

# Savdeep S. Sethi

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## Personal

Born: May 22, 1971. Citizenship: U.S.A.

## Education

- 9/91 – 6/96 **Harvard University**, Cambridge, MA.  
Ph.D. in Physics.  
Research area: string theory and quantum field theory.  
Advisor: Prof. Cumrun Vafa.
- 9/91 – 6/92 **Harvard University**, Cambridge, MA.  
M.A. in physics.
- 9/87 – 6/91 **Cornell University**, Ithaca, NY.  
B.S. Applied and Engineering Physics.  
B.A. Mathematics in the College Scholar Program.

## Experience

- 7/06 – present An associate professor of Physics at the University of Chicago.
- 5/00 – 7/06 An assistant professor of Physics at the University of Chicago.
- 9/98 – 5/00 A long term member of the Institute for Advanced Study in the School of Natural Sciences.
- 9/96 – 8/98 A member of the Institute for Advanced Study in the School of Natural Sciences.
- 6/91 – 7/91 Teaching assistant for an accelerated course on intermediate electromagnetism at Cornell University.
- 6/90 – 8/90 S.P.U.R. (Summer Program for Undergraduate Research) 1990 at the Cornell National Supercomputer Facility.
- 4/90 – 7/91 Research in plasma physics at the Laboratory of Plasma Physics, Cornell University.  
Research project: multi-fluid simulation of a radiating X-pinch implosion.
- 6/89 – 8/89 Research in heavy ion physics at Argonne National Laboratory.  
Research project: to design a detector mounting for the ATLAS project, and study its cooling properties.

## Honors

Alfred P. Sloan Fellow (2001-2003).  
NSF CAREER Grant Recipient.  
Hertz Fellowship (1991-1996).  
Beinecke Memorial Fellowship (1990-1994).  
Trevor R. Cuykendall Memorial Award.  
McMullen's Deans Prize.  
Tau Beta Pi, Phi Beta Kappa.

## Publications

1. E. J. Martinec, D. Robbins and S. Sethi "Non-Supersymmetric String Theory," arXiv:0904.3498.
2. K. Becker and S. Sethi "Torsional Heterotic Geometries," arXiv:0903.3769, Nucl. Phys. **B820**, 1 (2009).
3. A. Basu and S. Sethi "Recursion Relations from Space-time Supersymmetry," arXiv:0808.1250, J. High Energy Phys. **0809**, 081 (2008).
4. I. Melnikov and S. Sethi "Half-twisted (0,2) Landau-Ginzburg Models," hep-th/0712.1058.
5. S. Sethi "A Note on Heterotic Dualities via M-theory," hep-th/0707.0295, Phys. Lett. **B659** 385 (2008).
6. N. Halmagyi, I. Melnikov and S. Sethi "Instantons, Hypermultiplets and the Heterotic String," hep-th/0704.3308, J. High Energy Phys. **0707**, 086 (2007).
7. E. Martinec, D. Robbins and S. Sethi "Toward the End of Time," hep-th/0603104, J. High Energy Phys. **0608**, 025 (2006).
8. B. Craps, A. Rajaraman and S. Sethi "Effective Dynamics of the Matrix Big Bang," hep-th/0601062, Phys. Rev. **D73** 106005 (2006).
9. D. Robbins and S. Sethi "A Matrix Model for the Null-brane," hep-th/0509204, J. High Energy Phys. **02**, 052 (2006).
10. B. Craps, S. Sethi and E. Verlinde "A Matrix Big Bang," hep-th/0506180, J. High Energy Phys. **0510**, 005 (2005).
11. A. Basu, M. B. Green and S. Sethi, "A Curious Truncation of N=4 Yang-Mills," hep-th/0406267, Phys. Rev. Lett. **93**, 261601 (2004).
12. A. Basu, M. B. Green and S. Sethi, "Some Systematics of the Coupling Constant Dependence of N=4 Yang-Mills," hep-th/0406231, J. High Energy Phys. **0409**, 045 (2004).
13. D. Robbins and S. Sethi, "A Barren Landscape," hep-th/0405011, Phys. Rev. **D71** 046008 (2005).
14. S. Sethi, "Structure in Supersymmetric Yang-Mills Theory," hep-th/0404056, J. High Energy Phys. **0410**, 001 (2004).
15. A. Adams, A. Basu and S. Sethi, "(0,2) Duality," hep-th/0309226, Adv. Theor. Math. Phys. **7**, 865 (2004).

