

## Michael B. Schulz

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**BIOGRAPHICAL**    **Place of Birth:** Baldwin, New York.  
**Citizenship:** United States Citizen.

**RESEARCH INTERESTS**    Theoretical physics with a focus on string theory and its applications to quantum field theory, cosmology and particle physics.

**EDUCATION**    **Stanford University**  
Ph.D. Physics, September 2002; Shamit Kachru, Advisor. Dissertation:  
*Domain Walls, Branes, and Fluxes in String Theory: New Ideas on the Cosmological Constant Problem, Moduli Stabilization, and Vacuum Connectedness.*

**University of California at Berkeley**  
M.A. Physics, December 1999; Shamit Kachru, Advisor.

**Massachusetts Institute of Technology**  
S.B. Physics, June 1996; Edward Farhi, Advisor.  
Thesis: *Theory of Accelerated Detectors and Black Hole Radiation.*

**EMPLOYMENT**    **Bryn Mawr College**  
Associate Professor of Physics, 2013–present.  
Assistant Professor of Physics, 2007–2013.

**University of Pennsylvania**  
Postdoctoral Fellow in Physics and Astronomy, 2005–2007.

**California Institute of Technology**  
Postdoctoral Scholar in Theoretical Physics, 2002–2005.

**VISITING APPOINTMENTS**    **University of Pennsylvania**  
Department of Physics and Astronomy, Visiting Scholar, 11/2013–10/2014.

**Weizmann Institute of Science**  
Dept. of Particle Physics and Astrophysics, Visiting Scientist, 5/2013–7/2013.

**Massachusetts Institute of Technology**  
Center for Theoretical Physics, Visiting Research Scientist, 9/2010–8/2011.

- GRANTS, FEELLOWSHIPS, AND HONORS (WHILE AT BRYN MAWR)
- Feinberg Foundation Visiting Faculty Fellowship, Weizmann Institute of Science, Rehovot, Israel, 2013–2014 (declined).  
 NSF Grant No. PHY09-12219, *String Compactification, generalized geometry, and 4D physics* (\$150,000), 2009–2013.  
 Kavli Institute for Theoretical Physics Scholar (\$7,950), 2009–2011.  
 Tri-Co Mellon, *Lunchtime Theory Seminar* (co-recipient, \$2700), 2008–2009.  
 Funded participation in CERN TH Institute on *String Phenomenology*, Geneva (3000 CHF), 2008.
- GRANTS, FEELLOWSHIPS, AND HONORS (PRE 2007)
- Funded participation in KITP string theory programs, 2006, 2005, 2003, 2001.  
 NSF/NSF-NATO Travel Grants, 2002, 1999, 1998, 1997.  
 National Science Foundation Graduate Research Fellowship, 1997–2000.  
 UC Berkeley, University Fellowship, 1996–1997.  
 2nd Place, Boston Area Undergraduate Physics Competition, 1996.  
 Sidney and Alma Roos Scholarship, 1993–1996.  
 US Physics Team Member, IPhO Silver Medalist in Helsinki, Finland, 1992.  
 1st place, NY Math League, 1992.
- PROFESSIONAL SERVICE AND OUTREACH
- Referee for JHEP, Physical Review D, and Physical Review Letters.  
 Greater Philadelphia Cares *Discovery* Science Program, Volunteer, 2006–2010.  
 Boston Area Undergraduate Physics Competition, Co-organizer, 1997–2005.  
 Caltech SURF Undergraduate Research Seminar Day, Session Chair, 2004.  
 UC Berkeley Graduate Student Mentorship Program, Mentor, 1997–1998.
- SERVICE AT BRYN MAWR COLLEGE (AND IN TRI-CO)
- Physics Ph.D. Prelim Exam Organizer, 2010, 2014, 2018–19, 2020–21  
 Committee on Faculty Welfare, 2020–present.  
 Physics Undergraduate Adviser, 2018–present.  
 Swarthmore Physics Honors Examiner, 2019, 2021.  
 Physics Tenure Track Search Committees, 2009, 2011, 2014, 2016, 2017, 2019  
 Committee on Undergraduate Curriculum, 2016–2017.  
 Physics Graduate Adviser, 2008–2010; Co-adviser, 2011–17.  
 Physics Department Chair, 2014–2016.  
 Haverford Physics Tenure Track Search Committee (2 positions), 2016.  
 Health Professions Advising Office External Review Participant, 2016.  
 Swarthmore Physics Tenure Track Search Consultant, 2015.  
 Committee on Undergraduate Awards and Fellowships, 2012–2015.  
 Physics Web Administrator, 2008–2010; Co-administrator, 2010–2015.  
 Newberry Award Committee, 2008–2015.  
 HHMI Steering Committee, 2011–2014.  
 Biochemistry Tenure Track Search Diversity Representative, 2012.  
 Committee on Undergraduate Admissions, 2009–2012.  
 Freshman Advising, 2008, 2009, 2011.

