

Jesse Diaz Thaler

Curriculum Vitae

(Updated September 20, 2026)

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 – a *Leinweber Institute**
William and Emma Rogers Professor, 2026–Present
Professor of Physics, 2021–Present
Associate Professor of Physics, 2015–2021 (tenured in 2017)
Class of 1943 Career Development Professor, 2012–2015
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, MIT Laboratory for Nuclear Science (LNS), *August 2026–Present*
- Director, NSF Institute for Artificial Intelligence and Fundamental Interactions (IAIFI), *August 2020–July 2025*

Visiting Positions

- Institut des Hautes Études Scientifiques (IHES), *August 2025–July 2026*
- Institut de Physique Théorique (IPhT), *August 2025–July 2026*
- Harvard Center for the Fundamental Laws of Nature, *September 2018–August 2019*

Affiliations

- MIT Center for Theoretical Physics – a Leinweber Institute (CTP-LI), *January 2010–Present*
- MIT Statistics and Data Science Center (SDSC), *January 2020–Present*
- MIT Institute for Data, Systems, and Society (IDSS), *January 2020–Present*

Honors

- William and Emma Rogers Professorship, *MIT*, *2026*
- Humboldt Research Award, *Alexander von Humboldt Foundation*, *2026*
- Schlumberger Chair for Mathematical Sciences, *Institut des Hautes Études Scientifiques*, *2025–2026*
- 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, Fall 2025, Spring 2026*
- Nipun Dour '27: *Fall 2024, Spring 2025, Summer 2025, Fall 2025*
- Marshall Taylor '26: *Summer 2025*
After MIT: Physics Ph.D. Candidate, *Columbia U.*
- Ammar Fayad '25: *Summer 2023, Summer 2024*
- Max Tan '25: *Spring 2023, Summer 2023*
After MIT: EECS M.Eng. Candidate, *MIT*
- Mohit Dighamber '23: *Fall 2022, Spring 2023*
After MIT: EECS M.Eng., *MIT*
Currently: Software Engineer, *Google*
- Octavio Vega '22: *Spring 2021, Summer 2021, Fall 2021*
After MIT: Research Assistant, *U. Hamburg*
Currently: Physics Ph.D. Candidate, *U. Illinois, Urbana-Champaign*
- Nishat Protyasha '23: *Summer 2020, Fall 2020, Spring 2021, Summer 2021*
FUTURE of Physics Participant, *Caltech, 2020*
After MIT: EECS M.Eng., *MIT*
Currently: Research Assistant, *MIT Media Lab*
- 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*
Joel Matthew Orloff Award for Outstanding Research, *MIT Physics Department, 2017*
After MIT: Marshall Scholarship, *U. Cambridge and U. Oxford*
Currently: Postdoctoral Researcher, *U.C. Berkeley*
- Aashish Tripathy '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”
Morse/Orloff Research Award, *MIT Physics Department, 2022*
After MIT: Physics Ph.D. Candidate, *Harvard*
- 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”
Joel Matthew Orloff Award for Outstanding Service, *MIT Physics Department, 2019*
Physics Research Fellowship, *Heising-Simons Foundation, 2018*
FUTURE of Physics Participant, *Caltech, 2018*
After MIT: Marshall Scholarship, *U. Cambridge*
Currently: Schmidt AI Fellow, *U. Chicago*
- Eleanor Hall, *B.S. 2018*
Thesis: “Photon Isolation and Jet Substructure”
Joel Matthew Orloff Award for Outstanding Service, *MIT Physics Department, 2017*
After MIT: Physics Ph.D. Candidate, *U.C. Berkeley*
- Aashish Tripathy, *B.S. 2017*
Thesis: “Jet Substructure at the Large Hadron Collider”
Philip Morse Memorial Award, *MIT Physics Department, 2017*
After MIT: Physics Ph.D., *U. Michigan*
Currently: Postdoctoral Researcher, *U. Michigan*
- 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”
Joel Matthew Orloff Award for Outstanding Service, *MIT Physics Department, 2015*
After MIT: Physics Ph.D., *Stanford*
Currently: Senior Quantum Engineer, *Atom Computing*
- 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, *AE Studio*
- Dustin Katzin, *B.S. 2012*
Thesis: “The DarkLight Experiment: Searching for the Dark Photon”
After MIT: Part III, *U. 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”
Apker Award Finalist, *American Physical Society, 2011*
Joel Matthew Orloff Award for Outstanding Research in Physics, *MIT Physics Department, 2011*
After MIT: Physics Ph.D., *Stanford*
Currently: Assistant Professor, *Stanford*

