

## CURRICULUM VITAE

Professor Dominic David Joyce

**Date of Birth:** 8th April 1968

**Nationality:** British

**Address:** The Mathematical Institute, 24-29 St Giles, Oxford, OX1 3LB.

**Schooling:** I went to school at Queen Elizabeth's Hospital, Bristol, gaining fourteen 'O' Level Passes at 'A' grade, and 'A' Level Passes at 'A' grade in Physics, Chemistry, Pure Mathematics and Applied Mathematics.

**Family:** I am married to Jayne, with daughters Matilda, born August 2000, and Katharine, born July 2003.

### University Career

Between October 1986 and June 1989 I read Mathematics at Merton College, Oxford, and received a First Class Honours degree.

Between October 1989 and the summer of 1992 I studied for a D.Phil. in Mathematics, also at Merton College, Oxford. My supervisor was Professor Simon Donaldson, and the subject was Geometry. My thesis, submitted in May 1992, covers two separate areas, quaternionic geometry, and constant scalar curvature metrics on connected sum manifolds. I was awarded the D.Phil. in October 1992.

### Prizes and scholarships

#### at school:

Second Prize, British Mathematical Olympiad, 1986.

Member of the British team for the International Mathematical Olympiad, Warsaw, 1986, in which I was awarded a Silver Medal.

Member of the British team for the International Physics Olympiad, London, 1986, in which I was awarded a Bronze Medal.

#### at university:

Made Postmaster by Merton College, October 1987, and Senior Scholar, October 1990.

Junior Mathematical Prize 1989, with special commendation.

Senior Mathematical Prize and Johnson University Prize, 1991.

## **after university**

Awarded a Junior Whitehead Prize by the London Mathematical Society, June 1997.

Awarded a prize for young European mathematicians by the European Mathematical Society, July 2000.

Awarded the Adams Prize by Cambridge University, February 2004.

## **Employment**

October 1992 — September 1995: Junior Research Fellow in Mathematics at Christ Church, Oxford.

September 1993 — September 1994: J.R.F. suspended to enable me to spend a year in America. Most of this time was spent as a research member of the Institute for Advanced Study in Princeton, New Jersey, and the summer at M.S.R.I. in Berkeley.

October 1995 — September 2006: University Lecturer in Pure Mathematics at Oxford, and Tutorial Fellow in Mathematics at Lincoln College.

October 2001 — September 2006: EPSRC Advanced Research Fellowship.

In October 2002 I was given the title of Professor of Mathematics, without (at the time) a change in my actual job.

In October 2006 I was promoted to a Professorship in the Mathematical Institute. This is a research job of the kind known as an RS4 post, not a statutory professorship, but my duties, salary, and tenure (until retirement) are the same as those of a statutory professor.

## **Publications**

### **Books**

D. Joyce, '*Compact manifolds with special holonomy*', 436 pages, Oxford Mathematical Monographs series, OUP, July 2000. Reprinted 2003. Reprinted 2006 (twice).

Mark Gross, Daniel Huybrechts and Dominic Joyce, '*Calabi–Yau Manifolds and Related Geometries*', 239 pages, Universitext series, Springer, Berlin, 2003.

D. Joyce, '*Riemannian holonomy groups and calibrated geometry*', 303 pages. Oxford Graduate Texts in Mathematics 12, OUP, March 2007.

### **Journal articles**

J. Gillis and D. Joyce, '*Some results on combinatorial interpretations for the integral of the product of several classical orthogonal polynomials*', Oxford Quarterly Journal of Mathematics 42 (1991), 57-75.

D. Joyce, '*The hypercomplex quotient and the quaternionic quotient*', *Mathematische Annalen* 290, (1991), 323-340.

D. Joyce, '*Compact hypercomplex and quaternionic manifolds*', *Journal of Differential Geometry* 35 (1992), 743-761.

D. Joyce, '*A twistor transform for complex manifolds with connection*', *Twistor Newsletter* 35 (1992), 11-14.

D. Joyce, '*Manifolds with many complex structures*', *Oxford Quarterly Journal of Mathematics* 46 (1995), 169-184.

D. Joyce, '*Explicit construction of self-dual 4-manifolds*', *Duke Mathematical Journal* 77 (1995), 519-552.

D. Joyce, '*Compact 8-manifolds with holonomy  $\text{Spin}(7)$* ', *Inventiones mathematicae* 123 (1996), 507-552.

D. Joyce, '*Compact Riemannian 7-manifolds with holonomy  $G_2$ . I*', *Journal of Differential Geometry* 43 (1996), 291-328.

