

Benjamin Edward Whale

Curriculum Vitae

CONTACT DETAILS

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PUBLICATIONS

2011

- Whale, B. E. and S. M. Scott (2011, May). A correspondence between distances and embeddings for manifolds: New techniques for applications of the abstract boundary. *Journal of Geometry and Physics* 61 (5), 927-939. doi: 10.1016/j.geomphys.2010.12.013
- Whale, B. (2011). An algebraic proof of quillen's resolution theorem for k_1 . *Journal of K-Theory* 7 (01), 115-144. doi:10.1017/is009009019jkt089

2010

- Whale, B. E. (2010, November). *Foundations of and Applications for the Abstract Boundary Construction for Space-Time*. Ph. D. thesis, Department of Quantum Science, Research School of Physics and Engineering, ANU College of Physical & Mathematical Sciences. <http://thesis.anu.edu.au/public/adt-ANU20101106.100700/index.html>

2008

- Whale, B. E. and S. M. Scott (2008, December). A framework for the discussion of singularities in general relativity. In H. Kleinert, R. T. Jantzen, and R. Ruffini (Eds.), *Proceedings of the Eleventh Marcel Grossmann Meeting on General Relativity*. World Scientific Publishing Company.

In preparation

- "A functional definition of Lorentzian distance suitable for Noncommutative Geometry"
- "The structure of boundary parameter property satisfying sets"

PRESENTATIONS

2010

- NZMS Colloquium (Dunedin, NZ) - "Functional definitions of Lorentzian distance for noncommutative geometry"

2009

- ASGRG 5 (Christchurch, NZ) - "Two new conditions for the occurrence of Krolak strong curvature singularities"

2008

- John Carver Lecture Series (Canberra, Australia) - "Towards a proof of weak cosmic censorship in generic space-times"
- AIP Congress (Adelaide, Australia) - "How to use distances on a space-time to locate singularities in general relativity"

2007

- General Relativity and Gravitation 18 (Brisbane, Australia) - "Physical properties of singularities arising from the singularity theorems"

2006

- John Carver Lecture Series (Canberra, Australia) - "Cosmic Censorship and Gravitational Collapse"
- Marcel Grossman 11 (Berlin, Germany) - "On the underlying structure of the abstract boundary construction"
- AIP Congress (Sydney, Australia) - "Causal structure for the abstract boundary"

2005

- AIP Congress (Canberra, Australia) - "Causal geodesics in space-time and the existence of singularities"

EDUCATION

PhD Mathematical Physics	Awarded	2004 – 09	Australian National University
BSc (Hons) Mathematics	1st – class	2003	Australian National University
BA Mathematics	A+ average	1999 – 02	University of Auckland
BSc Computer Science	A+ average	1999 – 02	University of Auckland

WORK EXPERIENCE - OTHER

2010 – Present **Post-Doctorial Fellow University of Otago**

I am currently working in the numerical relativity group at the University of Otago. My research is currently focused on numerical investigation of the propagation of data from spacelike infinity to null infinity in isolated gravitational systems. I am also collaborating with Adam Rennie on the applications of Lorentzian geometry to Noncommutative Geometry.

2004 – 2010 **PhD Student Australian National University**

My thesis was awarded in November 2010. It contains a number of important fundamental results in mathematical physics. These results relate to the use of differential geometry to study intrinsic boundaries of manifolds. There are applications of these results to both theoretical physics, weak cosmic censorship, and pure mathematics and semi-finite spectral triples.

2007 – 08 **Consultant Deloitte Consulting New Zealand**

During my two years working for Deloitte, as an analyst and consultant, I was involved in process analysis, design and implementation, with a focus on the SAP suite of HR modules. For my final project I was the system designer for the personal administration and organisational management modules at a large city council in New Zealand. Between projects I provided 'second level' technical support to existing clients. My duties and deliverables are as would be expected from someone involved in the implementation and maintenance of a large complex software product for numerous clients. Examples included,

- Leading both process and system, analysis and design seminars,
- Responsibility for ad-hoc and formal, training and development of client staff,
- Providing technical support for clients both during and after project implementation,
- Production of SAP design and configuration documents,
- Production of process analysis and design documents.

2000 – 2009 **Teaching Various Employers**

I have ten years small group teaching experience. I have tutored seven undergraduate courses, produced and run six client training sessions for Deloitte, tutored two individual students and demonstrated at drop in sessions for three years. In each case I strive to present the material in the manor best suited for the audience. I have received frequent positive feedback from students and clients.