PH.D. DISSER.	Tyler DeMan, in progress, 2018–present.
SUPERVISED	Elliott Tammaro, “Kaluza-Klein Reduction of Pure Gravity and its Implications for K3 Surface Compactifications,” BMC (April 2014); now Assistant Professor at Chestnut Hill College.
SENIOR THESES	Saif Kuraishi, “Instanton Methods in Quantum Mechanics,” HC (May 2020).
SUPERVISED	Srividya Suresh, “Hawking Radiation as Quantum Tunneling,” BMC (May 2013). Nadia Bolis, “Extremal Black Holes and Black Branes,” BMC (March 2009). Shirley Chen, “Simulation and Analysis of Decay Channels in a Supersymmetric Model with R-Parity Violation,” BMC (May 2008).
DOCTORAL	Olivia McAuley (in progress, prelim exams 2020).
DISSERTATION	Dan White, BMC Math (in progress, prelim exams 2019).
COMMITTEES	Andy Clark (in progress, prelim exams 2019). Carlos Cartagena-Sanchez (in progress, prelim exams 2018). Lindsay Dever, BMC Math (in progress, prelim exams 2018). Bashkim Kokona, BMC Chemistry (Ph.D. 2018). Samantha Pezzimenti, BMC Math (prelim exams 2015). Ziva Myer, BMC Math (prelim exams 2013, Ph.D. 2017). Laura Mansfield, BMC Math (prelim exams 2011). Donald Fahey, BMC Physics (prelim exams 2010, Ph.D. 2014). Elliott Tammaro, BMC Physics (prelim exams 2010, Ph.D. 2014). Melanie Lott, BMC Physics (prelim exams 2010, Ph.D. 2012). Jonas Swann, BMC Math (Ph.D. 2010). Robert Richter, U Penn Physics (Ph.D. 2008). Peng Gao, U Penn Physics (Ph.D. 2007).
MASTERS	Kristen Recine, BMC Physics (M.A. oral exam November 2013).
COMMITTEES	Vincent Gregoric, BMC Physics (M.A. oral exam October 2013). Donald Fahey, BMC Physics (M.A. oral exam April 2009). Joseph Croman, BMC Physics (M.A. oral exam April 2008).
SUMMER	Tyler DeMan, Ellie Hughes, Shiksha Pandey, Catie Robinson, Shiksha Pandey
RESEARCH	(Summer 2021).
SUPERVISED	Tyler DeMan, Genevieve Love, Shiksha Pandey, Avalon Vanis (Summer 2020).
(LAST 5 YEARS	Tyler DeMan, Faryal Khan, Shiksha Pandey, Hurum Tohfa (Summer 2019).
LISTED)	Clare Allsopp-Shiner, Leyla Fahim, Carrie Fillion (Summer 2016).