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*)
Johnson Artificial Intelligence and Decision Making Thesis Award, *MIT EECS Department, 2020*
After MIT: Researcher, *D.E. Shaw Group*
Currently: Algorithm Developer, *Hudson River Trading*
- 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

- Pieter Van Steenweghen, *anticipated Ph.D. 2030*
- Gregorio de la Fuente Simarro, *anticipated Ph.D. 2028*
- Pamela Pajarillo, *anticipated Ph.D. 2028*
- Sean Benevedes, *Ph.D. 2026*
Thesis: “Building Models and Model Building: Machine Learning Uncertainties for Collider Physics and Dynamical Solutions to the Hierarchy Problem”
After MIT: Postdoctoral Researcher, *Georgia Tech*
- Rikab Gambhir, *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*
After MIT: Postdoctoral Researcher, *U. Cincinnati*
- Samuel Alipour-fard, *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”
Vazquez Award for Outstanding Research, *MIT Physics Department, 2016*
After MIT: Fairchild Postdoctoral Scholar, *Caltech*
Currently: Associate Professor, *MIT*
- Yonatan Kahn, *Ph.D. 2015*
Thesis: “Forces and Gauge Groups Beyond the Standard Model”
Andrew M. Lockett III Memorial Fund Award, *MIT Physics Department, 2014*
J.J. and Noriko Sakurai Dissertation Award, *American Physical Society, 2016*
After MIT: Postdoctoral Researcher, *Princeton*
Currently: Assistant Professor, *U. Toronto*
- Daniele Bertolini, *Ph.D. 2014*
Thesis: “Electroweak Symmetry Breaking in the Era of the Higgs Boson Discovery”
LHC-TI Graduate Fellowship, *LHC Theory Initiative, 2013*
After MIT: Postdoctoral Researcher, *U.C. Berkeley*
Currently: Machine Learning Scientist, *Unlearn*
- 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*)
Vazquez Award for Outstanding Research, *MIT Physics Department, 2011*
After MIT: Miller Research Fellow, *U.C. Berkeley*
Currently: Associate Professor, *U. Padova*

Postdoctoral Researchers Supervised

- Inbar Savoray, Leinweber Fellow, *Fall 2026–Spring 2029*
- Kevin Langhoff, CTP Postdoctoral Researcher, *Fall 2025–Spring 2028*
- Xiaoyuan Zhang, Pappalardo Fellow, *Fall 2025–Spring 2028*
- So Chigusa, CTP Postdoctoral Researcher, *Fall 2024–Spring 2027*
- Kyle Lee, CTP Postdoctoral Researcher, *Fall 2022–Spring 2025*
Wu-Ki Tung Award for Early Career Research on QCD, *CTEQ Collaboration, 2025*
After MIT: Postdoctoral Researcher, *Yale*
Currently: Assistant Physicist, *Argonne N.L.*

- 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 N.L.*, 2024
After MIT: Postdoctoral Researcher, *CERN*
- Sokratis Trifinopoulos, SNSF Postdoc.Mobility Fellow, *Fall 2022–Spring 2024*
CTP Postdoctoral Researcher, *Spring 2024–Spring 2025*
After MIT: SNSF Postdoc.Mobility Return Grantee, *CERN*
Currently: Postdoctoral Researcher, *Northwestern*
- Siddharth Mishra-Sharma, IAIFI Fellow, *Fall 2021–Spring 2024*
After MIT: Member of Technical Staff, *Anthropic*
Currently: Assistant Professor, *Boston U.*
Currently: Member of Technical Staff, *Anthropic*
- Lena Funcke, CTP Postdoctoral Researcher, *Fall 2021–Fall 2022*
After MIT: Clausius 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*
Currently: Project Scientist, *U.C. Santa Cruz*
- 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, *U. 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: Associate 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, *U. Texas, Austin*
- Duff Neill, Pappalardo Fellow, *Fall 2012–Spring 2015*
CTP Postdoctoral Researcher, *Spring 2015–Spring 2016*

