Correlators* [arXiv:2410.16368].

[132] [*] Rikab Gambhir, Andrew J. Larkoski, and Jesse Thaler, *SPECTER: Efficient Evaluation of the Spectral EMD*, JHEP 2412:219 (2024) [arXiv:2410.05379].

[131] Krish Desai, Benjamin Nachman, and Jesse Thaler, *Moment Unfolding*, Phys. Rev. D110:116013 (2024) [arXiv:2407.11284].

[130] [§] Jonas Spinner, Victor Bresó, Pim de Haan, Tilman Plehn, Jesse Thaler, and Johann Brehmer, *Lorentz-Equivariant Geometric Algebra Transformers for High-Energy Physics*, NeurIPS 2024 [arXiv:2405.14806].

[129] [*] Rikab Gambhir, Athis Osathapan, and Jesse Thaler, *Moments of Clarity: Streamlining Latent Spaces in Machine Learning using Moment Pooling*, Phys. Rev. D110:074020 (2024) [arXiv:2403.08854].

[128] [§] Siddharth Mishra-Sharma, Yiding Song, and Jesse Thaler, *PAPERCLIP: Associating Astronomical Observations and Natural Language with Multi-Modal Models*, Conf. Lang. Mod. 2024 [arXiv:2403.08851].

[127] [†] Eric M. Metodiev, Jesse Thaler, and Raymond Wynne, *Anomaly Detection in Collider Physics via Factorized Observables*, Phys. Rev. D110:055012 (2024) [arXiv:2312.00119].

[126] Samuel Bright-Thonney, Benjamin Nachman, and Jesse Thaler, *Safe but Incalculable: Energy-Weighting is Not All You Need*, Phys. Rev. D110:014029 (2024) [arXiv:2311.07652].

[125] Fabrizio Caola, Radosław Grabarczyk, Maxwell L. Hutt, Gavin P. Salam, Ludovic Scyboz, and Jesse Thaler, *Flavoured Jets with Exact Anti-kt Kinematics and Tests of Infrared and Collinear Safety*, Phys. Rev. D108:094010 (2023) [arXiv:2306.07314].

[124] Andrew J. Larkoski and Jesse Thaler, *A Spectral Metric for Collider Geometry*, JHEP 2308:107 (2023) [arXiv:2305.03751].

[123] * Samuel Alipour-fard, Patrick T. Komiske, Eric M. Metodiev, and Jesse Thaler, *Pileup and Infrared Radiation Annihilation (PIRANHA): A Paradigm for Continuous Jet Grooming*, JHEP 2309:157 (2023) [arXiv:2305.00989].

[122] * Demba Ba, Akshunna S. Dogra, Rikab Gambhir, Abiy Tasissa, and Jesse Thaler, *SHAPER: Can You Hear the Shape of a Jet?*, JHEP 2306:195 (2023) [arXiv:2302.12266].

[121] Erik Buhmann, Gregor Kasieczka, and Jesse Thaler, *EPiC-GAN: Equivariant Point Cloud Generation for Particle Jets*, SciPost Phys. 15:130 (2023) [arXiv:2301.08128].

[120] Peter Onyisi, Delon Shen, and Jesse Thaler, *Comparing Point Cloud Strategies for Collider Event Classification*, Phys. Rev. D108:012001 (2023) [arXiv:2212.10659].

[119] † Eric R. Anschuetz, Lena Funcke, Patrick T. Komiske, Serhii Kryhin, and Jesse Thaler, *Degeneracy Engineering for Classical and Quantum Annealing: A Case Study of Sparse Linear Regression in Collider Physics*, Phys. Rev. D106:056008 (2022) [arXiv:2205.10375].

[118] Pedro Cal, Jesse Thaler, and Wouter J. Waalewijn, *Power Counting Energy Flow Polynomials*, JHEP 2209:021 (2022) [arXiv:2205.06818].

[117] * Rikab Gambhir, Benjamin Nachman, and Jesse Thaler, *Bias and Priors in Machine Learning Calibrations for High Energy Physics*, Phys. Rev. D106:036011 (2022) [arXiv:2205.05084].

[116] † Patrick T. Komiske, Serhii Kryhin, and Jesse Thaler, *Disentangling Quarks and Gluons with CMS Open Data*, Phys. Rev. D106:094021 (2022) [arXiv:2205.04459].

[115] * Rikab Gambhir, Benjamin Nachman, and Jesse Thaler, *Learning Uncertainties the Frequentist Way: Calibration and Correlation in High Energy Physics*, Phys. Rev. Lett. 129:082001 (2022) [arXiv:2205.03413].

[114] Hao Chen, Ian Moult, Jesse Thaler, and Hua Xing Zhu, *Non-Gaussianities in Collider Energy Flux*, JHEP 2207:146 (2022) [arXiv:2205.02857].

[113] Andrea Delgado and Jesse Thaler, *Quantum Annealing for Jet Clustering with Thrust*, Phys. Rev. D106:094016 (2022) [arXiv:2205.02814].

[112] Patrick T. Komiske, Ian Moult, Jesse Thaler, and Hua Xing Zhu, *Analyzing N-point Energy Correlators Inside Jets with CMS Open Data*, Phys. Rev. Lett. 130:051901 (2023) [arXiv:2201.07800].