COURSES TAUGHT	<p>Phys 101-1, <i>Introductory Physics I</i> (postbaccalaureate section),          Phys 101-2, <i>Introductory Physics I</i> (undergraduate section),          Phys 101/121 Lab, <i>Introductory Physics Laboratory</i> (fall),          Phys 102/122 Lab, <i>Introductory Physics Laboratory</i> (spring),          Phys 133/163, <i>The Big Bang</i>,          Phys 201 Lab, <i>Analog and Digital Electronics Laboratory</i>,          Phys 214, <i>Waves and Quantum Mechanics</i>,          Phys 306, <i>Mathematical Methods in the Physical Sciences</i>,          Phys 308, <i>Advanced Mechanics</i>,          Phys 325, <i>Advanced Theoretical Physics: General Relativity</i>,          Phys 325, <i>Advanced Theoretical Physics: Particle Physics</i>,          Phys 504, <i>Electromagnetic Theory II</i> (graduate level),          Phys 507, <i>Statistical Mechanics I</i> (graduate level),          Phys 135c (at Caltech), <i>String Theory</i>,          Geol 260, <i>Origin Stories: From the Big Bang to Mother Earth</i>, with Arlo Weil.</p>
PEDAGOGY	<p>AAPT <i>New Faculty Workshop</i>, College Park, MD, 2008.          Participation in Teaching and Learning Initiative <i>Faculty Seminar</i>, 2008.          Participation in Caltech Project for Effective Teaching, 2004–2005.</p>
PARTICIPATION IN PROFESSIONAL MEETINGS	<p><i>APS April Meeting</i>, Virtual, 2021.  <i>Snow Mass Theory Frontier Town Hall Meeting</i>, Virtual 2020.  <i>APS April Meeting</i>, Virtual, 2020.  <i>APS Division of Particles and Fields Meeting</i>, Boston, 2019.  <i>Strings 2014</i>, Princeton, 2014.  <i>String Vacuum Project 2011 Spring Meeting</i>, UPenn, Philadelphia, 2011.  <i>Strings at the LHC and in the Early Universe</i>, KITP, Santa Barbara, 2010.  <i>String Vacuum Project 2010 Spring Meeting</i>, KITP, Santa Barbara, 2010.  <i>Fundamental Aspects of Superstring Theory</i>, KITP, Santa Barbara, 2009.  <i>TH Institute on String Phenomenology</i>, CERN, Geneva, 2008.  <i>Supersymmetry Breaking and its Mediation in Field Theory and String Theory</i>,          Aspen Center for Physics, Aspen, 2008.  <i>String Phenomenology 2008</i>, University of Pennsylvania, Philadelphia, 2008.  <i>APS April Meeting</i>, St Louis, 2008.  <i>Physics at LHC: From Experiment to Theory</i>, Princeton, 2007.  <i>3rd LHC Olympics</i>, KITP, Santa Barbara, 2006.  <i>String Phenomenology Program and Conference</i>, KITP, Santa Barbara 2006.  <i>String Theory, Gauge Theory and Particle Physics</i>, ACP, Aspen, 2006.  <i>String Vacua and the Landscape</i>, ICTP, Trieste, 2006.  <i>LangackerFest</i>, University of Pennsylvania, 2006.  <i>Mathematical Structures in String Theory Program</i>, KITP, Santa Barbara, 2005.</p>

*Workshop on N=1 Compactifications*, Fields Institute, Toronto, 2005.  
*DPF 2004*, UC Riverside, 2004.  
*Simons Workshop in Mathematics and Physics*, SUNY Stony Brook, 2004.  
*Onassis Lectures in Physics*, Heraklion, Greece, 2004.  
*Strings 2004*, Paris, 2004.  
*Superstring Cosmology Program*, KITP, Santa Barbara, 2003.  
*Time and String Theory*, ACP, Aspen, 2003.  
*Strings 2003*, Kyoto, 2003.  
*Mathematics in String and Field Theory*, ICTP, Trieste, 2003.  
*Geometry and Physics of G2 Manifolds*, UCLA IPAM, Los Angeles, 2003.  
*DPF 2003/APS April Meeting*, Philadelphia, 2003.  
*Secrets of the B Meson*, SLAC, 2002  
*Progress in String, Field and Particle Theory*, Cargese, 2002.  
*DPF 2002*, The College of William & Mary, Williamsburg, 2002.  
*Superstrings and Related Matters*, ICTP, Trieste, 2002.  
*Exploring Electroweak Symmetry Breaking*, SLAC, Stanford, 2001.  
*Avatars of M-Theory*, ITP, Santa Barbara, 2001.  
*M-Theory Program*, ITP, Santa Barbara, 2001.  
*Strings 2000*, Ann Arbor, 2000.  
*LennyFest*, Stanford, 2000.  
*String Theory at the Turn of the Millennium*, Jerusalem, 1999.  
*Symmetry Found and Lost*, Princeton, 1999.  
*M-Theory and Quantum Geometry*, Akureyri, Iceland, 1999.  
*TASI-99: Strings, Branes and Gravity*, Boulder, 1999.