After MIT: Director’s Fellow, *Los Alamos N.L.*

Currently: Staff Scientist, *Los Alamos N.L.*

- Andrew Larkoski, CTP Postdoctoral Researcher, *Fall 2012–Spring 2015*
Wu-Ki Tung Award for Early Career Research on QCD, *CTEQ Collaboration*, 2017
After MIT: LHC Theoretical Initiative Postdoctoral Fellow, *Harvard*
Currently: Associate Editor, *Physical Review D*
- 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:
 - Luca Lavezzo (*Christoph Paus, in progress*)
 - Noah Paladino (*Philip Harris, in progress*)
 - Jessica Fry (*Lindley Winslow, in progress*)
 - Shing Yan (Kobe) Li (*Washington Taylor, July 2026*)
 - Zhuo Chen (*Marin Soljacic, April 2026*)
 - Ziming Liu (*Max Tegmark, July 2025*)
 - 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 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 Moulton (*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. 2031: Dean Ciarniello, Yitao Feng, Tristan Wang
 - Anticipated Ph.D. 2029: Aneca Sun, Adam Wills
 - Anticipated Ph.D. 2027: Alexander Schmidhuber, Manu Srivastava, Rachel Steinhorst
 - 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 2029: Rohan Bodke, Tejus Deo-Dixit, Davin Li, Eric Mora Jimenez, Maggie Sun
 - 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, Pranjali 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 Faculty
 - MIT Rapid Response Task Force on Large Scale Proposal Development, *Summer 2024*
 - MIT Faculty Committee on Curricula, *Fall 2017–Spring 2020*
- MIT Physics
 - 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 Laboratory for Nuclear Science (LNS)
 - MIT LNS Advisory Group, *Fall 2017, Spring 2020–Spring 2024*

- MIT LNS Colloquium Committee, *Fall 2015–Spring 2017; Chair: Fall 2017–Spring 2018*
- MIT Center for Theoretical Physics - a Leinweber Institute (CTP-LI)
 - 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–Summer 2025*
 - 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–Fall 2022*
- MIT Schwarzman College of Computing (SCC)
 - MIT GenAI Consortium (MGAIC) Grant Review, *Spring 2025*
 - MIT SCC Tayebati Postdoctoral Fellowship Selection, *Spring 2025, Spring 2026*
- MIT Statistics and Data Science Center (SDSC)
 - MIT Physics, Statistics, and Data Science (PhysSDS) Committee, *Co-Chair: Fall 2020–Present*
- MIT Social and Ethical Responsibilities of Computing (SERC)
 - MIT SERC Seed Grant Selection Committee, *Spring 2024*
- MIT Electrical Engineering and Computer Science (EECS)
 - MIT EECS Junior Faculty Mentoring Committee, *Spring 2024–Present*

External Service

- Aspen Center for Physics (ACP)
 - General Member, *Summer 2020–Summer 2030*
 - 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 (Ended October 2025)*
 - 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*
- Early Career and Strategic Planning Events
 - Lead Organizer, “NSF Workshop on the Future of AI and the Mathematical and Physical Sciences”, *MIT, March 2025*
 - Summer School Organizer, “TASI 2024: The Frontiers of Particle Theory”, *CU Boulder, June 2024*
 - Topical Convener, “Collider Phenomenology”, *Snowmass Theory Frontier, July 2021, July 2022*
 - Local Organizing Committee, “Rising Stars in Physics”, *MIT, April 2018*
- Machine Learning for Jet Physics (ML4Jets)
 - Advisory Committee, “ML4Jets 2026”, *Vienna, September 2026*
 - Advisory Committee, “ML4Jets 2025”, *Caltech, August 2025*
 - Advisory Committee, “ML4Jets 2024”, *LPNHE, Paris, November 2024*
 - Advisory Committee, “ML4Jets 2023”, *DESY, November 2023*
 - Advisory Committee, “ML4Jets 2022”, *Rutgers U., November 2022*
 - Advisory Committee, “ML4Jets 2021”, *Heidelberg U., July 2021*
 - Advisory Committee, “ML4Jets 2020”, *New York, January 2020*
- Statistics, Data Science, and Machine Learning Events
 - Scientific Committee, “PHYSTAT: Statistics Meets Machine Learning”, *Imperial College London, September 2024*
 - Organizer, “Machine Learning at GGI”, *GGI, Florence, August/September 2022*
 - Organizer, “CMS Open Data for Theorists”, *Fermilab/Virtual, September 2020*
 - Advisory Committee, “Machine Learning for Particle Physics”, *JGU Mainz, May 2020 → June 2021*
- International Workshop on Boosted Object Phenomenology (BOOST)
 - Advisory Committee and Ombuds Team (with Ayana Arce), “Boost 2022”, *U. 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”, *U. Hamburg, July 2020*
 - Local Organizing Committee, “Boost 2019”, *MIT, July 2019*
 - Advisory Committee, “Boost 2018”, *Paris, July 2018*
 - Advisory Committee, “Boost 2017”, *U. Buffalo, July 2017*
 - Advisory Committee, “Boost 2016”, *Zurich, July 2016*
 - Advisory Committee, “Boost 2015”, *U. Chicago, August 2015*
 - Advisory Committee, “Boost 2014”, *London, August 2014*
 - Advisory Committee, “Boost 2013”, *Flagstaff, August 2013*
 - Advisory Committee, “Boost 2012”, *U. Valencia, July 2012*
 - Advisory Committee, “Boost 2010”, *U. Oxford, June 2010*
- QCD and Jet Physics Events
 - Jet Convener, “Physics at TeV Colliders”, *Les Houches, June 2017*
 - Jet Convener, “Physics at TeV Colliders”, *Les Houches, June 2015*
 - Organizer, “Boston Jet Physics”, *Harvard/MIT, January 2014*
 - Organizer, “Boston Jet Physics”, *Harvard/MIT, January 2011*
- Collider and BSM Physics Events

