

Michael B. Schulz

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BIOGRAPHICAL

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

Assistant Professor of Physics, 2007–present.

University of Pennsylvania

Postdoctoral Fellow in Physics and Astronomy, 2005–2007.

California Institute of Technology

Postdoctoral Scholar in Theoretical Physics, 2002–2005.

VISITING APPOINTMENTS

Massachusetts Institute of Technology

Center for Theoretical Physics Visiting Research Scientist, 9/2010–8/2011.

GRANTS, FELLOWSHIPS, AND HONORS (WHILE AT BRYN MAWR)

NSF Grant No. PHY09-12219, *String Compactification, generalized geometry, and 4D physics* (\$150,000), 2009–2012.

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, FELLOWSHIPS, 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.
 - Sigma Pi Sigma Physics Honor Society, 1996.
 - 2nd Place, Boston Area Undergraduate Physics Competition, 1996.
 - Sidney and Alma Roos Scholarship, 1993–1996.
 - Silver Medalist in International Physics Olympiad, Helsinki, Finland, 1992.
 - United States Physics Team Member 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–present.
 - Penn High Energy Theory Seminar, Co-organizer, 2005–2007.
 - Caltech SURF Undergraduate Research Seminar Day, Session Chair, 2004.
 - Boston Area Undergraduate Physics Competition, Co-organizer, 1997–2005.
 - Caltech High Energy Theory Seminar, Co-organizer, 2003.
 - UC Berkeley Graduate Student Mentorship Program, Mentor, 1997–1998.
 - International Physics Olympiad, Volunteer, 1993 in Williamsburg, VA and 1997 in Sudbury, Canada; Official, 1998 in Reykjavík, Iceland.
- SERVICE AT BRYN MAWR COLLEGE
- Committee on Undergraduate Admissions, 2009–2012.
 - Physics Colloquium Organizer, 2007–2010, 2011–present.
 - Newberry Award Committee, 2008–present.
 - Physics Tenure Track Search Committees, 2009, 2011.
 - Physics Ph.D. Preliminary Examinations, 2010.
 - Physics Graduate Adviser and GGSM Steering Group Member, 2008–2010.
 - Physics Webmaster (including web transition), 2008–2010
 - Physics Events Organizer, 2008–2010.
 - Participation in Approval Process for BCA Study Abroad Program, 2009.
 - Curricular Renewal Faculty Forum, 2009
 - Freshman Advising, 2008, 2009.
 - Fall Faculty Retreat, 2007.
- PEDAGOGY
- New Faculty Syllabus Workshop, 2009.
 - AAPT *New Faculty Workshop*, College Park, MD, 2008.
 - Participation in Teaching and Learning Initiative *Faculty Seminar*, 2008.
 - Participation in Caltech Project for Effective Teaching, 2004–2005.

PARTICIPATION
IN
PROFESSIONAL
MEETINGS

String Vacuum Project 2011 Spring Meeting, UPenn, Philadelphia, 2011.
Strings at the LHC and in the Early Universe, KITP, Santa Barbara, 2010.
String Vacuum Project 2010 Spring Meeting, KITP, Santa Barbara, 2010.
Fundamental Aspects of Superstring Theory, KITP, Santa Barbara, 2009.
TH Institute on String Phenomenology, CERN, Geneva, 2008.
Supersymmetry Breaking and its Mediation in Field Theory and String Theory,
Aspen Center for Physics, Aspen, 2008.
String Phenomenology 2008, University of Pennsylvania, Philadelphia, 2008.
APS April Meeting, St Louis, 2008.
Physics at LHC: From Experiment to Theory, Princeton, 2007.
3rd LHC Olympics, KITP, Santa Barbara, 2006.
String Phenomenology Program and Conference, KITP, Santa Barbara 2006.
String Theory, Gauge Theory and Particle Physics, ACP, Aspen, 2006.
String Vacua and the Landscape, ICTP, Trieste, 2006.
LangackerFest, University of Pennsylvania, 2006.
Mathematical Structures in String Theory Program, KITP, Santa Barbara, 2005.
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.

- 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.
- RESEARCH TALKS *T-folds, Doubled Geometry, and the $SU(2)$ WZW model*, 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.

SENIOR THESES SUPERVISED	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).
PH.D. THESES SUPERVISED	Elliott Tammaro, BMC (in progress).
MASTERS COMMITTEES	Donald Fahey, BMC (April 2009). Joseph Croman, BMC (April 2008).
DOCTORAL DISSERTATION COMMITTEES	Donald Fahey, Bryn Mawr College Physics (in progress). Melanie Lott, Bryn Mawr College Physics (in progress). Elliott Tammaro, Bryn Mawr College Physics (in progress). Laura Mansfield, Bryn Mawr College Math (in progress). Jonas Swann, Bryn Mawr College Math (2010). Robert Richter, University of Pennsylvania Physics (2008). Peng Gao, University of Pennsylvania Physics (2007).
COURSES TAUGHT	Physics 101-1, <i>Introductory Physics I</i> (postbaccalaureate section), Physics 101-2, <i>Introductory Physics I</i> (undergraduate section), Physics 101 Lab, <i>Introductory Physics II Laboratory</i> , Physics 102 Lab, <i>Introductory Physics II Laboratory</i> , Physics 201 Lab, <i>Analog and Digital Electronics Laboratory</i> , Physics 214, <i>Waves and Quantum Mechanics</i> , Physics 308, <i>Advanced Mechanics</i> , Physics 325, <i>Advanced Theoretical Physics</i> (2008 topic: <i>General Relativity</i>), Physics 325, <i>Advanced Theoretical Physics</i> (2010 topic: <i>Particle Physics</i>), Physics 504, <i>Electromagnetic Theory II</i> (graduate level), Physics 507, <i>Statistical Mechanics I</i> (graduate level), Physics 135c (at Caltech), <i>String Theory</i> .

Publications

- ARTICLES IN PREPARATION M. Schulz, *WZW models as generalized compactifications*.
 E. Tamaro and M. Schulz, *Warped Kaluza-Klein Reduction in 7D*.
 M. Schulz, *Nongeometric String Theory Compactifications: an Overview*.
- ARTICLES IN REVIEW M. Schulz, *T-folds, Doubled Geometry, and the SU(2) WZW Model*, submitted to JHEP; arXiv:1106.6291 [hep-th].
- PEER-REVIEWED ARTICLES 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. Cvetic, 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 *Cargese 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.

REFERENCES

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