Will Donovan

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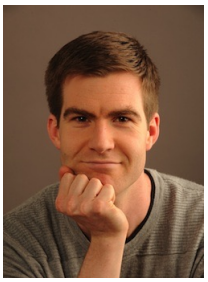

Academic positions

2021–	Yau MSC, Tsinghua University: Associate Professor
2018–21	Yau MSC, Tsinghua University: Assistant Professor
2014–18	Kavli IPMU, University of Tokyo: Postdoctoral Fellow
2011–14	University of Edinburgh: Research Assistant

Further affiliation

2021–	Yanqi Lake BIMSA: Adjunct Associate Professor
2020–	Kavli IPMU, University of Tokyo: Visiting Associate Scientist

Education

2007–11	PhD Mathematics, Imperial College London
2003–4	MMath Mathematics, University of Cambridge (Part III)
2000–3	BA Mathematics, University of Cambridge

Publications

1. Grassmannian twists on the derived category via spherical functors
   Proc. London Math. Soc. (2013) 107 (5): 1053–1090.

2. Window shifts, flop equivalences and Grassmannian twists (with E. Segal)
   Compositio Math. (2014) 150 (6): 942–978.

3. Mixed braid group actions from deformations of surface singularities (with E. Segal)
   Comm. Math. Phys. (2015) 335 (1): 497–543.

4. The Pfaffian-Grassmannian equivalence revisited (with N. Addington and E. Segal)
   Alg. Geom., Foundation Compositio Math. (2015) 2 (3): 332–364.

5. Noncommutative deformations and flops (with M. Wemyss)
   Duke Math. Jour. (2016) 165 (8): 1397–1474.

6. Moduli spaces of torsion sheaves on K3 surfaces (with N. Addington and C. Meachan)
   J. London Math. Soc. (2016) 93 (3): 846–865.

7. Mukai flops and $\mathbb{P}$-twists (with N. Addington and C. Meachan)
   J. Reine Angew. Math. (Crelle) (2019) 748: 227–240.

8. Contractions and deformations (with M. Wemyss)
   Amer. J. Math. (2019) 141 (3): 563–592.

9. Twists and braids for general 3-fold flops (with M. Wemyss)
   J. Eur. Math. Soc. (2019) 21 (6): 1641–1701.

10. Perverse schobers and wall crossing
    Int. Math. Res. Notices (2019) 18: 5777–5810.

11. Noncommutative enhancements of contractions (with M. Wemyss)
    Adv. Math. (2019) 344: 99–136.

12. Perverse schobers on Riemann surfaces: constructions and examples
    Eur. J. Math. (2019) 5: 771-797.

13. Mirror symmetry for perverse schobers from birational geometry (with T. Kuwagaki)
    Comm. Math. Phys. (2021) 381: 453–490.

14. Stringy Kähler moduli for the Pfaffian-Grassmannian correspondence
    SIGMA (2021) 17, 028.

15. Stringy Kähler moduli, mutation and monodromy (with M. Wemyss)
    Preprint, to appear **Jour. Diff. Geom.**, `arXiv:1907.10891`.

16. Relating derived equivalences for simplices of higher-dimensional flops
    Preprint, submitted to **Adv. Stud. Pure Math.**, Math. Soc. Japan, `arXiv:2108.10541`.

Proceedings

17. Grassmannian twists, derived equivalences and brane transport
    Proc. Symp. Pure Math. (2015), Proc. String-Math 2012.

18. Contractions of 3-folds: deformations and invariants
    Internat. J. Math. (2016) 27 (7), special issue VBAC 2014.

19. Applications of noncommutative deformations
    Proc. Kinosaki Alg. Geom. Symp. (2016), available online.

Grants **(competitive research)**

2019–22 China central government **Thousand Talents** Plan
Value: 2.5 million yuan (∼$350k)

2016–18 Japan Soc. for Promotion of Science KAKENHI **Young Scientist** B
Value: 2.9 million yen (∼$25k)

Awards

2020 Yau MSC Ruolin 若琳 Research Excellence Award

2019 Yau MSC Outstanding Paper Award 'Twists and braids for general 3-fold flops'

Visits

Aug–Sep 2020	University of Glasgow, UK
Jun–Jul 2020	Korean Institute of Advanced Study, Seoul
Feb–Jun 2020	Kavli IPMU, University of Tokyo
Jul–Aug 2014	Korean Institute of Advanced Study, Seoul
Jan–Apr 2014	Hausdorff Institute, Bonn (Junior Trimester)
Apr–Jul 2013	Schrödinger Institute, Vienna
May 2012	Steklov Institute, Moscow (LMS Young Mathematicians Scheme)