- Advisory Committee, “BLV 2017”, *Cleveland, May 2017*
- Scientific Organizing Committee, “Lattice for BSM Physics 2017”, *Boston U., April 2017*
- Organizer, “Gearing up for LHC13”, *GGI, Florence, Fall 2015*
- Conference Program Committee, “PANIC 2011: Particle and Nuclei International Conference”, *Boston U., July 2011*
- Organizer, “Implications of First LHC Data”, *MIT/Berkeley, August 2010*
- Advisory Boards
 - Theory Review Committee, CERN, *Fall 2026*
 - External Reviewer for Permanent Position Search, Institut de Physique Théorique (IPhT), *Spring 2026*
 - Lab Advisory Board, Lawrence Berkeley National Laboratory, *2026–2028*
 - 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, 2026*
 - 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*
- Journal Editing
 - Editorial Board, PRX Intelligence, *Spring 2026–Fall 2028*
 - Editorial Board, Journal of High Energy Physics, *Fall 2019–Summer 2025*
 - 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; Neural Information Processing Systems; Machine Learning: Science and Technology; 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; Reviews of Modern 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; Helmholtz Association; Swiss National Science Foundation; Natural Sciences & Engineering Research Council of Canada; Israel Science Foundation; Pazy 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

- “The Future of Artificial Intelligence and the Mathematical and Physical Sciences (AI+MPS)”, Report from a National Science Foundation Workshop, *September 2025*
- “Transcript of Physics, AI, and the Future of Discovery” (with France Córdova, Walter Copan, Valerie Browning, and Evgeni Gusev), *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
- Particle Physics Advocacy
 - “Exploring the Quantum Universe: Pathways to Innovation and Discovery in Particle Physics”, *Report of the Particle Physics Project Prioritization Panel (P5)*, December 2023
 - “Snowmass Theory Frontier: Collider Phenomenology (TF07)” (with Fabio Maltoni and Shufang Su), *Report for the US Community Study on the Future of Particle Physics*, October 2022

Publications and Preprints

See <https://jthaler.net/research/> for these publications organized by topic. Conference proceedings and incidental authorship are listed at <https://jthaler.net/cv/>. 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

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- [146] Benjamin Nachman and Jesse Thaler, *The Well-Tempered Likelihood: Honest Confidence Intervals for Misspecified Models* [arXiv:2607.20718].
- [145] § Rikab Gambhir, Luisa Lucie-Smith, and Jesse Thaler, *Interpreting ‘Interpretability’ and Explaining ‘Explainability’ in Machine Learning in Physics* [arXiv:2606.26228].
- [144] § Umar Sohail Qureshi, Krish Desai, Jesse Thaler, and Benjamin Nachman, *Reweighting Adversarial Networks for Unbinned Unfolding* [arXiv:2606.06603].
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Invited Presentations