16. D. Robbins and S. Sethi, , “The UV/IR Interplay in Theories with Space-Time Varying Noncommutativity,” hep-th/0306193, J. High Energy Phys. **34**, 307 (2003).
17. A. Basu and S. Sethi, , “World Sheet Stability of (0,2) Linear Sigma Models,” hep-th/0303066, Phys. Rev. **D68**, 25003 (2003).
18. K. Dasgupta, G. Rajesh, D. Robbins, and S. Sethi, “Time-Dependent Warping, Fluxes, and NCYM,” hep-th/0302049, J. High Energy Phys. **0303**, 041 (2003).
19. A. Hashimoto and S. Sethi, “Holography and String Dynamics in Time-Dependent Backgrounds,” hep-th/0208126, Phys. Rev. Lett. **89**, 261601 (2002).
20. A. Keurentjes and S. Sethi, “Twisting E8 Five-branes,” hep-th/0205162, Phys. Rev. **D66**, 046001 (2002).
21. S. Paban, M. Stern and S. Sethi, “Non-commutativity and Supersymmetry,” hep-th/0201259, J. High Energy Phys. **0203**, 012 (2002).
22. D. R. Morrison and S. Sethi, “Novel Type I Compactifications,” hep-th/0109197, J. High Energy Phys. **0201**, 032 (2002).
23. J. de Boer, R. Dijkgraaf, K. Hori, A. Keurentjes, J. Morgan, D. R. Morrison and S. Sethi, “Triples, Fluxes, and Strings,” hep-th/0103170, Adv. Theor. Math. Phys. **4**, 995 (2002).
24. J. L. Feng, J. March-Russell, S. Sethi and F. Wilczek, “Saltatory Relaxation of the Cosmological Constant,” hep-th/0005276, Nucl. Phys. **B602**, 307 (2001).
25. O. J. Ganor, G. Rajesh and S. Sethi, “Duality and Non-Commutative Gauge Theory,” hep-th/0005046, Phys. Rev. **D62**, 125008 (2000)
26. S. Sethi and M. Stern, “The Structure of the D0-D4 Bound State,” hep-th/0002131, Nucl. Phys. **B578**, 163 (2000).
27. S. Sethi and M. Stern, “Invariance Theorems for Supersymmetric Yang-Mills Theories,” hep-th/0001189, Adv. Theor. Math. Phys. **4**, 2 (2000).
28. K. Dasgupta, G. Rajesh and S. Sethi, “M Theory, Orientifolds and G-flux,” hep-th/9908088, J. High Energy Phys. **23**, 9908 (1999).
29. S. Sethi and M. Stern, “Supersymmetry and the Yang-Mills Effective Action at Finite N,” hep-th/9903049, J. High Energy Phys. **4**, 9906 (1999).
30. S. Sethi, “A Relation Between N=8 Gauge Theories in Three Dimensions,” hep-th/9809162, J. High Energy Phys. **3**, 9811 (1998).
31. S. Paban, S. Sethi and M. Stern, “Summing Up Instantons in Three-Dimensional Yang-Mills Theories,” hep-th/9808119, Adv. Theor. Math. Phys. **3**, 2 (1998).
32. M. B. Green and S. Sethi, “Supersymmetry Constraints on Type IIB Supergravity,” hep-th/9808061, Phys. Rev. **D59**, 046006 (1999).
33. S. Paban, S. Sethi and M. Stern, “Supersymmetry and Higher Derivative Terms in the Effective Action of Yang-Mills Theories,” hep-th/9806028, J. High Energy Phys. **6**, 12 (1998).
34. S. Paban, S. Sethi and M. Stern, “Constraints From Extended Supersymmetry in Quantum Mechanics,” hep-th/9805018, Nucl. Phys. **B534**, 137 (1998).