[111] Krish Desai, Benjamin Nachman, and Jesse Thaler, *SymmetryGAN: Symmetry Discovery with Deep Learning*, Phys. Rev. D105:096031 (2022) [arXiv:2112.05722].

[110] Benjamin Nachman and Jesse Thaler, *Neural Conditional Reweighting*, Phys. Rev. D105:076015 (2022) [arXiv:2107.08979].

[109] Benjamin Nachman and Jesse Thaler, *E Pluribus Unum Ex Machina: Learning from Many Collider Events at Once*, Phys. Rev. D103:116013 (2021) [arXiv:2101.07263].

[108] Taylor Faucett, Jesse Thaler, and Daniel Whiteson, *Mapping Machine-Learned Physics into a Human-Readable Space*, Phys. Rev. D103:036020 (2021) [arXiv:2010.11998].

[107] Jasmine Brewer, Jesse Thaler, and Andrew P. Turner, *Data-Driven Quark and Gluon Jet Modification in Heavy-Ion Collisions*, Phys. Rev. C103:L021901 (2021) [arXiv:2008.08596].

[106] Benjamin Nachman and Jesse Thaler, *Neural Resampler for Monte Carlo Reweighting with Preserved Uncertainties*, Phys. Rev. D102.076004 (2020) [arXiv:2007.11586].

[105] Cari Cesarotti and Jesse Thaler, *A Robust Measure of Event Isotropy at Colliders*, JHEP 2008:084 (2020) [arXiv:2004.06125].

[104] * Patrick T. Komiske, Eric M. Metodiev, and Jesse Thaler, *The Hidden Geometry of Particle Collisions*, JHEP 2007:006 (2020) [arXiv:2004.04159].

[103] * Anders Andreassen, Patrick T. Komiske, Eric M. Metodiev, Benjamin Nachman, and Jesse Thaler, *OmniFold: A Method to Simultaneously Unfold All Observables*, Phys. Rev. Lett. 124:182001 (2020) [arXiv:1911.09107].

[102] * Patrick T. Komiske, Eric M. Metodiev, and Jesse Thaler, *Cutting Multiparticle Correlators Down to Size*, Phys. Rev. D101:036019 (2020) [arXiv:1911.04491].

[101] Timothy Cohen, Gilly Elor, Andrew J. Larkoski, and Jesse Thaler, *Circumnavigating Collinear Superspace*, JHEP 2002:156 (2020) [arXiv:1909.00009].

[100] § Annie Y. Wei, Preksha Naik, Aram W. Harrow, and Jesse Thaler, *Quantum Algorithms for Jet Clustering*, Phys. Rev. D101:094015 (2020) [arXiv:1908.08949].

[99] *† Patrick T. Komiske, Radha Mastandrea, Eric M. Metodiev, Preksha Naik, and Jesse Thaler, *Exploring the Space of Jets with CMS Open Data*, Phys. Rev. D101:034009 (2020) [arXiv:1908.08542].

[98] Cari Cesarotti, Yotam Soreq, Matthew J. Strassler, Jesse Thaler, and Wei Xue, *Searching in CMS Open Data for Dimuon Resonances with Substantial Transverse Momentum*, Phys. Rev. D100:015021 (2019) [arXiv:1902.04222].

[97] * Patrick T. Komiske, Eric M. Metodiev, and Jesse Thaler, *The Metric Space of Collider Events*, Phys. Rev. Lett. 123:041801 (2019) [arXiv:1902.02346].

[96] Jasmine Brewer, José Guilherme Milhano, and Jesse Thaler, *Sorting Out Quenched Jets*, Phys. Rev. Lett. 122:222301 (2019) [arXiv:1812.05111].

[95] Timothy Cohen, Gilly Elor, Andrew J. Larkoski, and Jesse Thaler, *Navigating Collinear Superspace*, JHEP 2002:146 (2020) [arXiv:1810.11032].

[94] * Patrick T. Komiske, Eric M. Metodiev, and Jesse Thaler, *Energy Flow Networks: Deep Sets for Particle Jets*, JHEP 1901:121 (2019) [arXiv:1810.05165].

[93] § Hongwan Liu, Brodi D. Elwood, Matthew Evans, and Jesse Thaler, *Searching for Axion Dark Matter with Birefringent Cavities*, Phys. Rev. D100:023548 (2019) [arXiv:1809.01656].

[92] * Patrick T. Komiske, Eric M. Metodiev, and Jesse Thaler, *An Operational Definition of Quark and Gluon Jets*, JHEP 1811:059 (2018) [arXiv:1809.01140].

[91] † Eleanor Hall and Jesse Thaler, *Photon Isolation and Jet Substructure*, JHEP 1809:164 (2018) [arXiv:1805.11622].

[90] * Benjamin T. Elder and Jesse Thaler, *Aspects of Track-Assisted Mass*, JHEP 1903:104 (2019) [arXiv:1805.11109].

[89] Frédéric A. Dreyer, Lina Necib, Gregory Soyez, and Jesse Thaler, *Recursive Soft Drop*, JHEP 1806:093 (2018) [arXiv:1804.03657].

