

CURRICULUM VITAE

Name: Dr. Andrew K. Waldron.

Occupation: Associate Professor, Vice Chair of Mathematics,
University of California, Davis.

Research Area: Mathematical Physics.

Education: Ph. D., State University of New York at Stony Brook 1997.
B. Sc. (Hons), University of Melbourne 1991.

Born: January 30th 1970, Melbourne, Australia.

Nationality: Australian.

Personal Status: Spouse: Anne Schilling (German, Mathematician),
Daughter: Katja (American, Australian, German, Age 12).

Languages: English > German.

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Professional Experience

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| 2007- | Vice Chair of Mathematics,
University of California, Davis. |
| 2004- | Associate Professor,
University of California, Davis. |
| 2001-2004 | Assistant Professor,
University of California, Davis. |
| 1999-2001 | Post-doctoral researcher,
Brandeis University. |
| 1997-1999 | Post-doctoral researcher,
NIKHEF, Amsterdam. |

Education

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| 1992-97 | Graduate Student, Institute for Theoretical Physics,
State University of New York at Stony Brook.
Ph.D. advisor: Prof. Peter van Nieuwenhuizen,
Thesis: <i>Aspects of Quantum Field Theory</i> ,
Graduated: May 1997. |
| 1991 | Physics Honours year, Melbourne University. |
| 1988-90 | Physics and Mathematics undergraduate at Melbourne University. |

Prizes and Awards:

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| 1989 | William Sutherland Prize for 2 nd year physics – Melbourne University |
| 1991 | Graduated with 1 st class honours: Dixson Scholarship
for best Honours year physics student – Melbourne University. |

Current Research Interests

- Spinning Particles and Geometry
- BPS Black Holes
- Automorphic Forms and Physics
- Supermembrane-Inspired M -Theory
- Higher Spin Field Theories
- Quantum Field Theory, Supergravity and String Theory in de Sitter Space
- Matrix Integrals
- Minisuperspace Approximations of Quantum Gravity

Talks and Conferences

ITP (Stony Brook) Theory Seminar April 1997, Amsterdam–Utrecht String Seminar October 1997, Groningen Seminar November 1997, Netherlands Landelijke Seminar December 1997, CERN Strings Workshop December 1997, ITP (Stony Brook) Seminar July 1998, Brown University Theory Seminar October 1998, MIT Theory Seminar October 1998, CCNY Theory Seminar October 1998, Max Planck Institute für Gravitation, Potsdam Theoretical Seminar January 1999, Bad Honnef *10th Workshop on physics beyond the Standard model* January 1999, Leiden Theory Seminar May 1999, CERN Duality Seminar August 1999, Brandeis Theory Seminar September 1999, New York University Theory Seminar January 2000, UC Davis Physics Theory Seminar March 2000, UC Davis Mathematics Seminar March 2000, Max Planck Institute Potsdam Theory Seminar July 2000, University of Florida Gainesville Theory Seminar April 2001, University of Maryland Theory Seminar April 2001, MIT Theory Seminar May 2001, University of Chicago Theory Seminar May 2001, Oxford Theory Seminar June 2001, Cambridge Theory Seminar June 2001, Max Planck Institut Bonn Gauge Theory Seminar August 2001, Berkeley Theory Seminar September 2001, Geometry/Topology–Mathematical Physics Seminar UC Davis October 2001, Stanford Theory Seminar October 2001, Pacific Coast Gravity Meeting Davis March 2002, Public Lecture University North Dakota April 2002, Midwest Geometry Conference North Dakota April 2002, Max Planck Institute Potsdam Theory Seminar July 2002, Max Planck Institut Bonn Gauge Theory Seminar August 2002, Department of Physics Bonn Theory Seminar December 2002, UC Davis Mathematical Physics Seminar April 2003, Melbourne University Theoretical Physics Seminar June 2003, Melbourne University Mathematics Seminar June 2003, Max Planck Institut Bonn Gauge Theory Seminar August 2003, Lie Groups, Lie Algebras and their Representations Conference Berkeley March 2004, Midwest Geometry Conference Arkansas March 2004, Deserfest University of Michigan Ann Arbor April 2004, AMS Sectional Meeting Rider University New Jersey April 2004, Mathematical Physics Seminar UC Davis May 2004, Max Planck Institut Bonn Oberseminar August 2004, Lake Arrowhead CFT reunion conference December 2004, Arithmetic Geometry and High Energy Physics Leiden August 2005, Berkeley Theory Seminar September 2005, XXXVIth Paris Summer Institut August 2006,

Caltech Theory Seminar March 2007, YITP Anniversary Symposium May 2007, Midwest Geometry Conference May 2007.

