

Curriculum Vitæ

Geordie WILLIAMSON

CAREER

- Current position* — **University of Sydney.** Professor of Mathematics. Commencing February 2017.
— **Research Institute for Mathematical Sciences, Kyoto, Japan.** Visiting Professor. September – December 2017.
- Previous employment* — **Max Planck Institute for Mathematics, Bonn.** Advanced researcher (W2 research professor). September 2011 to August 2016.
— **Mathematical Institute, University of Oxford.** EPSRC Postdoctoral research fellow. September 2008 to August 2011.
— **St Peter's College, University of Oxford.** Junior research fellow. September 2008 to August 2011.

EDUCATION

- **PhD in Pure Math.** – Albert-Ludwigs-Universität Freiburg (2004-2008).
Supervisor : Wolfgang Soergel
- **Honours in Pure Math. (First Class Honours and Univ. Medal)** – University of Sydney (2003).
Supervisor : Gus Lehrer
- **Bachelor of Arts** – University of Sydney (2000 – 2002)
- Languages* — **English** mother tongue
— **German** fluent (C2)
— **French** upper intermediate (B2)

PRIZES AND SCHOLARSHIPS

- **2017 New Horizons in Mathematics Prize** – (with Ben Elias), December 2016.
— **Clay Research Award** – September 2016.
— **European Mathematical Society Prize** – July 2016.
— **Chevalley Prize of the American Mathematical Society** – January 2016.
— « **One case of very good wine** » – a 2009 bet with P. Fiebig on Lusztig's conjecture, March 2015.
— **Eleanor Sophia-Wood Travelling Scholarship** – Universität Freiburg, (awarded by the University of Sydney), 2005 – 2007.

INVITED LECTURES

- Named lectures* — **Distinguished Lecture Series** – UCLA, USA. *Algebraic representations and constructible sheaves*, (June 2017).
— **Distinguished Lecture Series** – Stanford, USA. *Algebraic representations and constructible sheaves*, (May 2017).
— **Takagi Lectures** – University of Tokyo, Japan. *On the representation theory of algebraic groups*, (two lecture series) (November 2016).
— **Séminaire Bourbaki** – Paris, France. *The Hodge theory of the Decomposition Theorem (after de Cataldo and Migliorini)*, (March 2016).
— **Feit Memorial Lectures** – Yale, USA. *Modular representations of Chevalley groups and Lusztig's conjecture*, (two lecture series) (October 2014).

- Conferences— **Clay Research Conference : Geometric Representation Theory and Beyond** – Oxford, UK. *An example of higher representation theory*, (September 2016).
- **7th European Congress of Mathematics (7ECM)** – Berlin, Germany. *Shadows of Hodge theory in representation theory*, (July 2016).
 - **Algebraic groups, quantum groups and geometry** – Virginia, USA. *Tilting modules and the Hecke category*, (May 2016).
 - **Quantum** – University of Cordoba. *An example of higher representation theory*, (March 2016).
 - **Taipei conference in representation theory V in honour of George Lusztig** – Taipei, Taiwan. *Tilting modules and the p -canonical basis*, (January 2016).
 - **Enveloping algebras and geometric representation theory** – Oberwolfach, Germany. *Tilting modules and the anti-spherical quotient*, (May 2015).
 - **Categorification in Algebra, Geometry and Physics (A conference in honour of the 60th birthday of Christian Blanchet)** – Cargese, Corsica. *Categorification, Soergel bimodules and representations of symmetric groups*, (May 2015).
 - **Representations of finite groups** – Oberwolfach, Germany. *Tilting modules and the anti-spherical quotient*, (April 2015).
 - **On the interactions of representation theory and combinatorics** – Bonn, Germany. *Tilting modules and the anti-spherical quotient*, (March 2015).
 - **DFG Schwerpunkttagung** – Bad Honnef, Germany. *The unstable range in Lusztig's character formula*, (March 2015).
 - **Representations of Finite and Algebraic Groups** – Chamonix, France. *The unstable range in Lusztig's character formula*, (December 2014).
 - **Masters of Mathematics : George Lusztig** – Sanya, China. *Tilting modules and the anti-spherical module*, (February 2014).
 - **Categorical structures in harmonic analysis** – MSRI, Berkeley, USA. *Modular representation theory and the Hecke category*, (November 2014).
 - **50th Anniversary of the Séminaire Chevalley** – Luminy, France. *Schubert calculus and torsion explosion*, (September 2014).
 - **British Algebraic Geometry Colloquium** – Warwick, UK. *Kazhdan-Lusztig conjectures and shadows of Hodge theory*, (September 2014).
 - **Geometric representation theory** – RIMS, Kyoto, Japan. *Schubert calculus and torsion explosion*, (July 2014).
 - **Geometric representation theory** – Cargese, Corsica. *Local Hodge theory of Soergel bimodules*, (June 2014).
 - **Representations of reductive groups : A conference dedicated to David Vogan on his 60th birthday** – Boston, USA. *Global and local Hodge theory of Soergel bimodules*, (May 2014).
 - **Taipei conference on Representation Theory IV** – Taipei, Taiwan. *Global and local Hodge theory of Soergel bimodules (two lectures)*, (October 2013).
 - **Representation Theory in Geometry, Topology and Combinatorics** – Melbourne, Australia. *The hard Lefschetz theorem in representation theory*, (October 2013).
 - **Séminaire Sophus Lie** – Lyon, France. *Schubert calculus and torsion*, (June 2013).
 - **The 6th International Conference on Representation Theory** – Zhangjiejie, China. *Schubert calculus and torsion*, (June 2013).
 - **Third international symposium on groups and related topics** – Beijing, China. *Soergel bimodules and Hodge theory*, (June 2013).
 - **Arbeitstagung in memory of Hirzebruch**. *Kazhdan-Lusztig conjectures and shadows of Hodge theory*, (May 2013).
 - **DFG Schwerpunkttagung** – Bad Boll, Germany. *Soergel bimodules and the Kazhdan-Lusztig conjecture*, (March 2012).
 - **Representation theory of finite groups** – Oberwolfach, Germany. *Checking Lusztig's conjecture around the Steinberg weight* (March 2012).