[88] * Eric M. Metodiev and Jesse Thaler, *On the Topic of Jets: Disentangling Quarks and Gluons at Colliders*, Phys. Rev. Lett. 120:241602 (2018) [arXiv:1802.00008].

[87] * Patrick T. Komiske, Eric M. Metodiev, and Jesse Thaler, *Energy Flow Polynomials: A Complete Linear Basis for Jet Substructure*, JHEP 1804:013 (2018) [arXiv:1712.07124].

[86] Evan Coleman, Marat Freytsis, Andreas Hinzmann, Meenakshi Narain, Jesse Thaler, Nhan Tran, and Caterina Vernieri, *The Importance of Calorimetry for Highly-Boosted Jet Substructure*, JINST 13:T01003 (2018) [arXiv:1709.08705].

[85] * Eric M. Metodiev, Benjamin Nachman, and Jesse Thaler, *Classification Without Labels: Learning from Mixed Samples in High Energy Physics*, JHEP 1710:174 (2017) [arXiv:1708.02949].

[84] † Christopher Frye, Andrew J. Larkoski, Jesse Thaler, and Kevin Zhou, *Casimir Meets Poisson: Improved Quark/Gluon Discrimination with Counting Observables*, JHEP 1709:085 (2017) [arXiv:1704.06266].

[83] †§ Aashish Tripathee, Wei Xue, Andrew Larkoski, Simone Marzani, and Jesse Thaler, *Jet Substructure Studies with CMS Open Data*, Phys. Rev. D96:074003 (2017) [arXiv:1704.05842].

[82] *† Benjamin T. Elder, Massimiliano Procura, Jesse Thaler, Wouter J. Waalewijn, and Kevin Zhou, *Generalized Fragmentation Functions for Fractal Jet Observables*, JHEP 1706:085 (2017) [arXiv:1704.05456].

[81] † Andrew Larkoski, Simone Marzani, Jesse Thaler, Aashish Tripathee, and Wei Xue, *Exposing the QCD Splitting Function with CMS Open Data*, Phys. Rev. Lett. 119:132003 (2017) [arXiv:1704.05066].

[80] Philippe Gras, Stefan Höche, Deepak Kar, Andrew Larkoski, Leif Lönnblad, Simon Plätzer, Andrzej Siódmok, Peter Skands, Gregory Soyez, and Jesse Thaler, *Systematics of Quark/Gluon Tagging*, JHEP 1707:091 (2017) [arXiv:1704.03878].

[79] Yevgeny Kats, Matthew McCullough, Gilad Perez, Yotam Soreq, and Jesse Thaler, *Colorful Twisted Top Partners and Partnerium at the LHC*, JHEP 1706:126 (2017) [arXiv:1704.03393].

[78] Philip Ilten, Nicholas L. Rodd, Jesse Thaler, and Mike Williams, *Disentangling Heavy Flavor at Colliders*, Phys. Rev. D96:054019 (2017) [arXiv:1702.02947].

[77] * Ian Moult, Lina Necib, and Jesse Thaler, *New Angles on Energy Correlation Functions*, JHEP 1612:153 (2016) [arXiv:1609.07483].

[76] Fabio Maltoni, Michele Selvaggi, and Jesse Thaler, *Resurrecting the Dead Cone*, Phys. Rev. D94:054015 (2016) [arXiv:1606.03449].

[75] Philip Ilten, Yotam Soreq, Jesse Thaler, Mike Williams, and Wei Xue, *Inclusive Dark Photon Search at LHCb*, Phys. Rev. Lett. 116:251803 (2016) [arXiv:1603.08926].

[74] Yonatan Kahn, Benjamin R. Safdi, and Jesse Thaler, *Broadband and Resonant Approaches to Axion Dark Matter Detection*, Phys. Rev. Lett. 117:141801 (2016) [arXiv:1602.01086].

[73] Sergio Ferrara, Renata Kallosh, and Jesse Thaler, *Cosmology with Orthogonal Nilpotent Superfields*, Phys. Rev. D93:043516 (2016) [arXiv:1512.00545].

[72] Philip Ilten, Jesse Thaler, Mike Williams, and Wei Xue, *Dark Photons from Charm Mesons at LHCb*, Phys. Rev. D92:115017 (2015) [arXiv:1509.06765].

[71] † Jesse Thaler and Thomas F. Wilkason, *Resolving Boosted Jets with XCone*, JHEP 1512:051 (2015) [arXiv:1508.01518].

[70] † Iain W. Stewart, Frank J. Tackmann, Jesse Thaler, Christopher K. Vermilion, and Thomas F. Wilkason, *XCone: N-jettiness as an Exclusive Cone Jet Algorithm*, JHEP 1511:072 (2015) [arXiv:1508.01516].

[69] * Nayara Fonseca, Lina Necib, and Jesse Thaler, *Dark Matter, Shared Asymmetries, and Galactic Gamma Ray Signals*, JCAP 1602:052 (2016) [arXiv:1507.08295].

[68] Jesse Thaler, *Separated at Birth: Jet Maximization, Axis Minimization, and Stable Cone Finding*, Phys. Rev. D92:074001 (2015) [arXiv:1506.07876].

[67] * Yonatan Kahn, Daniel A. Roberts, and Jesse Thaler, *The Goldstone and Goldstino of Supersymmetric Inflation*, JHEP 1510:001 (2015) [arXiv:1504.05958].