RESEARCH  
TALKS

*Compensator Fields in Dimensional Reduction and Compactification without Truncation—Part II: Yang-Mills Theory*, APS April Meeting, Virtual, 19 April 2021.  
*Compensator Fields in Dimensional Reduction and Compactification without Truncation*, APS April Meeting, Virtual, 19 April 2020.  
 APS Division of Particles and Fields Meeting, Boston, 29 July 2019.  
*T-folds, Doubled Geometry, and the SU(2) WZW model*, Cornell University, Ithaca, 14 Dec 2011.  
 University of Michigan, Ann Arbor, 8 April 2011.  
 Massachusetts Institute of Technology, 7 March 2011.  
 University of Massachusetts, Amherst, 25 February 2011.  
 Brown University, Providence, 23 February 2011.  
*Generalized Compactifications of String Theory and their Description via Doubled Geometry*, Massachusetts Institute of Technology, 14 February 2011.  
*Nongeometric String Theory Compactifications*, University of Pennsylvania, 16 June 2009.

- Abelian Fibrations, String Junctions and Flux/Geometry Duality*,  
University of Texas, Austin, 10 April 2009,  
TH Institute on *String Phenomenology*, CERN, Geneva, 31 July 2008,  
*String Phenomenology 2008*, University of Pennsylvania, 31 May 2008,  
APS April Meeting, St. Louis, 15 April 2008,  
University of Toronto, 10 March 2008.
- Can String Theory Describe Our World?*  
Ursinus College, 5 November 2008,  
Bryn Mawr College, 1 February 2007.
- Clearing the Swampland: New Discrete Data for String Theory Model Building*,  
University of Michigan, Ann Arbor, 11 April 2007,  
University of Pennsylvania, 30 October 2006.
- ChRoot Tools and Preliminary Observations on Blackbox B*,  
3rd LHC Olympics, KITP, Santa Barbara, 25 August 2006.
- D-Branes in Nongeometric String Theory Backgrounds*,  
KITP, Santa Barbara, 23 August 2006,  
Stanford University, 17 April 2006,  
Institute for Advanced Study, Princeton, 5 April 2006,  
University of Amsterdam, 22 March 2006.
- Mapping Fluxes to Geometry*,  
University of Toronto, 25 March 2005,  
Massachusetts of Technology, 27 April 2005,  
University of California, Los Angeles, 1 February 2005,  
University of New Hampshire, 28 September 2005.
- Calabi-Yau Duals of Torus Orientifolds*,  
University of Chicago, 1 December 2004,  
University of Wisconsin, Madison, 30 November 2004,  
University of Pennsylvania, 19 November 2004,  
University of California, Berkeley, 16 November 2004,  
Stanford University, 15 November 2004.
- The Simplest Superstring Orientifolds with Torsion, and their Calabi-Yau Duals*,  
Harvard University, 29 April 2004,  
University of Pennsylvania, 26 April 2004,  
Rutgers University, 22 April 2004,  
California Institute of Technology, 16 April 2004.
- Torsionful Orientifolds and the  $N=2$  Web of Vacua*,  
Humboldt-Universität zu Berlin, 23 October 2003.
- New Supersymmetric String Compactifications from Twisted Tori*,  
APS April Meeting, 6 April 2003  
Kavli Institute for Theoretical Physics, 7 November 2002,

University of Southern California, 30 October 2002.

*Torus Orientifolds and the  $N=2$  Web of Vacua,*

University of California, Los Angeles, 18 March 2003.

*Moduli Stabilization from Fluxes,*

Institut d'Études Scientifiques de Cargèse, 9 July 2002,

Division of Particles and Fields 2002, William & Mary, 25 May 2002.

*Moduli Stabilization and SUSY Changing Bubbles from Fluxes,*

Stanford University, 13 June 2002.

*D-Branes and Fluxes for IIB on  $T^6/Z_2$ ,*

Stanford Linear Accelerator Center, 26 October 2001.

