

CURRICULUM VITAE

Jeremy Michelson

PERSONAL INFORMATION:

Address: Department of Physics
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EDUCATION:

Ph.D. (physics): University of California, Santa Barbara, Summer 1999.
Thesis Advisor: Andrew Strominger.
Dissertation: Diverse Roles for Black Holes in String Theory.

M.A. (physics): University of California, Santa Barbara, Fall 1996.

B.Sc.: McGill University, Montreal, Canada, June 1994.
First Class Honours in Chemistry and Physics.

EMPLOYMENT:

Postdoctoral Researcher, Department of Physics, The Ohio State University:
Sept. 2006–present.

Visiting Assistant Professor, Department of Physics and Astronomy,
University of Kentucky:
Aug. 2005–June 2006.

Postdoctoral Scholar, Department of Physics and Astronomy,
University of Kentucky:
Sept. 2002–July 2005; July 2006–Aug. 2006.

Postdoctoral Associate, New High Energy Theory Center, Rutgers University:
Sept. 1999–Aug. 2002.

Research Assistant in Physics at Harvard University:
August 1997–August 1999.

NSERC Summer Undergraduate Research Student at McGill University:
Summer 1993: Group Theory (supervisor: R. T. Sharp)
Summer 1992: Theoretical Quantum Chemistry
(supervisor: M. A. Whitehead)

TEACHING
EXPERIENCE:**Visiting Assistant Professor** in Physics at University of Kentucky**Physics 231** *General University Physics I*, Spring 2006:

- 140 person class
- Introductory mechanics for Physics and Engineering majors
- See <http://www.pa.uky.edu/~jeremy/courses/phy-231/>

Astronomy 191 *The Solar System*, Fall 2005:

- 90 person class, mainly non-science majors
- Satisfies the University Studies requirement
- See <http://www.pa.uky.edu/~jeremy/courses/ast-191/>

String Theory Spring 2005:

- Introduction to string theory, for a small number of graduate students.
- See <http://www.pa.uky.edu/~jeremy/courses/strings/>.

Teaching Assistant in Physics at University of California:

- Jan. 1997–Mar. 1997: Graded graduate electromagnetism;
- Sep. 1996–Dec. 1996; Jan. 1996–Mar. 1996; Sep. 1994–Dec. 1994: Taught and graded non-calculus based introductory lab and discussion sections including creating and grading quizzes;
- Jan. 1995–Mar. 1995: Taught and graded upper division classical mechanics sections.

Tutor at McGill Tutorial Services, 1990–1993:

Tutored students, both individually and in small groups, in introductory physics, chemistry and calculus, and in electronics.

AWARDS:

NSERC (Natural Science and Engineering Research Council (Canada)) Postdoctoral Fellowship, September 1999–August 2001.

NSERC Postgraduate B Scholarship, Summer 1997–Summer 1999.

NSF (National Science Foundation (USA)) Graduate Fellowship, September 1995–August 1998.

NSERC Postgraduate A Scholarship, Fall 1994–Summer 1996.

David S. Saxon Award (UCSB, for excellent academic performance and evidence of future promise in physics), 1995.

PUBLICATIONS **“Alpha-Vacua, Black Holes, and AdS/CFT,”* *Class. Quant. Grav.* **24** (2007) 1569–1603; [hep-th/0610133](http://arxiv.org/abs/hep-th/0610133) (with A. Chamblin).

AND

PREPRINTS:

(*= Refereed)

“Cosmologies with Null Singularities and their Gauge Theory Duals,”* *Phys. Rev. D* **75 (2007) 026002; [hep-th/0610053](http://arxiv.org/abs/hep-th/0610053) (with S. R. Das, K. Narayan and S. P. Trivedi).

- *“Time Dependent Cosmologies and Their Duals,” *Phys. Rev. D* **74** (2006) 026002; [hep-th/0602107](#) (with S. R. Das, K. Narayan and S. P. Trivedi).
- *“Matrix Membrane Big Bangs and D-brane Production,” *Phys. Rev. D* **73** (2006) 126006; [hep-th/0602099](#) (with S. R. Das).
- *“Dynamics of Antimembranes in the Maximally Supersymmetric Eleven-Dimensional pp Wave,” *J. High Energy Phys.* **01** (2006) 028; [hep-th/0509017](#) (with X. Wu).
- *“ pp Wave Big Bangs: Matrix Strings and Shrinking Fuzzy Spheres,” *Phys. Rev. D* **72** (2005) 086005; [hep-th/0508068](#) (with S. R. Das).
- *“Matrix Theory of pp Waves,” in *Quantum Theory and Symmetries: Proceedings of the 3rd International Symposium on Quantum Theory and Symmetries* (P. C. Argyres, et. al., eds.) World Scientific, 2004; [hep-th/0401050](#).
- *“Fuzzy Spheres in pp Wave Matrix Theory,” *Phys. Rev. D* **70** (2004) 026004; [hep-th/0306270](#) (with S. R. Das and A. D. Shapere).
- *“A pp -Wave With 26 Supercharges,” *Class. Quant. Grav.* **19** (2002) 5935–5949; [hep-th/0206204](#).
- *“(Twisted) Toroidal Compactification of pp -Waves,” *Phys. Rev. D* **66** (2002) 066002; [hep-th/0203140](#).
- *“*-Trek III: The Search for Ramond-Ramond Couplings,” *Nucl. Phys.* **B614** (2001) 330–366; [hep-th/0107172](#) (with H. Liu).
- *“Ramond-Ramond Couplings of Noncommutative D-branes,” *Phys. Lett.* **B 518** (2001) 143–152; [hep-th/0104139](#) (with H. Liu).
- *“Supergravity Couplings of Noncommutative D-branes,” *Nucl. Phys.* **B615** (2001) 169–190; [hep-th/0101016](#) (with H. Liu).
- *“*-Trek: The One-Loop $\mathcal{N} = 4$ Noncommutative SYM Action,” *Nucl. Phys.* **B614** (2001) 279–304; [hep-th/0008205](#) (with H. Liu).
- *“Stretched Strings in Noncommutative Field Theory,” *Phys. Rev. D* **62** (2000) 066003; [hep-th/0004013](#) (with H. Liu).
- “Lectures on Superconformal Quantum Mechanics and Multi-Black Hole Moduli Spaces,” in *M-Theory and Quantum Geometry* (L. Thorlacius and T. Jons-son, eds.) Kluwer Academic Publishers, 2000, and in *Progress in String Theory and M-Theory* (L. Baulieu et. al., eds.) Kluwer Academic Publishers, 2001; [hep-th/9911066](#) (with R. Britto-Pacumio, A. Strominger and A. Volovich).
- “Anti-de Sitter Fragmentation,” in *Progress in String Theory and M-Theory* (L. Baulieu et. al., eds.) Kluwer Academic Publishers, 2001; [hep-th/9909069](#).