[66] Andrew J. Larkoski, Simone Marzani, and Jesse Thaler, *Sudakov Safety in Perturbative QCD*, Phys. Rev. D91:111501 (2015) [arXiv:1502.01719].

[65] Daniele Bertolini, Jesse Thaler, and Jonathan R. Walsh, *The First Calculation of Fractional Jets*, JHEP 1505:008 (2015) [arXiv:1501.01965].

[64] * Yonatan Kahn, Gordan Krnjaic, Jesse Thaler, and Matthew Toups, *DAEdALUS and Dark Matter Detection*, Phys. Rev. D91:055006 (2015) [arXiv:1411.1055].

[63] Andrew J. Larkoski, Jesse Thaler, and Wouter J. Waalewijn, *Gaining (Mutual) Information about Quark/Gluon Discrimination*, JHEP 1411:129 (2014) [arXiv:1408.3122].

[62] Andrew J. Larkoski and Jesse Thaler, *Aspects of Jets at 100 TeV*, Phys. Rev. D90:034010 (2014) [arXiv:1406.7011].

[61] * Kaustubh Agashe, Yanou Cui, Lina Necib, and Jesse Thaler, *(In)direct Detection of Boosted Dark Matter*, JCAP 1410:062 (2014) [arXiv:1405.7370].

[60] Andrew J. Larkoski, Simone Marzani, Gregory Soyez, and Jesse Thaler, *Soft Drop*, JHEP 1405:146 (2014) [arXiv:1402.2657].

[59] Andrew J. Larkoski, Duff Neill, and Jesse Thaler, *Jet Shapes with the Broadening Axis*, JHEP 1404:017 (2014) [arXiv:1401.2158].

[58] * Daniele Bertolini, Tucker Chan, and Jesse Thaler, *Jet Observables Without Jet Algorithms*, JHEP 1404:013 (2014) [arXiv:1310.7584].

[57] * Yonatan Kahn, Matthew McCullough, and Jesse Thaler, *Auxiliary Gauge Mediation: A New Route to Mini-Split Supersymmetry*, JHEP 1311:161 (2013) [arXiv:1308.3490].

[56] * Francesco D'Eramo, Jesse Thaler, and Zoe Thomas, *Anomaly Mediation from Unbroken Supergravity*, JHEP 1309:125 (2013) [arXiv:1307.3251].

[55] Andrew J. Larkoski and Jesse Thaler, *Unsafe but Calculable: Ratios of Angularities in Perturbative QCD*, JHEP 1309:137 (2013) [arXiv:1307.1699].

[54] Hsi-Ming Chang, Massimiliano Procura, Jesse Thaler, and Wouter J. Waalewijn, *Calculating Track Thrust with Track Functions*, Phys. Rev. D88:034030 (2013) [arXiv:1306.6630].

[53] John Kearney, Aaron Pierce, and Jesse Thaler, *Exotic Top Partners and Little Higgs*, JHEP 1310:230 (2013) [arXiv:1306.4314].

[52] Andrew J. Larkoski, Gavin P. Salam, and Jesse Thaler, *Energy Correlation Functions for Jet Substructure*, JHEP 1306:108 (2013) [arXiv:1305.0007].

[51] John Kearney, Aaron Pierce, and Jesse Thaler, *Top Partner Probes of Extended Higgs Sectors*, JHEP 1308:130 (2013) [arXiv:1304.4233].

[50] Hsi-Ming Chang, Massimiliano Procura, Jesse Thaler, and Wouter J. Waalewijn, *Calculating Track-Based Observables for the LHC*, Phys. Rev. Lett. 111:102002 (2013) [arXiv:1303.6637].

[49] * Daniele Bertolini, Jesse Thaler, and Zoe Thomas, *Super-Tricks for Superspace*, TASI 2012 [arXiv:1302.6229].

[48] * Francesco D'Eramo, Matthew McCullough, and Jesse Thaler, *Multiple Gamma Lines from Semi-Annihilation*, JCAP 1304:030 (2013) [arXiv:1210.7817].

[47] Vicent Mateu, Iain W. Stewart, and Jesse Thaler, *Power Corrections to Event Shapes with Mass-Dependent Operators*, Phys. Rev. D87:014025 (2013) [arXiv:1209.3781].

[46] * Yonatan Kahn and Jesse Thaler, *Searching for an Invisible A' Vector Boson with DarkLight*, Phys. Rev. D86:115012 (2012) [arXiv:1209.0777].

[45] Ilya Feige, Matthew D. Schwartz, Iain W. Stewart, and Jesse Thaler, *Precision Jet Substructure from Boosted Event Shapes*, Phys. Rev. Lett. 109:092001 (2012) [arXiv:1204.3898].

[44] Nathaniel Craig, Matthew McCullough, and Jesse Thaler, *Flavor Mediation Delivers Natural SUSY*, JHEP 1206:046 (2012) [arXiv:1203.1622].

[43] * Yonatan Kahn and Jesse Thaler, *Locality in Theory Space*, JHEP 1207:007 (2012) [arXiv:1202.5491].

[42] * Francesco D'Eramo, Jesse Thaler, and Zoe Thomas, *The Two Faces of Anomaly Mediation*, JHEP 1206:151 (2012) [arXiv:1202.1280].