- **Enveloping algebras and geometric representation theory** – Oberwolfach, Germany. *Some examples of parity sheaves* (March 2012).
- **Category Theoretic Methods in Representation Theory** – Ottawa, Canada. *Generators and relations for Soergel bimodules* (October 2011).
- **Algebraic Lie theory** – Cambridge, England. *Some applications of parity sheaves* (September 2011).
- **Algebraic Cycles and the Geometry of Group Orbits** – Canberra, Australia. *Link homology and algebraic geometry* (September 2011).
- **ARTIN meeting** – Aberdeen, Scotland. *The p -smooth locus of Schubert varieties* (May 2011).
- **British Mathematical Colloquium** – Leicester, England. *Generators and relations for Soergel bimodules* (April 2011).
- **Groupes de Chevalley, groupes de réflexion, groupes de tresses** – Chamonix, France. *Generators and relations for Soergel bimodules* (January 2011).
- **Autour des transformations de Fourier** – Luminy, France. *Markov traces, character sheaves and Lusztig’s Fourier transform* (September 2010).
- **XIX Oporto Meeting on Geometry, Topology and Physics** – Faro, Portugal. *Mixed Hodge structures and HOMFLYPT homology* (July 2010).
- **Algebraic groups and invariant theory** – Ascona, Switzerland. *Parity sheaves* (September 2009).
- **Combinatorial and geometric structures in representation theory** – Durham, UK. *Parity sheaves* (July 2009).
- **Categorification and Geometrisation** – University of Glasgow, UK. *Some geometric constructions of link homology* (April 2009).
- **Summer school on geometry and representations** – Université de Grenoble, France. *Torsion in intersection cohomology* (June 2008).
- **Winter school on enveloping algebras** – Weizmann Institute, Israel. *Link homology and equivariant cohomology* (February 2008).
- Colloquia — **Hausdorff Kolloquium, Bonn** – *Challenges in the representation theory of finite groups*, (July 2016).
- **Düsseldorf Colloquium in Mathematics** – *Challenges in the representation theory of finite groups*, (July 2016).
- **Zurich Colloquium in Mathematics** – *Mathematics in light of representation theory*, (April 2015).
- **Berlin Mathematics Colloquium** – *Mathematics in light of representation theory*, (September 2015).
- **Brandeis-Harvard-MIT-Northeastern Joint Colloquium** – *Reflection groups, Hecke algebras and Soergel bimodules*, (February 2013).
- **Pure Mathematics Colloquium** – Georg-August-Universität Göttingen, Germany. *The Springer resolution and modular representation theory*, (June 2012).
- **Pure Mathematics Colloquium** – University of Sheffield, UK. *Categorification in representation theory* (November 2010).