*“Superconformal Multi-Black Hole Quantum Mechanics,” *J. High Energy Phys.* **09** (1999) 005; [hep-th/9908044](#) (with A. Strominger).

*“The Geometry of (Super) Conformal Quantum Mechanics,” *Commun. Math. Phys.* **213** (2000) 1–17 [hep-th/9907191](#) (with A. Strominger).

*“Supergravity Spectrum on $\text{AdS}_2 \times S^2$,” *J. High Energy Phys.* **09** (1999) 029; [hep-th/9906056](#) (with M. Spradlin).

*“Anti-de Sitter Fragmentation,” *J. High Energy Phys.* **02** (1999) 011; [hep-th/9812073](#) (with J. Maldacena and A. Strominger).

*“Scattering of Four-Dimensional Black Holes,” *Phys. Rev. D* **57** (1998) 1092–1097; [hep-th/9708091](#).

*“Scattering of Several Multiply Charged Extremal $D = 5$ Black Holes,” *Phys. Lett. B* **410** (1997) 125–130; [hep-th/9707021](#) (with D. Kaplan).

*“Compactifications of Type IIB Strings to Four Dimensions with Non-trivial Classical Potential,” *Nucl. Phys. B* **495** (1997) 127–148; [hep-th/9610151](#).

*“Character States and Generator Matrix Elements for $\text{Sp}(4) \supset \text{SU}(2) \times \text{U}(1)$,” *J. Math. Phys.* **37** (1996) 3022–3031; [nucl-th/9510034](#) (with N. Hambli and R. T. Sharp).

*“Zero Modes for the $D = 11$ Membrane and Five-brane,” *Phys. Rev. D* **53** (1996) 3474–3476; [hep-th/9510053](#) (with D. Kaplan).

INVITED
SEMINARS:

“Cosmologies with Null Singularities and their Gauge Theory Duals,” University of Michigan, Jan. 24, 2007.

“Black Hole Vacua,” The Andrew Chamblin Memorial Symposium, University of Louisville, March 22, 2006.

“Matrix Theories and Spacelike Singularities,”
 ◦ University of Cincinnati, Feb. 6, 2006.
 ◦ The Ohio State University, Feb. 3, 2006.

“Matrix (String) Theory for pp Waves,”
 ◦ Ohio State University, Oct. 10, 2003.
 ◦ Harvard University, Oct. 2, 2003.

“A pp-wave with Exotic Supersymmetries,” University of Kentucky, May 8, 2002.

“(Twisted) Toroidal Compactification of pp-Waves,” Harvard University, April 2002.

“Non-Commutative Field Theory from String Theory,”
 University of British Columbia, February 8, 2002.

“*-Wars: Wilson’s Empire Strikes Back,” Harvard University, February 27, 2001.

“Superconformal Quantum Mechanics and Black Holes,”

- Pennsylvania State University, November 13, 2000.
- University of Pennsylvania, December 6, 1999.
- Princeton University, November 1, 1999.

“What String Theory Says about Noncommutative Field Theory,”

- Brown University, May 24, 2000.
- Harvard University, May 19, 2000.

“Anti-de Sitter Fragmentation,”

- Rutgers University, April 6, 1999.
- Massachusetts Institute of Technology, February 1999.

CONFERENCE
TALKS:

“Black Hole Alpha Vacua,” PASCOS 2006, Columbus, Ohio, September, 10–15, 2006.

“Black Hole Vacua,” The Great Lakes String Conference, Ann Arbor, Michigan, March 31–April 2, 2006.

“String Theoretic Toy Models of the Big Bang,” Ohio Section of the APS Meeting, Detroit, Michigan, March 31–April 1, 2006.

“Matrix Models, String Theory, Field Theory, ... and the Big Bang?”, Ohio Section of the APS Meeting, Cleveland, Ohio, October 2005.

“Matrix Theory of pp Waves,” 3rd International Symposium on Quantum Theory and Symmetries, Cincinnati, Ohio, Sept. 2003.

“Toroidal Compactification of pp-Waves,” Ohio Section of the APS Meeting, Columbus, Ohio, Oct. 2002.