[41] Nathaniel Craig, Matthew McCullough, and Jesse Thaler, *The New Flavor of Higgsed Gauge Mediation*, JHEP 1203:049 (2012) [arXiv:1201.2179].

[40] *† Francesco D'Eramo, Lin Fei, and Jesse Thaler, *Dark Matter Assimilation into the Baryon Asymmetry*, JCAP 1203:010 (2012) [arXiv:1111.5615].

[39] * Daniele Bertolini, Keith Rehermann, and Jesse Thaler, *Visible Supersymmetry Breaking and an Invisible Higgs*, JHEP 1204:130 (2012) [arXiv:1111.0628].

[38] † Jesse Thaler and Ken Van Tilburg, *Maximizing Boosted Top Identification by Minimizing N-subjettiness*, JHEP 1202:093 (2012) [arXiv:1108.2701].

[37] Nathaniel Craig, Daniel Stolarski, and Jesse Thaler, *A Fat Higgs with a Magnetic Personality*, JHEP 1111:145 (2011) [arXiv:1106.2164].

[36] * Clifford Cheung, Francesco D'Eramo, and Jesse Thaler, *The Spectrum of Goldstini and Modulini*, JHEP 1108:115 (2011) [arXiv:1104.2600].

[35] * Clifford Cheung, Francesco D'Eramo, and Jesse Thaler, *Supergravity Computations without Gravity Complications*, Phys. Rev. D84:085012 (2011) [arXiv:1104.2598].

[34] * Jesse Thaler and Zoe Thomas, *Goldstini Can Give the Higgs a Boost*, JHEP 1107:060 (2011) [arXiv:1103.1631].

[33] * Jesse Thaler and Ken Van Tilburg, *Identifying Boosted Objects with N-subjettiness*, JHEP 1103:015 (2011) [arXiv:1011.2268].

[32] Martin Schmaltz, Daniel Stolarski, and Jesse Thaler, *The Bestest Little Higgs*, JHEP 1009:018 (2010) [arXiv:1006.1356].

[31] Clifford Cheung, Jeremy Mardon, Yasunori Nomura, and Jesse Thaler, *A Definitive Signal of Multiple Supersymmetry Breaking*, JHEP 1007:035 (2010) [arXiv:1004.4637].

[30] JiJi Fan, Jesse Thaler, and Lian-Tao Wang, *Dark Matter from Dynamical SUSY Breaking*, JHEP 1006:045 (2010) [arXiv:1004.0008].

[29] * Francesco D'Eramo and Jesse Thaler, *Semi-annihilation of Dark Matter*, JHEP 1006:109 (2010) [arXiv:1003.5912].

[28] Clifford Cheung, Yasunori Nomura, and Jesse Thaler, *Goldstini*, JHEP 1003:073 (2010) [arXiv:1002.1967].

[27] David Krohn, Jesse Thaler, and Lian-Tao Wang, *Jet Trimming*, JHEP 1002:084 (2010) [arXiv:0912.1342].

[26] Marat Freytsis, Zoltan Ligeti, and Jesse Thaler, *Constraining the Axion Portal with B -¿ K l+ l-*, Phys. Rev. D81:034001 (2010) [arXiv:0911.5355].

[25] Christian W. Bauer, Zoltan Ligeti, Martin Schmaltz, Jesse Thaler, and Devin G.E. Walker, *Supermodels for early LHC*, Phys. Lett. B 690:280-288 (2010) [arXiv:0909.5213].

[24] Marat Freytsis, Grigory Ovanesyan, and Jesse Thaler, *Dark Force Detection in Low Energy e-p Collisions*, JHEP 1001:111 (2010) [arXiv:0909.2862].

[23] Jeremy Mardon, Yasunori Nomura, and Jesse Thaler, *Cosmic Signals from the Hidden Sector*, Phys. Rev. D80:035013 (2009) [arXiv:0905.3749].

[22] David Krohn, Jesse Thaler, and Lian-Tao Wang, *Jets with Variable R*, JHEP 0906:059 (2009) [arXiv:0903.0392].

[21] Jeremy Mardon, Yasunori Nomura, Daniel Stolarski, and Jesse Thaler, *Dark Matter Signals from Cascade Annihilations*, JCAP 0905:016 (2009) [arXiv:0901.2926].

[20] Martin Schmaltz and Jesse Thaler, *Collective Quartics and Dangerous Singlets in Little Higgs*, JHEP 0903:137 (2009) [arXiv:0812.2477].

[19] Yasunori Nomura and Jesse Thaler, *Dark Matter through the Axion Portal*, Phys. Rev. D79:075008 (2009) [arXiv:0810.5397].

[18] David Poland and Jesse Thaler, *The Dark Top*, JHEP 0811:083 (2008) [arXiv:0808.1290].

[17] Jesse Thaler and Lian-Tao Wang, *Strategies to Identify Boosted Tops*, JHEP 0807:092 (2008) [arXiv:0806.0023].

[16] Christian W. Bauer, Frank J. Tackmann, and Jesse Thaler, *GenEvA (II): A phase space generator from a reweighted parton shower*, JHEP 0812:011 (2008) [arXiv:0801.4028].