35. A. Kapustin and S. Sethi, "The Higgs Branch of Impurity Theories," hep-th/9804027, Adv. Theor. Math. Phys. **2**, 571 (1998).
36. A. Mikhailov, N. Nekrasov and S. Sethi, "Geometric Realizations of BPS States in N=2 Theories," hep-th/9803142, Nucl. Phys. **B531**, 345 (1998).
37. O. J. Ganor and S. Sethi, "New Perspectives on Yang-Mills Theories With Sixteen Supersymmetries," hep-th/9712071, J. High Energy Phys. **1**, 7 (1998).
38. S. Sethi, "The Matrix Formulation of Type IIB Five-branes," hep-th/9710005, Nucl. Phys. **B523**, 158 (1998).
39. N. Seiberg and S. Sethi, "Comments on Neveu-Schwarz Five-Branes," hep-th/9708085, Adv. Theor. Math. Phys. **1**, 259 (1998).
40. S. Sethi and M. Stern, "D-Brane Bound States Redux," hep-th/9705046, Comm. Math. Phys. **194**, 675 (1998).
41. A. Sen and S. Sethi, "The Mirror Transform of Type I Vacua in Six-Dimensions," hep-th/9703157, Nucl. Phys. **B499**, 45 (1997).
42. S. Sethi and L. Susskind, "Rotational Invariance in the M(atrix) Formulation of Type IIB Theory," hep-th/9702101, Phys. Lett. **B400**, 265 (1997).
43. R. Blumenhagen and S. Sethi, "On Orbifolds of (0,2) Models," hep-th/9611172, Nucl. Phys. **B491**, 263 (1997).
44. S. Sethi and M. Stern, "A Comment on the Spectrum of H-Monopoles," hep-th/9607145, Phys. Lett. **B398**, 47 (1997).
45. S. Sethi, C. Vafa, and E. Witten, "Constraints on Low-Dimensional String Compactifications," hep-th/9606122, Nucl. Phys. **B480**, 213 (1996).
46. S. Sethi, M. Stern, and E. Zaslow, "Monopole and Dyon Bound States in N=2 Supersymmetric Yang-Mills Theories," hep-th/9508117, Nucl. Phys. **B457**, 484 (1995).
47. S. Sethi, "Supermanifolds, Rigid Manifolds, and Mirror Symmetry," hep-th/9404186, Nucl. Phys. **B430**, 31 (1994), and in "Mirror Symmetry II", ed. by B. Greene and S.-T. Yau (American Mathematical Society and International Press, 1997).

## Synergistic Activities

Co-organized a workshop at the Max-Planck-Institut für Gravitationsphysik, Potsdam on, "(0,2) Mirror Symmetry and Quantum Sheaf Cohomology" (2009),  
 Lecturer at the GGI workshop on "New Perspectives on String Theory" (2009),  
 Lecturer for the Space Explorers Program (2004),  
 Lecturer at the Yerkes Winter Institute (2003),  
 Lecturer at the Clay Mathematics Institute School on Geometry and String Theory (2002),  
 Lecturer at the Park City Math Institute (2001),  
 Developed a modern course on "Supersymmetry and Supergravity,"  
 (see, <http://theory.uchicago.edu/~sethi/Teaching/P487/classes487.html>).

## Collaborators

A. Adams, Harvard University  
A. Basu, I.A.S.  
K. Becker, Texas A&M  
R. Blumenhagen, Max-Planck-Institut Munchen  
J. de Boer, University of Amsterdam  
B. Craps, Vrije Universiteit Brussel  
K. Dasgupta, Stanford University  
R. Dijkgraaf, University of Amsterdam  
J. L. Feng, U.C. Irvine  
O. J. Ganor, U.C. Berkeley  
M. B. Green, Cambridge University  
N. Halmagyi, University of Chicago  
A. Hashimoto, University of Madison  
K. Hori, University of Toronto  
A. Kapustin, Caltech  
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J. Morgan, Columbia University  
D. R. Morrison, Duke University  
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J. Park, University of Chicago  
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A. Rajaraman, U.C. Irvine  
G. Rajesh, University of Chicago  
D. Robbins, University of Chicago  
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A. Sen, Harish-Chandra Research Institute  
M. Stern, Duke University  
L. Susskind, Stanford University  
E. Verlinde, University of Amsterdam  
F. Wilczek, M.I.T.  
E. Witten, I.A.S.  
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## Graduate and Post-doctoral Advisors

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Dr. Edward Witten, Professor of Physics, Institute for Advanced Study, Princeton, NJ 08540. Email: witten@sns.ias.edu

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