D. Joyce, '*Compact Riemannian 7-manifolds with holonomy  $G_2$ . II*', *Journal of Differential Geometry* 43 (1996), 329-375.

D. Joyce, '*Hypercomplex Algebraic Geometry*', *Oxford Quarterly Journal of Mathematics* 49 (1998), 129-162.

D. Joyce, '*Deforming Calabi–Yau orbifolds*', *Asian Journal of Mathematics* 3 (1999), 853-868.

D. Joyce, '*A new construction of compact 8-manifolds with holonomy  $\text{Spin}(7)$* ', *Journal of Differential Geometry* 53 (1999), 89-130.  
— Also available on the web as [math.DG/9910002](http://math.DG/9910002).

D. Joyce, '*Asymptotically Locally Euclidean metrics with holonomy  $\text{SU}(m)$* ', *Annals of Global Analysis and Geometry* 19 (2001), 55-73.  
— Also available on the Web as [math.AG/9905041](http://math.AG/9905041).

D. Joyce, '*Quasi-ALE metrics with holonomy  $\text{SU}(m)$  and  $\text{Sp}(m)$* ', *Annals of Global Analysis and Geometry* 19 (2001), 103-132.  
— Also available on the Web as [math.AG/9905043](http://math.AG/9905043).

D. Joyce, '*Constructing special Lagrangian  $m$ -folds in  $\mathbb{C}^m$  by evolving quadrics*', *Mathematische Annalen* 320 (2001), 757-797.  
— Also available on the Web as [math.DG/0008155](http://math.DG/0008155).

D. Joyce, '*Evolution equations for special Lagrangian 3-folds in  $\mathbb{C}^3$* ', *Annals of Global Analysis and Geometry* 20 (2001), 345-403.  
— Also available on the Web as [math.DG/0010036](http://math.DG/0010036).

D. Joyce, '*Ruled special Lagrangian 3-folds*', Proceedings of the London Mathematical Society 85 (2002), 233-256.

— Also available on the Web as [math.DG/0012060](http://math.DG/0012060).

D. Joyce, '*Special Lagrangian  $m$ -folds in  $\mathbb{C}^m$  with symmetries*', Duke Mathematical Journal 115 (2002), 1-51.

— Also available on the Web as [math.DG/0008021](http://math.DG/0008021).

D. Joyce, '*Constant scalar curvature metrics on connected sums*', International Journal of Mathematics and Mathematical Sciences 2003:7 (2003), 405-450.

— Also available on the Web as [math.DG/0108022](http://math.DG/0108022).

D. Joyce, ' *$U(1)$ -invariant special Lagrangian 3-folds in  $\mathbb{C}^3$  and special Lagrangian fibrations*', Turkish Journal of Mathematics 27 (2003), 99-114.

— Also available on the Web as [math.DG/0206016](http://math.DG/0206016).

D. Joyce, '*Special Lagrangian submanifolds with isolated conical singularities. V. Survey and applications*', Journal of Differential Geometry 63 (2003), 279-347.

— Also available on the Web as [math.DG/0303272](http://math.DG/0303272).

D. Joyce, '*Singularities of special Lagrangian fibrations and the SYZ Conjecture*', Communications in Analysis and Geometry 11 (2003), 859-907.

— Also available on the Web as [math.DG/0011179](http://math.DG/0011179).

D. Joyce, '*Special Lagrangian submanifolds with isolated conical singularities. I. Regularity*', Annals of Global Analysis and Geometry 25 (2004), 201-251.

— Also available on the Web as [math.DG/0211294](http://math.DG/0211294).

D. Joyce, '*Special Lagrangian submanifolds with isolated conical singularities. II. Moduli spaces*', Annals of Global Analysis and Geometry 25 (2004), 301-352.

— Also available on the Web as [math.DG/0211295](http://math.DG/0211295).

D. Joyce, '*Special Lagrangian submanifolds with isolated conical singularities. III. Desingularization, the unobstructed case*', Annals of Global Analysis and Geometry 26 (2004), 1-58.