Organiser: UC Davis-MSRI Conference on Mathematical Physics, May 2004

Arithmetic Geometry and High Energy Physics, Leiden, August 2005

Publications

1. *Supersymmetric Quantum Mechanics and Super-Lichnerowicz Algebras* Karl Hallowell and Andrew Waldron,
To appear, Communications in Mathematical Physics.
(hep-th/0702033)
2. *Partially Massless Spin 2 Electrodynamics*
Stanley Deser and Andrew Waldron,
Phys. Rev. **D74**
(hep-th/0609113)
3. *Higher Spin Gravitational Couplings and the Yang-Mills Detour Complex*
Rod Gover, Karl Hallowell and Andrew Waldron,
Phys. Rev. **D75** 024032 (2007).
(hep-th/0606160)
4. *BPS Black Holes, Quantum Attractor Flows and Automorphic Forms*
Murat Gunaydin, Andrew Neitzke, Boris Pioline and Andrew Waldron,
Phys. Rev. **D 73** 084019 (2006)
(hep-th/0512296)
5. *Constant Curvature Algebras and Higher Spin Action Generating Functions*
Karl Hallowell and Andrew Waldron,
Nucl. Phys. **B724** 453 (2005),
(hep-th/0505255)
6. *Conformal Invariance of Partially Massless Higher Spins*
Stanley Deser and Andrew Waldron,
Phys. Lett. **B603** 30 (2004),
(hep-th/0408155)
7. *Milne and Torus Universe Meet*
Andrew Waldron,
Proceedings, Deserfest: A Celebration of the Life and Works of Stanley Deser,
Ann Arbor, Michigan, 2004,
(hep-th/0408088)
8. *The Automorphic Membrane*
Boris Pioline and Andrew Waldron,
JHEP **0406** 009 (2004),
(hep-th/0404018)
9. *Stress and Strain: $T_{\mu\nu}$ of Higher Spin Gauge Fields*
Stanley Deser and Andrew Waldron,
Invited talk at 27th John Hopkins Workshop on Current Problems in Particle Theory:
“Symmetries and Mysteries of M-Theory”, Goteborg, Sweden, August 2003,
(hep-th/0403059)

10. *Automorphic forms: a physicist's survey*
 Boris Pioline and Andrew Waldron,
 To appear, proceedings of Les Houches workshop "Frontiers in Number Theory, Physics and Geometry", March 2003,
 (hep-th/0312068)
11. *Arbitrary Spin Representations in de Sitter from dS/CFT with Applications to dS Supergravity*
 Stanley Deser and Andrew Waldron,
 Nucl. Phys. **B662**, 379 (2003),
 (hep-th/0301068)
12. *Quantum Cosmology and Conformal Invariance*
 Boris Pioline and Andrew Waldron,
 Phys. Rev. Lett. **90**, 031302 (2003),
 (hep-th/0209044)
13. *Duality of Orthogonal and Symplectic Matrix Integrals and Quaternionic Feynman Graphs*
 Motohiko Mulase and Andrew Waldron,
 Commun. Math. Phys. **240** 553 (2003),
 (math-ph/0206011)
14. *Inconsistencies of Massive Charged Gravitating Higher Spins*
 Stanley Deser and Andrew Waldron,
 Nucl. Phys. **B631**, 369 (2002),
 (hep-th/0112182)
15. *Minimal Representations, Spherical vectors, and Exceptional Theta Series I*
 David Kazhdan, Boris Pioline and Andrew Waldron,
 Commun. Math. Phys. **226** 1 (2002),
 (hep-th/0107222).
16. *Null Propagation of Partially Massless Higher Spins in (A)dS and Cosmological Constant Speculations*
 Stanley Deser and Andrew Waldron,
 Phys. Lett. **B513**, 137 (2001),
 (hep-th/0105181).
17. *Stability of Massive Cosmological Gravitons*
 Stanley Deser and Andrew Waldron,
 Phys. Lett. **B508**, 347 (2001),
 (hep-th/0103255).
18. *Partial Masslessness of Higher Spins in (A)dS*
 Stanley Deser and Andrew Waldron,
 Nucl. Phys. **B607**, 577 (2001),
 (hep-th/0103198).
19. *Gauge Invariances and Phases of Massive Higher Spins in (A)dS*
 Stanley Deser and Andrew Waldron,