[15] Christian W. Bauer, Frank J. Tackmann, and Jesse Thaler, *GenEvA (I): A new framework for event generation*, JHEP 0812:010 (2008) [arXiv:0801.4026].

[14] Yuval Grossman, Yosef Nir, Jesse Thaler, Tomer Volansky, and Jure Zupan, *Probing Minimal Flavor Violation at the LHC*, Phys. Rev. D76:096006 (2007) [arXiv:0706.1845].

[13] Nima Arkani-Hamed, Bruce Knuteson, Stephen Mrenna, Philip Schuster, Jesse Thaler, Natalia Toro, and Lian-Tao Wang, *MARMOSET: The Path from LHC Data to the New Standard Model via On-Shell Effective Theories* [arXiv:hep-ph/0703088].

[12] Aaron Pierce and Jesse Thaler, *Natural Dark Matter from an Unnatural Higgs Boson and New Colored Particles at the TeV Scale*, JHEP 0708:026 (2007) [arXiv:hep-ph/0703056].

[11] Aaron Pierce, Jesse Thaler, and Lian-Tao Wang, *Disentangling Dimension Six Operators through Di-Higgs Boson Production*, JHEP 0705:070 (2007) [arXiv:hep-ph/0609049].

[10] Hsin-Chia Cheng, Jesse Thaler, and Lian-Tao Wang, *Little M-theory*, JHEP 0609:003 (2006) [arXiv:hep-ph/0607205].

[9] Clifford Cheung and Jesse Thaler, *(Reverse) Engineering Vacuum Alignment*, JHEP 0608:016 (2006) [arXiv:hep-ph/0604259].

[8] Aaron Pierce and Jesse Thaler, *Prospects for Mirage Mediation*, JHEP 0609:017 (2006) [arXiv:hep-ph/0604192].

[7] Hsin-Chia Cheng, Markus A. Luty, Shinji Mukohyama, and Jesse Thaler, *Spontaneous Lorentz Breaking at High Energies*, JHEP 0605:076 (2006) [arXiv:hep-th/0603010].

[6] Nima Arkani-Hamed, Gordon L. Kane, Jesse Thaler, and Lian-Tao Wang, *Supersymmetry and the LHC Inverse Problem*, JHEP 0608:070 (2006) [arXiv:hep-ph/0512190].

[5] Yuval Grossman, Can Kilic, Jesse Thaler, and Devin G. E. Walker, *Neutrino Constraints on Spontaneous Lorentz Violation*, Phys. Rev. D72:125001 (2005) [arXiv:hep-ph/0506216].

[4] Jesse Thaler, *Little Technicolor*, JHEP 0507:024 (2005) [arXiv:hep-ph/0502175].

[3] Jesse Thaler and Itay Yavin, *The Littlest Higgs in Anti-de Sitter Space*, JHEP 0508:022 (2005) [arXiv:hep-ph/0501036].

[2] Nima Arkani-Hamed, Hsin-Chia Cheng, Markus A. Luty, and Jesse Thaler, *Universal Dynamics of Spontaneous Lorentz Violation and a New Spin-Dependent Inverse-Square Law Force*, JHEP 0507:029 (2005) [arXiv:hep-ph/0407034].

[1] Antal Jevicki and Jesse Thaler, *Dynamics of black hole formation in an exactly solvable model*, Phys. Rev. D66 024041 (2002) [arXiv:hep-th/0203172].

## Invited Presentations

See http://www.jthaler.net/cv for a complete list of talks, including invited seminars, plenary talks, and additional workshop and conference talks.

### Colloquia

- "Centaur Science: Particle Physics meets Machine Learning"
  Physics Colloquium, *NYU, April 2025*
  Lauritsen Memorial Lecture, *Caltech, March 2025*
  Physics Colloquium, *U. Wisconsin, Madison, February 2025*
  Colloquium, *U. Puerto Rico, Mayagüez, February 2025*
  Physics Colloquium, *U. New Hampshire, November 2024*
  Physics and Astronomy Colloquium, *U. Minnesota, November 2024*
- "The Hidden Geometry of Particle Collisions"
  Physics Colloquium, *UMass Amherst, May 2024*
  Computer Science Colloquium, *Tufts, November 2023*
  Particle Physics Colloquium, *KIT Karlsruhe, November 2020* (virtual)
  Theory Colloquium, *CERN, May 2020* (virtual)
- "Particle Physics through the Lens of Machine Learning"
  Physics and Astronomy Colloquium, *Northwestern, March 2023*
  Physics Colloquium, *Technion, January 2023*
  Physics Colloquium, *Tel Aviv, January 2023*
  Physics Colloquium, *Brown, November 2022*
- "The Geometry of Particle Collisions: Hidden in Plain Sight", Physics Colloquium, *Brandeis, February 2022*
- "Collision Course: Particle Physics meets Machine Learning"
  Physics Colloquium, *U.C. San Diego, May 2021* (virtual)
  Physics and Astronomy Colloquium, *U. New Mexico, April 2021* (virtual)
  Physics Colloquium, *U.C. Santa Barbara, April 2021* (virtual)
  Physics Colloquium, *Northern Illinois University, February 2021* (virtual)
  Nordita Colloquium, *Stockholm University, February 2021* (virtual)
  Physics Colloquium, *University of Chicago, February 2021* (virtual)
  Physics Colloquium, *All Israel, November 2020* (virtual)
  Physics Colloquium, *Harvard, November 2020* (virtual)
  Physics Colloquium, *University of Maryland, October 2020* (virtual)
  Physics Colloquium, *Case Western Reserve University, November 2019*
  Physics and Astronomy Colloquium, *Rice University, October 2019*
  Physics Colloquium, *Oakland University, October 2019*
  Physics Colloquium, *Tufts University, September 2019*
- "The Future is Open: Adventures with Public Collider Data", Colloquium, *Fermilab, September 2020* (virtual)