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

Colloquia

- “Centaur Science: Adventures in AI+Physics”
Physics Colloquium, *U. Genova, May 2026*
Hans Jensen Lecture, *Heidelberg U., April 2026*
Physics Colloquium, *U. Geneva, March 2026*
Colloquium, *CERN, February 2026*
- “Descending into the Modular Bootstrap”
Theoretical Physics Colloquium, *U. Oxford, May 2026*
DAMTP Colloquium, *U. Cambridge, April 2026*
- “Centaur Science: Particle Physics meets Machine Learning”
Colloquium, *NIKHEF, December 2025*
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 U., 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 U.*, *February 2021* (virtual)
 AlbaNova/Nordita Colloquium, *Stockholm U.*, *February 2021* (virtual)
 Physics Colloquium, *U. Chicago*, *February 2021* (virtual)
 Physics Colloquium, *All Israel*, *November 2020* (virtual)
 Physics Colloquium, *Harvard*, *November 2020* (virtual)
 Physics Colloquium, *U. Maryland*, *October 2020* (virtual)
 Physics Colloquium, *Case Western Reserve U.*, *November 2019*
 Physics and Astronomy Colloquium, *Rice U.*, *October 2019*
 Physics Colloquium, *Oakland U.*, *October 2019*
 Physics Colloquium, *Tufts U.*, *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, *U. Milan*, *March 2018*
 - Physics Colloquium, *U. Illinois*, *Urbana-Champaign*, *October 2017*
- “New Physics Gets a Boost: Jet Substructure at the Large Hadron Collider”
 - Colloquium, *Perimeter I.*, *May 2017*
 - Physics Colloquium, *U.C. Berkeley*, *April 2017*
 - Physics Colloquium, *U. Texas*, *Austin*, *March 2017*
 - Physics Colloquium, *MIT*, *October 2016*
 - Physics and Astronomy Colloquium, *U.C. Riverside*, *October 2016*
 - Physics Colloquium, *U. Buffalo*, *September 2016*
- “Jet Substructure: Boosting the Search for New Physics at the LHC”
 - Physics Colloquium, *U. Chicago*, *May 2016*
 - Physics Colloquium, *Michigan State U.*, *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*, *March 2014*
 - Theory Colloquium, *U. Maryland*, *October 2013*
- “The Shape of Jets to Come: Boosting the Search for New Physics at the LHC”
 - Physics Colloquium, *U. Oregon*, *May 2013*
 - Physics Colloquium, *Cornell*, *February 2013*
- “Anticipating New Data from the Energy Frontier”, Physics Colloquium, *Brown*, *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”
 Spritz of Science, *Il Conventino Firenze*, *January 2026*

Chaire Georges Lemaître Public Lecture, *Université catholique de Louvain*, November 2025

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

- “Centaur Science: Adventures in AI+Physics”, School on Machine Learning and AI Methods at the LHC, *Karachi, Pakistan*, July 2026 (virtual)
- “Machine Learning through the Lens of Physics”, Learning at the Frontier: Advanced School on Machine Learning for Particle Physics, *AIPHY*, June 2026
- “Machine Learning for Fundamental Physics”, Lectures on the Theory of Fundamental Interactions, *GGI, Florence*, January 2026
- “Centaur Science: Particle Physics meets Machine Learning”, Chaire Georges Lemaître Lectures, *Université catholique de Louvain*, November 2025
- “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 I.*, 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, *JGU Mainz, July 2016*
- “The Case for Jet Substructure”, Theorist of the Month, *DESY, June 2014*
- “Super-tricks for Superspace”, TASI Summer School, *CU Boulder, June 2012*
- “Little Lessons for a Little Higgs”, ICTP Winter School, *ICTP, 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

- AI Research Institute Renewal, “Institute for Artificial Intelligence and Fundamental Interactions (IAIFI)”, *National Science Foundation, 2026–2031* (\$24.9M)
- MGAIC Award (with Phiala Shanahan), “Physics Predictions from Physical Generative AI”, *MIT Generative AI Impact Consortium, 2025–2026* (\$50k)
- Conference Award, “Future of AI and the Mathematical and Physical Sciences (AI+MPS)”, *National Science Foundation, 2025* (\$100k)
- Partnerships for Research and Education in Physics (PREP) (with UMass Boston), “Partnership for research and training in QUantum, Artificial intelligence, Non-equilibrium physics Theory and Applications (QUANTA)”, *National Science Foundation, 2024–2027*
- Expanding AI Innovation through Capacity Building and Partnerships (ExpandAI) (with U. Puerto Rico, Mayagüez), “Innovating AI for efficient and insightful data transformation”, *National Science Foundation, 2023–2027*
- 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)
- Quantum Information Science Research Centers, “Co-design Center for Quantum Advantage (C2QA)”, *U.S. Department of Energy, Office of Science, 2020–present*
- 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: 24 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*