- Phys. Rev. Lett. **87** 031601 (2001),
(hep-th/0102166)
20. *R^4 Couplings, the Fundamental Membrane and Exceptional Theta Correspondences*
Boris Pioline, Hermann Nicolai, Jan Plefka and Andrew Waldron,
JHEP **0103**, 036 (2001),
(hep-th/0102123).
 21. *(Dis)continuities of Massless Limits in Spin 3/2-mediated Interactions and Cosmological Supergravity*
Stanley Deser and Andrew Waldron,
Phys. Lett. B **501**, 134 (2001),
(hep-th/0012014).
 22. *Spin 3/2 Electrodynamics*
Stanley Deser, Vladimir Pascalutsa and Andrew Waldron,
Phys. Rev. D **62**, 105031 (2000),
(hep-th/0003011).
 23. *Three Graviton Scattering in M-Theory*
Robert Helling, Jan Plefka, Marco Serone and Andrew Waldron,
Nucl. Phys. B **559** (1999) 184,
(hep-th/9905183).
 24. *Matrix Theory and Feynman Diagrams*
Jan Plefka, Marco Serone and Andrew Waldron,
Fortsch. Phys. **48** (2000) 191,
(hep-th/9903099).
 25. *An Index Theorem for Non-standard Dirac Operators*
Jan-Willem van Holten, Kasper Peeters and Andrew Waldron,
Cl. Qu. Gravity **16** (1999) 2537,
(hep-th/9901163).
 26. *Spinors on Manifolds with Boundary: APS Index Theorems with Torsion*
Kasper Peeters and Andrew Waldron,
JHEP **9902** (1999) 024,
(hep-th/9901016).
 27. *Spin Dependent D-brane Interactions and Scattering Amplitudes in Matrix Theory*
Jose Morales, Jan Plefka, Claudio Scrucca, Marco Serone and Andrew Waldron,
Proceedings of 2nd conference on Quantum Aspects of Gauge Theories, Supersymmetry and Unification, Corfu, 1998,
(hep-th/9812039)
 28. *$D = 11$ SUGRA as the Low-Energy Effective Action of Matrix Theory: Three Form Scattering*
Jan Plefka, Marco Serone and Andrew Waldron,
JHEP **9811** (1998) 010,
(hep-th/9809070)

29. *The Matrix Theory S Matrix*
Jan Plefka, Marco Serone and Andrew Waldron,
Phys. Rev. Lett. 81 (1998) 2866,
(hep-th/9806081)
30. *Asymptotic Supergraviton States in Matrix Theory*
Jan Plefka and Andrew Waldron,
In “Theory of elementary particles” pages 130-6, Buckow 1997,
(hep-th/9801093)
31. *On the Quantum Mechanics of M(atric) Theory*
Jan Plefka and Andrew Waldron,
Nucl. Phys. B514 (1998) 460,
(hep-th/9710104)
32. *Aspects of Quantum Field Theory*
Andrew Waldron,
Ph. D. Thesis SUNY Stony Brook,
UMI-97-36487-mc.
33. *Osp(1|8) Gravity*
Christian Preitschopf, Tobias Hurth, Peter van Nieuwenhuizen and Andrew Waldron,
Proceedings of 30th Ahrenshoop International Symposium on the Theory of Elementary Particles, Buckow, Germany 1996, Nucl. Phys. Proc. Suppl. 56B (1997) 310,
(hep-th/9702123).
34. *On a Possible New Theory of R^2 Supergravity*
Tobias Hurth, Peter van Nieuwenhuizen, Andrew Waldron and Christian Preitschopf,
Phys. Rev. D55 (1997) 7593,
(hep-th/9702952).
35. *A Wick Rotation for Spinor Fields: the Canonical Approach*
Andrew Waldron,
Phys. Lett. B433 (1998) 369,
(hep-th/9702057)
36. *On Euclidean Spinors and Wick Rotations*
Peter van Nieuwenhuizen and Andrew Waldron,
Phys. Lett. B389 (1996) 29,
(hep-th/9608174)
37. *A Continuous Wick Rotation for Spinor Fields and Supersymmetry in Euclidean Space*
Peter van Nieuwenhuizen and Andrew Waldron,
Proceedings of the “Gauge Theories, Applied Supersymmetry and Quantum Gravity”,
Imperial College, London, July 1996.
(hep-th/9611043)
38. *Cancellation of Quantum Mechanical Higher Loop Contributions to the Gravitational Chiral Anomaly*
Andrew Waldron,
Phys. Rev. D53 (1996) 5692,
(hep-th/9511148)

39. *On the Renormalizability and Unitarity of the Curci-Ferrari Model for Massive Vector Bosons*
Jan de Boer, Kostas Skenderis, Peter van Nieuwenhuizen and Andrew Waldron
Phys. Lett. B367 (1996) 175,
(hep-th/9510167)
40. *Probability of Phase Separation for the Bose Gas with Delta Interaction*,
Vladimir Korepin, Alexander Its and Andrew Waldron
Proceedings of the 19th IUPAP conference,
(cond-mat/9510068)
41. *The Goldstone Theorem at Two Loops from an Algebraic Identity*
Andrew Waldron and Peter van Nieuwenhuizen,
Int. J. Mod. Phys. A10 (1995) 1237,