- "Jet Substructure at the Frontiers of Particle Physics"
  Physics Colloquium, *University of Milan, March 2018*
  Physics Colloquium, *University of Illinois, Urbana-Champaign, October 2017*
- "New Physics Gets a Boost: Jet Substructure at the Large Hadron Collider"
  Colloquium, *Perimeter Institute, May 2017*
  Physics Colloquium, *U.C. Berkeley, April 2017*
  Physics Colloquium, *University of Texas, Austin, March 2017*
  Physics Colloquium, *MIT, October 2016*
  Physics and Astronomy Colloquium, *University of California, Riverside, October 2016*
  Physics Colloquium, *University at Buffalo, September 2016*
- "Jet Substructure: Boosting the Search for New Physics at the LHC"
  Physics Colloquium, *University of Chicago, May 2016*
  Physics Colloquium, *Michigan State University, January 2016*
- "The Rise of Jet Substructure: Boosting the Search for New Physics at the LHC"
  Physics Colloquium, *U.C. Santa Cruz, November 2015*
  Physics Colloquium, *Brandeis, September 2015*
- "The Case for Jet Substructure"
  Physics Colloquium, *Caltech, November 2014*
  Colloquium, *MIT Laboratory for Nuclear Science, April 2014*
- "(Non)perturbative QCD and Jet Substructure"
  Triangle Nuclear Theory Colloquium, *Duke University, March 2014*
  Theory Colloquium, *University of Maryland, October 2013*
- "The Shape of Jets to Come: Boosting the Search for New Physics at the LHC"
  Physics Colloquium, *University of Oregon, May 2013*
  Physics Colloquium, *Cornell University, February 2013*
- "Anticipating New Data from the Energy Frontier", Physics Colloquium, *Brown University, February 2011*
- "The Large Hadron Collider", Physics Colloquium, *Wellesley College, October 2010*
- "The Shape of Jets to Come", Colloquium, *MIT Laboratory for Nuclear Science, February 2010*

**Public Lectures**

- "Deep Learning + Deep Thinking = Deeper Understanding", Glicksman Forum, *Brown, May 2025*
- "Centaur Science: Particle Physics meets Machine Learning", Presidential Lecture, *Simons Foundation, December 2024*
- "Opening Keynote (with Eric Mazur)", Education in the Age of Generative AI, *Perusall Exchange, June 2024* (virtual)
- "Predictably Uncertain: A Physicist's Perspective on AI Policy", Off the Record Foreign Policy Association Lecture, *New York City Bar Association, March 2024*
- "Collision Course: Artificial Intelligence meets Fundamental Physics"
  Distinguished Lecture, *National Science Foundation, January 2023* (virtual)
  Keynote Presentation, *Tommy Flowers Network Conference, October 2020* (virtual)
- "Artificial Intelligence Meets Fundamental Physics", MIT Inside Track Master Class, *EmTech Digital, March 2021* (virtual)

- "Listening to the Invisible Universe", Program with A Far Cry: Open Rehearsal of Gravity, *Harvard Education Portal, April 2019*
- "Confronting the Invisible Universe"
  MIT Club of Great Britain Event, *London, May 2018*
  Public Talk, *Aspen Center for Physics, March 2017*
- "The Higgs Boson: Triumph of the Standard Model"
  24th Annual Kavli Frontiers of Science, *National Academy of Sciences, U.C. Irvine, November 2012*
  Lecture Series Committee, *MIT, October 2012*

**Lecture Series & Schools**

- "The (Hidden) Geometry of Particle Collisions", Summer School on Neurosymbolic Programming, *Salem, MA, June 2024*
- "The Coming Decade(s) of Particle Physics", TASI 2024, *CU Boulder, June 2024*
- "The Standard Model", School on Table-Top Experiments for Fundamental Physics, *Perimeter Institute, September 2022*
- "Confronting the Invisible Universe", Intro to Modern Physics, *MIT Lincoln Labs, March 2022*
- "QCD and Collider Physics", Lectures on the Theory of Fundamental Interactions, *GGI, Florence, January 2020*
- "Collider Physics", Cargese 2018 International Summer School, *Corsica, July 2018*
- "Jet Substructure"
  Theoretical and Experimental Issues on Jet Structure at Hadron Colliders, *Kavli IMPU and KEK, January 2017*
  PiTP Summer School, *Princeton, July 2013*
- "Jet Physics", MITP Summer School, *Mainz, July 2016*
- "The Case for Jet Substructure", Theorist of the Month, *DESY, June 2014*
- "Super-tricks for Superspace", TASI Summer School, *C.U. Boulder, June 2012*
- "Little Lessons for a Little Higgs", ICTP Winter School, *Trieste, January 2012*
- "Anticipating New Data from the Energy Frontier", Topic of the Week Lecture Series, *Fermilab, November 2010*
- "Entering the LHC Era", Felix Villars Theoretical Physics Retreat, *MIT CTP, January 2010*