INVITED LECTURE SERIES

- **Borel seminar : Matroids in Algebra, Representation theory and Topology** – Les Diablerets, Switzerland. Three lecture course at summer school (January 2016).
- **Derived categories, the Weyl algebra and Hodge theory** – Warwick, UK. Five lecture series on perverse sheaves (January 2015).
- **Perspectives in Lie theory** – Pisa, Italy. Twelve hour lecture series on perverse sheaves (January 2015).
- **International conference on the representation theory of algebras** – Sanya, China. Four lecture course on diagrammatics for monoidal categories and representation theory (August 2014).
- **Geometric representation theory** – RIMS, Kyoto, Japan. Four lecture course on local and global Hodge theory of Soergel bimodules (July 2014).

- **Algebraic groups and representations** – Lyon, France. Four lecture course on Lusztig’s conjecture and Soergel bimodules at summer school (July 2014).
- **Soergel bimodules and representation theory** – Sydney, Australia. Thirteen lecture course (October – December 2013).
- **Perverse sheaves in Representation Theory** – Besse, France. Five hour lecture course on Soergel bimodules at summer School (24 – 27 June 2013).
- **Master class : Soergel bimodules and Kazhdan-Lusztig conjectures** – Aarhus, Denmark. Twenty hour master class with Ben Elias (18 – 22 March 2013).
- **Homogeneous Spaces and Geometric Representation Theory** – Bochum. Six hour lecture course at Winter School (27 February – 2 March 2012).
- **Equivariant cohomology and moment graphs** – University of Melbourne. Three hour lecture course (May 2011).
- **Flag varieties** – Luminy. Four hour lecture course at spring school (2 – 6 May 2011).

RESEARCH VISITS

- **University of Chicago**, 1 – 15 May, 2017.
- **Research Institute for Mathematical Sciences, Kyoto**, 1 September – 15 December, 2016.
- **University of Cordoba**, 22 February – 5 March, 2016.
- **Simons Center for Geometry and Physics, Stony Brook** 10 January – 29 January, 2016.
- **University of Chile**, 20 August – 15 September, 2015.
- **Osaka City University**, 4 August – 15 August, 2014.
- **Northwestern University**, 1 March – 31 March, 2014.
- **University of Chile**, 1 January – 25 January, 2014.
- **University of Sydney**, 1 October – 31 December, 2013.
- **Hong Kong University of Science and Technology**, 29 May – 8 June, 2013.
- **MIT**, 4–15 February, 2013.
- **Columbia University**, 5– 16 July, 2011.
- **Université Blaise Pascal, Clermont-Ferrand** 14 – 28 March, 2011.
- **Columbia University**, 21 September – 1 October, 2010.
- **Universität Bonn**, 28 June – 16 July, 2010.
- **Universität Erlangen-Nürnberg**, 8 – 15 January 2010.
- **Université de Caen Basse-Normandy**, 8 – 17 December 2009.
- **University of Sydney**, 23 – 27 September 2009.
- **Isaac Newton Institute, Cambridge**, 15 – 28 February and 3–9 May 2009.
- **Universität Freiburg**, 15 – 20 December 2008.
- **University of Aarhus**, September – December 2006.

PROFESSIONAL ACTIVITIES

- **Sheaves in representation theory** – Isle of Skye. Scientific coordinator (with Peter Fiebig and Daniel Juteau) of the program for the summer school (23 – 28 May 2010).
- **London Mathematical Society Summer School on Derived Categories** – City University. Tutor for exercise classes (7–11 September 2009).
- **PhD defense committee** – Dusko Bogdanic (Oxford, Karin Erdmann and Raphaël Rouquier), Trafim Lasy (Paris, Jean Michel), Leo Dreyfus-Schmid (Paris, Michel Broué and Raphaël Rouquier), Florian Klein (Oxford, Kevin McGerty), Taiwang Deng (Paris, Pascal Boyer).

- **Habilitation jury** – Daniel Juteau (Université de Caen).
- **Bachelor theses supervised** – Ariana Pohl (2013), Julia Alekseeva (2013), Teresa Sachse (2013), Vanessa Gierse (2013), Jürgen Kanzler (2014).
- **Master theses supervised** – Thorge Jensen (2014), Marc Sauerwein (2014), Jürgen Kanzler (2015).
- **PhD theses supervised** – Thorge Jensen* (2014), Leonardo Patimo* (2014). (* = ongoing)