

Curriculum Vitae

Jeffrey Murugan

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Personal information

Date of Birth: April 7, 1976.
Citizenship: South Africa.
Marital Status: Single

Education

PhD. Applied Mathematics (Advisor: Professor George Ellis), University of Cape Town, 2004.

Visiting PhD Student. Mathematics (Advisor: Professor Philip Candelas), Worcester College, University of Oxford, 2002.

MSc (Distinction). Applied Mathematics (Advisor: Professor I.V. Barashenkov), University of Cape Town, 2000.

B.Sc (Hons. - First Class). Mathematical Physics, University of Cape Town, 1997.

B.Sc. Applied Mathematics and Physics, University of Cape Town, 1996

Experience

Researcher. University of Cape Town, 2006-present. Conducting a research program in string theory, focussing on the gauge/gravity correspondence and its implications for QCD.

NRF Postdoctoral Researcher. Brown University, 2004-2006. Conducting research in various areas of string theory and string cosmology including aspects of the AdS/CFT correspondence and D-brane physics.

Graduate Research Assistant. University of Cape Town, 2000-2004. Conducted research in various areas of string theory and cosmology, including Inflation model building, D-branes on curved backgrounds and Noncommutative Geometry.

Sainsbury Fellow. Mathematical Institute, University of Oxford, 2001. Conducted research in various areas of string theory and cosmology, including Inflation model building, D-branes on curved backgrounds and Noncommutative Geometry.

Undergraduate Research Assistant. Mathematical Physics Group, University of Cape Town, 1995/1996. Conducted research in the area of Solitonic Objects in Nonlinear Field Theories.

Lecturer. African Institute for Mathematical Sciences, 2006. Taught Electromagnetics.

Lecturer. Department of Mathematics and Applied Mathematics, University of Cape Town, 2006. Taught Fourier Methods (2nd year) and General Relativity (honours).

Lecturer. Physics Department, Brown University, 2005. Taught Introductory Astronomy for non-physics concentrators.

Lecturer. Department of Mathematics and Applied Mathematics, University of Cape Town, 2004. Taught Complex Differential Geometry for Mathematics/Physics majors.

Assistant Lecturer. Department of Mathematics and Applied Mathematics, University of Cape Town, 2001. Taught Introductory Differential Geometry for Science majors.

Assistant Lecturer. Department of Mathematics and Applied Mathematics, University of Cape Town, 2000. Taught Applied Partial Differential Equations for Financial Mathematics students.

Assistant Lecturer. Department of Mathematics and Applied Mathematics, University of Cape Town, 1999. Taught Advanced Calculus for Science majors

Teaching Assistant. Department of Physics, University of Cape Town, 1997. Taught Freshman physics for physics majors.

Co-organiser. African Summer Theory Institute, Cape Town 2004. <http://www.asti.ac.za>

Reviewer for Nuclear Physics B.

Reviewer for Classical and Quantum Gravity.

Fellowships and Awards

Best PhD presentation in Theoretical Physics, South African Institute of Physics Annual Conference, 2003

University of Cape Town Research Associateship for Outstanding research carried out the PhD level, 2001-2003.

Sainsbury/Lindbury Scholarship, 2000-2003

University of Cape Town Research Associateship for Outstanding research carried out the MSc level, 1999-2000.

Manual and Luby Washkanski Award for outstanding Honours results.

Chisnall Tutorship, 1999.

Myer Levinson Scholarship 1997.

South African Mathematical Society Bronze medal (Outstanding Mathematics/Applied Mathematics Honours grades), 1997

Ivor Lewin Physics prize (Outstanding undergraduate physics grades), 1996.

Class Medals: 3rd year Physics and Applied Mathematics.

American-South African Scholarship Association Award, 1995-1997

Professional activities

Schools Attended

“Cosmology, Particles and Strings”, Institute for Advanced Study, Princeton, June 30 - July 11 2003.

“String Phenomenology 2002”, University of Oxford, Oxford, July 2002.

“Geometry, Topology and Quantum Field Theory”, University of Oxford, Oxford, June 2002.

The Chris Engelbrecht Summer School on String Theory, Stellenbosch, South Africa, January 2002.

“M-theory Cosmology”, Cambridge University, Cambridge, August 2001.

INLN Summer School on Nonlinear Phenomena, June 1998, Nice, France.

Publications

- [1] “Giant gravitons on deformed pp-waves”, with A. Hamilton, *To appear in JHEP* hep-th/0609135.
- [2] “Deformed pp-waves from the Lunin-Maldacena background”, with R. de Mello Koch, J. Smolic and M. Smolic, *JHEP* **0508:072** (2005) hep-th/0505227.
- [3] “A Prototype for dS/CFT” with A. Guijosa and D. Lowe, *Phys. Rev. D* **72**, 046001 (2005) hep-th/0505145
- [4] “Transmogrifying fuzzy vortices”, with A. Millner, *JHEP* **0404:009** (2004) hep-th/0403105.
- [5] “The Emergent Universe: An Explicit Construction” with G.F.R. Ellis and C.G. Tsagas, *Class. Quant. Grav.* **21**, 233-250 (2004) gr-qc/0307112

- [6] “Non-Abelian Bionic Brane Intersections” with P. Cook and R. de Mello Koch, *Phys. Rev. D* **68**, 126007 (2003) [hep-th/0306250](#)
- [7] “Comments on Noncommutative Sigma Models”, with R. Adams, *JHEP* **0212:073** (2002) [hep-th/0211171](#).
- [8] “Holonomy in the Schwarzschild-Droste Geometry”, with Tony Rothman and George Ellis, *Class. Quant. Grav.* **18** 1217-1234 (2001) [gr-qc/0008070](#).
- [9] “Vortices in the gauged complex sine-Gordon model”, with I.V. Barashenkov, in *Proceedings of the 3rd Hanno-Rund conference on differential equations and applications*, Ed. J Banasiak (2000).

Talks

- “Giants on deformed pp-waves”, High Energy Theory Seminar, Department of Physics, Brown University, February 2007 (Reference: Prof. A. Jevicki).
- “Deformed Giant Gravitons”, String Theory Seminar, Mathematical Institute, Oxford University, February 2007 (Reference: Prof. P. Candelas).
- “Deformed Giants”, Theory Seminar, Department of Physics, Columbia University, May 2006 (Reference: Dr. D. Kabat).
- “Deformed Giants”, Theory Seminar, Department of Physics, Pennsylvania University, April 2006 (Reference: Prof. V. Balasubramanian).
- “Progress in the Gauge Theory/Gravity Correspondence”, HEP seminar, Department of Physics, McGill University, June 2005 (Reference: Prof. R. Brandenberger).
- “Transmogrifying Semilocal Strings”, ISCAP Seminar, Department of Physics, Columbia University, October 2004 (Reference: Dr. P-S. Corasaniti).
- “Inflationary Cosmology without Singularities”, Invited lecture, Mathematics of Gravitation Workshop, Warsaw, Poland, August 2003 (Reference: Prof. A. Krasinski)
- “Bionic Brane Intersections”, South African Institute of Physics Annual Conference, Stellenbosch, June 2003
- “Noncommutative sigma model lumps”, Theory Seminar, Department of Physics, Columbia University, December 2002 (Reference: Dr. D. Kabat).
- “Aspects of Noncommutative Field Theory”, String Theory Seminars, Center for Theoretical Physics, University of the Witwatersrand, October 2002 (Reference: Dr. R. de Mello Koch).
- “The Hodge Conjecture”, Invited lecture at the *Workshop on the Clay Problems*, University of Stellenbosch, Stellenbosch, September 2002.

References

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