Postgraduate students

2019– **Xun Lin**: motivic methods, derived categories, birational geometry

2019– **Weilin Su**: categorification, mirror symmetry, geometric representation theory

2020– **Luyu Zheng**: D-modules, perverse sheaves

2021– **Nantao Zhang**: enumerative geometry

Teaching

Yau MSC, Tsinghua University

2021 **Lecturer**: 'Geometric representation theory 2'
48-hour advanced graduate course, joint with Penghui Li.

2021 **Lecturer**: 'Derived functors in algebraic and birational geometry'
36-hour graduate course.

2020 **Lecturer**: 'Calculus 1 for international students'
52-hour undergraduate course.
180+ students.

2020 **Lecturer**: 'Mirror symmetry: categories and constructions'
36-hour advanced graduate course.

2020 **Project supervisor**: Michael Zhao, 'Tilting objects for parabolic Grothendieck resolutions'
Visiting Year 3 student from Sydney University.

2019 **Lecturer**: 'Geometric representation theory 2'
48-hour advanced graduate course, joint with Peng Shan.

2019 **Lecturer**: 'Calculus 2 in English'
52-hour undergraduate course.

2018 **Lecturer**: 'Derived functors in algebraic and birational geometry'
36-hour graduate course.

Edinburgh University

2011–12 **Lecturer**: 'Mathematical Communication and Computation'
Teaching award nomination, University Students' Association.

Service

Yau MSC, Tsinghua

Geometric representation theory seminar organizer (2021–)
Colloqium committee member (2019–21)

Conference organization

Workshop 'Homological algebra of the infrared' at TSIMF, Sanya, organizer (2022)
Workshop 'Categorified wall crossing' at U California, Davis, mentor (2021)
Workshop 'Derived categories' at Hausdorff Institute, Bonn, organizer (2014)

Selected talks

2020
CNU, Beijing
IASM, Hangzhou
Kavli IPMU, Tokyo
KAIST, Korea
KIAS, Seoul
Steklov Inst, Moscow
Warwick U

2019
Auckland U, New Zealand
Australian Nat. U, Canberra
BIRS Oaxaca, Mexico
CTU, Prague
Fudan U
Kyoto U
Liverpool U
Osaka U
Sydney U
SYSU, Guangzhou

2018
Hokkaido U
Nayoga U
TSIMF Sanya, Hainan
Yau MSC Tsinghua, Beijing

2017
Australian Nat. U, Canberra
Bath U
ICMS, Edinburgh U

2017 (continued)
Nayoga U
Osaka U
SISSA, Trieste

2016
BIRS Banff
ECM, Berlin
Freie Universität, Berlin
Hanga Roa, Chile
Hong Kong U
Kinosaki Symposium
Kyoto U
METU, Ankara
Nayoga U
Tokyo U

2015
Fields Institute, Toronto
Kent U
Max Planck Institute, Bonn
Oberwolfach
Warwick U

2014
Freie Universität, Berlin
BICMR, Beijing
Hamburg U
Kavli IPMU, Tokyo
KIAS, Seoul
Sheffield U

2013
Cardiff U
Columbia U
Duke U
Edinburgh U
Imperial College London
Leeds U
Oxford U
Schrödinger Inst., Vienna

2012
ETH Zürich
Glasgow U
Hausdorff Institute, Bonn
Newcastle U
Steklov Inst, Moscow
Queen Mary, U London
Warwick U

2011
Edinburgh U
Warwick U

2008
CSIC, Madrid

Outreach

– Workshop series, for University of Tokyo 'Soap bubbles and spacetime' (2017–)
At 6 locations, including Tamarokuto Science Centre and Kavli IPMU

– Interviewed, for University of Tokyo 'Discover Our People' (2016)

– Talk: 'The frontiers of symmetry: hidden geometry and tangled superstrings'
King's College London Math School (2015)
Summerhall, Edinburgh, for International Year of Crystallography (2014)

Languages

– English (native)
– Japanese, Mandarin (intermediate)
– French, German (elementary)