POSTER SESSION *General Kaluza-Klein Reduction*, Strings 2014, Princeton, 23 June 2014.

PEDAGOGICAL LECTURES *Nongeometric String Theory Compactifications and Generalized Complex Geometry*,  
RTG Graduate Summer School *Geometry of Quantum Fields and Strings*,  
University of Pennsylvania, 8–20 June 2009.

PANEL DISCUSSION *Applying for Jobs at Colleges and Universities*,  
Panel Discussion with Henriette Elvang and Vanessa Sih,  
*Life after Graduate School Series*,  
University of Michigan, Ann Arbor, 8 April 2010.

## Publications

- PREPRINTS M. Schulz, *A class of Calabi-Yau 3-folds as manifolds of  $SU(2)$  structure*, arXiv:1206.4027 [hep-th].
- E. Tammara and M. Schulz, *M-theory/IIA duality and  $K3$  in the Gibbons-Hawking approximation*, arXiv:1206.1070 [hep-th].
- PEER-REVIEWED ARTICLES M. Schulz, *T-folds, Doubled Geometry, and the  $SU(2)$  WZW Model*, JHEP **1206**, 158 (2012); arXiv:1106.6291 [hep-th].
- R. Donagi, P. Gao and M. Schulz, *Abelian Surface Fibrations, String Junctions and Flux/Geometry Duality*, JHEP **0904**, 119 (2009); arXiv:0810.5195 [hep-th].
- A. Lawrence, T. Sander, M. Schulz and B. Wecht, *Torsion and Soft Supersymmetry Breaking*, JHEP **0807**, 042 (2008); arXiv:0711.4787 [hep-th].
- M. Cvetič, T. Liu and M. Schulz, *Twisting  $K3 \times T^2$  Orbifolds*, JHEP **0709**, 092 (2007); hep-th/0701204.
- A. Lawrence, M. Schulz and B. Wecht, *D-Branes in Nongeometric Backgrounds*, JHEP **0607** 038 (2006); hep-th/0602025.
- M. Schulz, *Calabi-Yau Duals of Torus Orientifolds*, JHEP **0605**, 023 (2006); hep-th/0412270.
- M. Schulz, *Superstring Orientifolds with Torsion:  $O5$  Orientifolds of Torus Fibrations and their Massless Spectra*, Fortsch. Phys. **52**, 963 (2004); hep-th/0406001.
- S. Kachru, M. Schulz, P. Tripathy and S. Trivedi *New Supersymmetric String Compactifications*, JHEP **0303**, 061 (2003); hep-th/0211182.
- S. Kachru, X. Liu, M. Schulz, and S. Trivedi, *Supersymmetry Changing Bubbles in String Theory*, JHEP **0305**, 014 (2003); hep-th/0205108.
- S. Kachru, M. Schulz, and S. Trivedi, *Moduli Stabilization from Fluxes in a Simple IIB Orientifold*, JHEP **0310**, 007 (2003); hep-th/0201028.
- S. Kachru, M. Schulz, and E. Silverstein, *Bounds on Curved Domain Walls in 5D Gravity*, Phys. Rev. D **62** 085003 (2000); hep-th/0002121.
- S. Kachru, M. Schulz, and E. Silverstein, *Self-Tuning Flat Domain Walls in 5D Gravity and String Theory*, Phys. Rev. D **62** 045021 (2000); hep-th/0001206.
- E. Karat and M. Schulz, *Self-Adjoint Extensions of the Pauli Equation in the Presence of a Magnetic Monopole*, Annals Phys. **254** 11-24 (1997); quant-ph/9602013.
- PROCEEDINGS M. Schulz, "Moduli Stabilization from Fluxes," in *Cargèse 2002, Progress in String, Field and Particle Theory*, Kluwer Academic Publishers, Boston (2003); arXiv:0810.5197 [hep-th].
- DISSERTATION M. Schulz, *Domain Walls, Branes, and Fluxes in String Theory: New Ideas on the Cosmological Constant Problem, Moduli Stabilization, and Vacuum Connectedness*, UMI-30-67940-mc (microfiche), 2002, Ph.D. Thesis.