

Massachusetts Institute of Technology

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Curriculum Vitae

Degrees

Ph.D., Physics, Columbia University, 2001, Michael H. Shaevitz

M.S., Physics, Columbia University, 1998

B.S., Physics, Yale University, 1996

Employment

Nuclear and Particle Physics Division Head, Physics Dept., MIT, 2015-

Professor with Tenure, Physics Dept., MIT, 2015-

Associate Professor, Physics Dept., MIT, 2010-2015

Assistant Professor, Physics Dept., MIT, 2005-2010

Research Professor, Physics Dept., Univ. of Washington, 2004-2005.

Postdoctoral Associate, Univ. of Washington, R.G.H. Robertson, 2001-2003.

External Positions Held

SNO Scientific Board 2003-2004, 2006-present

MiniCLEAN Scientific Board, 2008-2014

KATRIN Executive Board, 2006-present

Project 8, Spokesperson, 2009-present

Ricochet, Co-Spokesperson, 2012-present

Honors

MIT First Year Outstanding Veteran Advisor (2021)

APS Fellow (2019-)

Breakthrough Prize in Fundamental Physics to Neutrino Oscillations (2016)

Heising-Simons Foundation Grant (2015-present)

Wade Award, MIT, 2009

Class of 1956 Career Development Chair, MIT, 2008

Outstanding Junior Investigator, Department of Energy, 2006

MIT Reed Research Award, MIT, 2006

John C. Polanyi Prize, NSERC (given to the SNO Experiment), 2006

Jerry A. Salvaggi Award, Columbia University, 2001
Best Student/Bruno Pontecorvo Scholar, Erice, 2000

UROP Students Supervised

Over 33 undergraduate UROP students supervised between 2005 and 2021.

B.S. Student Thesis Supervised

Heine, Matthew, “Doppler Shifts at the KATRIN Experiment”, 2008.
Trowbridge, Sarah, “Penning Trap Electron Gun for the KATRIN Experiment”, 2008.
Perepelitsa, Dennis, “(n,n’gamma) Reactions in $^{63,65}\text{Cu}$ and Background in Neutrinoless Double Beta Experiments”, 2008.
Chester, David, “Using the Method of Moments and Robin Hood Method to Solve Electromagnetic Scattering Problems”, 2012.
Newman, Elise, “Neutron Backgrounds in the Ricochet Experiment”, 2016
Kunicki, Theodora “Novel Data-Processing Techniques for Signal Extraction in Project 8”, 2016
Rysewyk, Devyn, “Measurement of the Electron-Hydrogen Total Scattering Cross Section for the Project 8 Experiment”, 2017
Weiss, Talia, “Modeling Beta Decay Spectra to Analyze the Sensitivity of a Neutrino Mass Experiment”, 2018.
Bogorad, Zachary, “Ultracold Neutron Storage Simulation Using the Kassiopeia Software Package,” 2019

Ph.D. Students Supervised

Sonley, Walker, “*A Measurement of the Atmospheric Neutrino Flux and Oscillation Parameters at the Sudbury Neutrino Observatory*”, 2009.

Corona, Thomas J., “*Electromagnetic Models at the KATRIN Neutrino Experiment*”, Master’s Degree, 2008.

Ott, Richard, “*A Measurement of the Solar Day-Night Asymmetry for the Third Phase of the SNO Experiment*”, August 2011.

Kaboth, Asher, “*Detecting the Invisible Universe*”, Jan 2012.

Furse, Daniel, “*Techniques for Direct Neutrino Mass Measurement Utilizing Tritium β -Decay*”, February 2015.

Jaditz, Stephen “*Analysis of Vacuum and Argon Gas Fill Data from the MiniCLEAN Dark Matter Experiment*”, January 2015.

Barrett, John, “A Spatially Resolved Study of the KATRIN Main Spectrometer Using a Novel Fast Multipole Method”, February 2017.

Johnston, Joseph, “Applications of Low Temperature Bolometers to Reactor Neutrinos and Neutrinoless Double Beta Decay,” May 2021.

Buzinsky, Nicholas, “Statistical Signal Processing and Detector Optimization in Project 8”, September 2021.

Mohanmurthy, Prajwal. Master’s Degree, 2015.

Zayas, Evan. Master’s Degree, 2015.

Postdoctoral Researchers Supervised

Stachurska, Juliana, 2020-

Van de Ponteseele, Wouter, 2020-

Harrington, Patrick, 2020-

Sibille, Valerian, 2017-2021

Heine, Sarah, 2016-

Cisneros, Sophia (MLK Fellow), 2011-2014

Oblath, Noah, 2009-2016. Scientist at Pacific Northwest National Laboratory.

Monreal, Benjamin, 2005-2009. Assistant Professor of Physics at UCSB.

Monroe, Jocelyn (Pappalardo Fellow), 2006-2009. Professor of Physics, RHUL.

Miller, Michael (Pappalardo Fellow), 2006-2007. CEO Cloudant Inc.

Palladino, Kimberley, 2011-2013. SLAC staff scientist.

Service

Freshman Advising Seminar (2016-present)
Committee on Discipline (2020-present)
Division Head, Experimental Nuclear and Particle Physics, (2015-present).
Committee on Radiation Safety (2012-present)
NUPAX Oral Exam Committee, Chair (2018-present).
Graduate Admissions, Chair (2013-2016).
Physics Tenure Committees (2014-present).
Graduate Admissions for Physics Department (2006, 2009, 2016, 2017).
Lunchtime seminar committee (2005-2010, chair 2011, 2018).
LNS colloquium committee (2006-2010).
Part I General Exam; grader (2008).
Part I General Exam; committee (2009-2010, chair 2011).
Faculty Search Committee, LNS (2011).

Teaching

Physics 8.04: Introduction to Quantum Mechanics. Fall' 18.
Physics 8.701: Introduction to Nuclear and Particle Physics. Fall' 14, '15, '16
Physics 8.01 Teal: Classical Mechanics (Core). Fall '11, Fall '20, Fall '21
Physics 8.02 Teal: Electromagnetism (Core). Spring 06', '07, '08, and '09.
Physics 8.13: Junior Laboratory. Fall '05, '06, '07, '09, '16, '17.
Physics 8.14: Junior Laboratory. Fall '18, '19.

Physics 8.022: Advanced Electromagnetism. Spring '10
Physics 8.20: Special Relativity. IAP '10

External Service:

SURF Science Program Advisory Committee (2021-)
National Nuclear Science School (2016 - 2020, chair 2018-2020)
Quantum Information Science Nuclear Physics NSAC Panel (2019)