— Also available on the Web as [math.DG/0302355](http://math.DG/0302355).

D. Joyce, '*Special Lagrangian submanifolds with isolated conical singularities. IV. Desingularization, obstructions and families*', Annals of Global Analysis and Geometry 26 (2004), 117-174.

— Also available on the Web as [math.DG/0302356](http://math.DG/0302356).

D. Joyce, ' *$U(1)$ -invariant special Lagrangian 3-folds I. Nonsingular solutions*', Advances in Mathematics 192 (2005), 35-71.

— Also available on the Web as [math.DG/0111324](http://math.DG/0111324).

D. Joyce, ' *$U(1)$ -invariant special Lagrangian 3-folds II. Existence of singular solutions*', Advances in Mathematics 192 (2005), 72-134.

— Also available on the Web as [math.DG/0111326](http://math.DG/0111326).

D. Joyce, ‘U(1)-invariant special Lagrangian 3-folds III. Properties of singular solutions’, *Advances in Mathematics* 192 (2005), 135-182.  
— Also available on the Web as [math.DG/0204343](http://math.DG/0204343).

D. Joyce and S. Salur, ‘Deformations of Asymptotically Cylindrical coassociative submanifolds with cylindrical ends’, *Geometry and Topology* 9 (2005), 1115-1146.  
— Also available on the Web as [math.AG/0408137](http://math.AG/0408137).

D. Joyce, ‘Configurations in abelian categories. I. Basic properties and moduli stacks’, *Advances in Mathematics* 203 (2006), 194-255.  
— Also available on the Web as [math.DG/0312190](http://math.DG/0312190).

D. Joyce, ‘Constructible functions on Artin stacks’, *Journal of the London Mathematical Society* 74 (2006), 583-606.  
— Also available on the Web as [math.AG/0403305](http://math.AG/0403305).

D. Joyce, ‘Configurations in abelian categories. II. Ringel-Hall algebras’, *Advances in Mathematics* 210 (2007), 635-706.  
— Also available on the Web as [math.AG/0503029](http://math.AG/0503029).

D. Joyce, ‘Holomorphic generating functions for invariants counting coherent sheaves on Calabi-Yau 3-folds’, *Geometry and Topology* 11 (2007), 667-725.  
— Also available on the Web as [hep-th/0607039](http://hep-th/0607039).

D. Joyce, ‘Motivic invariants of Artin stacks and ‘stack functions’’, *Quarterly Journal of Mathematics* 58 (2007), 345-392.  
— Also available on the Web as [math.AG/0509722](http://math.AG/0509722).

D. Joyce, ‘Configurations in abelian categories. III. Stability conditions and identities’, *Advances in Mathematics* 215 (2007), 153-219.  
— Also available on the Web as [math.AG/0410267](http://math.AG/0410267).

D. Joyce, ‘Configurations in abelian categories. IV. Invariants and changing stability conditions’, *Advances in Mathematics* 217 (2008), 125-204.  
— Also available on the Web as [math.AG/0410268](http://math.AG/0410268).

### **Articles in books**

D. Joyce, ‘Compact Riemannian manifolds with exceptional holonomy’, pages 39-65 in ‘*Essays on Einstein Manifolds*’, editors C. LeBrun and M. Wang, *Surveys in Differential Geometry VI*, International Press, Cambridge, MA, 1999.

D. Joyce, ‘Singularities of special Lagrangian submanifolds’, pages 163-198 in ‘*Different Faces of Geometry*’, editors S.K. Donaldson, Y. Eliashberg and M. Gromov, *International Mathematical Series volume 3*, Kluwer/Plenum, 2004. Also to appear in Russian translation.  
— Also available on the Web as [math.DG/0310460](http://math.DG/0310460).

D. Joyce, '*Calibrated geometry and special Lagrangian submanifolds*', volume 1, pages 398-402 in J.-P. Francoise, G. Naber and T.S. Tsou, editors, 'Encyclopedia of Mathematical Physics', Elsevier, 2006.

D. Joyce, '*Riemannian holonomy groups and exceptional holonomy*', volume 4, pages 441-446 in J.-P. Francoise, G. Naber and T.S. Tsou, editors, 'Encyclopedia of Mathematical Physics', Elsevier, 2006.