## Research Contracts, Grants, and Gifts

- Conference Award, "Future of AI and the Mathematical and Physical Sciences (AI+MPS)", *National Science Foundation, 2025* ($100k)
- Unrestricted Gift, "Interpretation of Multimodal Images from Astronomy", *Google, 2023* ($50k)
- Simons Investigator in Physics, *Simons Foundation, 2023–2028* ($960k)
- AI Research Institute, "Institute for Artificial Intelligence and Fundamental Interactions (IAIFI)", *National Science Foundation, 2020–2025* ($20M)
- MIT-Israel Zuckerman STEM Fund Award (with Tracy Slatyer, Tomer Volansky, Yotam Soreq),"The Quest for Dark Matter Interactions", *MIT International Science and Technology Initiative (MISTI), 2020–2023* ($25.5k)

- PIER Hamburg-MIT Seed Project (with Gregor Kasieczka, Phil Harris, Andreas Hinzmann, Roman Kogler, Iain Stewart),"Probing the Standard Model with Jet Substructure", *Partnership for Innovation, Education and Research (PIER), 2019–2020* (€17k)
- Quantum Information Science (QuantISED) Award (with Aram Harrow),"Quantum Algorithms for Collider Physics", *U.S. Department of Energy, Office of High Energy Physics, 2018–2020* ($264k)
- Simons Fellowship, "Theoretical Investigations In and Beyond the Standard Model", *Simons Foundation, 2018–2019* ($142.8k)
- Comparative Review Funding Award, "Boosting the Search for New Physics at the Frontiers", *U.S. Department of Energy, Office of High Energy Physics, 2016–2017* ($120k)
- The Charles E. Reed Faculty Initiatives Fund, "Boosting Jet Physics with Archival Collider Data", *MIT Research Support Committee, 2015–2017* ($75k)
- MIT-Belgium Seed Fund Award (with Fabio Maltoni),"Beyond the Standard Model at the LHC", *MIT International Science and Technology Initiative, 2013–2014* ($23.1k)
- Sloan Research Fellowship, *Alfred P. Sloan Foundation, 2013–2016* ($50k)
- Global Seed Fund Award (with Iain Stewart, Andre Hoang, Gavin Salam),"Probing a New Energy Frontier with Jets at the Large Hadron Collider", *MIT International Science and Technology Initiative, 2012–2013* ($15k)
- Early Career Research Award, "Interpreting New Data from the Energy Frontier", *U.S. Department of Energy, Office of Science, 2011–2016* ($750k)
- Cooperative Research Agreement, "Laboratory for Nuclear Science, High Energy Physics Program: Task C, Center for Theoretical Physics", *U.S. Department of Energy, Office of Science, 2010–present*

## MIT Educational Commons

- Originator of "Flexible P/NR" grading option *(Approved by MIT Faculty, May 2020)*
- Faculty Committees: Large Scale Proposal Task Force; Committee on Curricula (see above)
- UROP Supervision: 23 students (see above)
- First-Year Advising: 4 students (see above)
- Teaching General Institute Requirements (GIR): 8.02 *(Spring 2014, Spring 2015, Spring 2016)*
- MIT School of Science Breakfast Talk, "Deep Learning + Deep Thinking = Deeper Understanding", *October 2024*
- MIT School of Science IET London Event, "Deep Learning + Deep Thinking = Deeper Understanding", *May 2024*
- MIT Visit from Permanent Secretary of Singapore for National Research and Development, "Deep Learning + Deep Thinking = Deeper Understanding", *April 2024*
- MIT Physics Breakfast in Palo Alto, "Deep Learning + Deep Thinking = Deeper Understanding", *March 2024*
- MIT Physics Career Panel, "SPS/PGSC Career Panel", *November 2021*
- MIT Postdoctoral Association Panel Discussion, "Making the Cut - Job Searching During a COVID-19 Economy", *June 2020*
- MIT Graduate Student Council Panel Discussion, "The Nuts and Bolts of Academic Job Search", *July 2018*

- MIT PhysPOP Orientation Lecture, "Implications of the Higgs Boson", *August 2013*
- MIT MISTI Presentation, "The Higgs Boson: Keystone of the Standard Model", *April 2013*
- MIT Astronomical Event Presentation, "Dark Matter Beyond the Standard Model", *October 2012*
- MIT Physics Alumni Breakfast, "Hints of New Physics at the Energy Frontier", *May 2012*
- MIT PhysPOP Orientation Lecture, "Beyond the Standard Model at the Frontiers", *August 2011*
- MIT Physics IAP Lecture, "The LHC Won't Destroy the Planet (But Will Spark a Revolution)", *January 2010*
- Physics@MIT Journal, "Listening for Dark Matter from the Basement of Building 24" (with Lindley Winslow), *Fall 2019*
- MIT Lecture Series Committee, Q&A for "Particle Fever", *September 2014*