### Conference proceedings

D. Joyce, '*Compact manifolds with exceptional holonomy*', pages 245-252 in 'Geometry and Physics', editors J.E. Andersen, J. Dupont, H. Pedersen and A. Swann, Lecture notes in pure and applied math. vol. 184, Marcel Dekker, New York, 1997.

D. Joyce, '*Compact manifolds with exceptional holonomy*', pages 361-370 in 'Proceedings of the International Congress of Mathematicians, Berlin, 1998', vol II. Documenta Mathematica, University of Bielefeld, 1998.

D. Joyce, '*A theory of quaternionic algebra, with applications to hypercomplex geometry*', pages 143-194 in '*Proceedings of the Second Meeting on Quaternionic Structures in Mathematics and Physics, Rome, 1999*', editors S. Marchiafava, P. Piccinni and M. Pontecorvo, World Scientific, Singapore, 2001.

— Also available on the Web as [math.DG/0010079](http://math.DG/0010079).

D. Joyce, '*Constructing compact 8-manifolds with holonomy Spin(7) from Calabi-Yau orbifolds*', pages 21-30 in Volume II of '*Proceedings of the 3rd European Congress of Mathematics, Barcelona, July 10 -14, 2000*', editors C. Casuberta, R.M. Miró-Roig, J. Verdera and S. Xambó-Descamps, Progress in Mathematics 202, Birkhäuser, Basel, 2001.

D. Joyce, '*On counting special Lagrangian homology 3-spheres*', pages 125-151 in '*Topology and Geometry: Commemorating SISTAG*', editors A.J. Berrick, M.C. Leung and X.W. Xu, Contemporary Mathematics volume 314, A.M.S., 2002.

— Also available on the Web as [hep-th/9907013](http://hep-th/9907013).

D. Joyce, '*Constructing compact manifolds with exceptional holonomy*', pages 177-191 in M. Douglas, J. Gauntlett and M. Gross, editors, '*Strings and Geometry*', Clay Mathematics Proceedings 3, A.M.S., 2004.

— Also available on the Web as [math.DG/0203158](http://math.DG/0203158).

D. Joyce, '*Lectures on special Lagrangian geometry*', pages 667-695 in D. Hoffman, editor, '*Global Theory of Minimal Surfaces*', Clay Mathematics Proceedings 2, A.M.S., 2005.

— Also available on the Web as [math.DG/0111111](http://math.DG/0111111).

D. Joyce, '*The exceptional holonomy groups and calibrated geometry*', pages 110-139 in S. Akbulut, T. Önder and R.J. Stern, editors, '*Proceedings of the Gökova Geometry-Topology Conference 2005*', International Press, Somerville, MA, 2006.

— Also available on the Web as [math.DG/0406011](http://math.DG/0406011).

### Articles accepted for publication

D. Joyce, '*Special Lagrangian 3-folds and integrable systems*'. 36 pages. To appear in volume 1 of the Proceedings of the Mathematical Society of Japan's 9th International Research Institute on '*Integrable Systems in Differential Geometry*', Tokyo, 2000.

— Also available on the Web as math.DG/0101249.

### Papers on the Web (excluding those listed above)

D. Joyce, '*On the topology of deformations of Calabi–Yau orbifolds*', alg-geom/9806146, 1998. 25 pages. (A rather longer version of '*Deforming Calabi–Yau orbifolds*', Asian J. Math. 3 (1999), 853–868.)

D. Joyce, '*Lectures on Calabi–Yau and special Lagrangian geometry*', math.DG/0108088, version 3, June 2002. 58 pages.

D. Joyce, '*Kuranishi bordism and Kuranishi homology*', arXiv:0707.3572, version 3, October 2007. 133 pages.

D. Joyce, '*Kuranishi bordism and Kuranishi homology: a User's Guide*', arXiv:0710.5634, October 2007. 25 pages.

D. Joyce, Y.-I. Lee and M.-P. Tsui, '*Self-similar solutions and translating solitons for Lagrangian mean curvature flow*', arXiv:0801.3721, January 2008. 33 pages.

M. Akaho and D. Joyce, '*Immersed Lagrangian Floer theory*', arXiv:0803.0717, March 2008. 95 pages.

**Note:** These Web papers can be found on the Mathematics archive at the address <http://xxx.lanl.gov/archive/math>.