

Thomas Walpuski

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Education

- 2009–2013 **PhD**, *Imperial College London*, thesis advisor: Simon Donaldson.
- 2007–2009 **MSc**, *ETH Zürich*.
- 2005–2007 **BSc**, *ETH Zürich*.

Academic Positions

- 2017–present **Assistant Professor (tenure-track)**, *Michigan State University*.
- 2015–2017 **C.L.E. Moore Instructor**, *Massachusetts Institute of Technology*.
- 2014 **Research Assistant Professor**, *Simons Center for Geometry and Physics*.
- 2013–2014 **Research Associate**, *Imperial College London*.

Grants, Fellowships, and Prizes

- 2018–2019 **Sloan Research Fellowship**, \$65'000.
- 2017–2020 **NSF DMS-1754967**, *Gauge Theory on Manifolds with Special Holonomy*, PI, \$152'000.
- 2016–2017 **MIT–Brazil Seed Fund**, *Singular G_2 -instantons over Twisted Connected Sums*, co-PI with Tomasz Mrowka and Henrique Sá Earp, \$15'000 from MIT and \$15'000 from FAPESP.
- 2009 **ETH Medal for outstanding master thesis**.
- 2009 **Willi Studer Prize for best diploma**.

Research Interests

gauge theory, special holonomy, calibrated geometry, geometric analysis, algebraic geometry

Publications

- T. Walpuski. *G_2 -instantons, associative submanifolds and Fueter sections*. **Communications in Analysis and Geometry** 25.4 (2017). arXiv: 1205.5350.
- T. Walpuski. *A compactness theorem for Fueter sections*. **Commentarii Mathematici Helvetici** 92.4 (2017). arXiv: 1507.03258.
- T. Walpuski. *Spin(7)-instantons, Cayley submanifolds and Fueter sections*. **Communications in Mathematical Physics** 352.1 (2016). arXiv: 1409.6705.
- D. A. Salamon and T. Walpuski. *Notes on the octonions*. **Proceedings of the 23rd Gökova Geometry–Topology Conference**. (2017). arXiv: 1005.2820.
- T. Walpuski. *G_2 -instantons over twisted connected sums: an example*. **Mathematical Research Letters** 23.2 (2015). arXiv: 1505.01080.
- A. Degeratu and T. Walpuski. *Rigid HYM connections on tautological bundles over ALE crepant resolutions in dimension three*. **Symmetry, Integrability and Geometry: Methods and Applications (SIGMA)** 12.17 (2016). arXiv: 1207.6938.

A. Haydys and T. Walpuski. *A compactness theorem for the Seiberg–Witten equation with multiple spinors in dimension three*.

Geometric and Functional Analysis 25.6 (2015). arXiv: 1406.5683.

H. N. Sá Earp and T. Walpuski. *G_2 -instantons over twisted connected sums*.

Geometry and Topology 19.3 (2015). arXiv: 1310.7933.

T. Walpuski. *G_2 -instantons on generalised Kummer constructions*.

Geometry and Topology 17.4 (2013). arXiv: 1109.6609.

Preprints

A. Doan and T. Walpuski. *On counting associative submanifolds and Seiberg–Witten monopoles*. (2017). arXiv: 1712.08383.

A. Doan and T. Walpuski. *On the existence of harmonic Z_2 spinors*. accepted for publication in *Journal of Differential Geometry*. (2017). arXiv: 1710.06781.

A. Doan and T. Walpuski. *Deformation theory of the blown-up Seiberg–Witten equation in dimension three*. (2017). arXiv: 1704.02954.

A. Jacob and T. Walpuski. *Hermitian Yang–Mills metrics on reflexive sheaves over asymptotically cylindrical Kähler manifolds*. (2016). arXiv: 1603.07702.

A. Jacob, H. N. Sá Earp, and T. Walpuski. *Tangent cones of Hermitian Yang–Mills connections with isolated singularities*. accepted for publication in *Mathematical Research Letters*. (2016). arXiv: 1603.07702.

Invited Talks

Conferences and Workshops

November 2018 **Rutgers University**, *Geometric Analysis Workshop*.

June 2018 **ShanghaiTech**, *Symposium in Geometry and Differential Equations*.

January 2018 **Imperial College London**, *Gauge Theory and Special Holonomy*.

September 2017 **Simons Center for Geometry and Physics**, *Special Holonomy: Progress and Open Problems*.

August 2017 **Fields Institute**, *G_2 Manifolds and Related Topics*, workshop and mini-school.

August 2017 **Isaac Newton Institute**, *Symplectic Geometry—Celebrating the work of Simon Donaldson*.

March 2017 **Institute for Pure and Applied Mathematics (IPAM)**, *Gauge Theory and Categorification*.

December 2016 **Toyko Institute of Technology and Tokyo University of Science**, *Geometric Analysis in Geometry and Topology*.

September 2016 **Simons Center for Geometry and Physics**, *Special Holonomy in Geometry, Analysis and Physics*.

June 2016 **Isaac Newton Institute**, *General Relativity: from Geometry to Amplitudes*.

May/June 2016 **Gökova Geometry–Topology Conference**.

November 2015 **Simons Center for Geometry and Physics**, *Riemannian Convergence Theory*.

July 2015 **University of British Columbia**, *PIMS Symposium on the Geometry and Topology of Manifolds*.

September 2014 **Simons Center for Geometry and Physics**, *G_2 -manifolds*, month-long program.

August 2014 **Riemann Center for Geometry and Physics, Leibniz Universität Hannover**, *Gauge Theories in Higher Dimensions*.

June 2012 **King’s College London and University College London**, *G_2 Days*.

April 2012 **Banff International Research Station**, *Geometric Structures on Manifolds*.

January 2011 **King’s College London**, *UK–Japan Winter School New Methods in Geometry*.

Seminars

- November 2016 **Center of Mathematical Sciences and Applications, Harvard University**, *Mathematical Physics Seminar*.
- June 2016 **Universidad Complutense Madrid**, *Seminario de geometría y topología*.
- March 2016 **Fields Institute**, *Fields Geometric Analysis Colloquium*.
- November 2015 **Harvard University**, *Gauge Theory Seminar*.
- October 2015 **Harvard University**, *Differential Geometry*.
- October 2015 **Michigan State University**, *Topology Seminar*.
- October 2015 **California Institute of Technology**, *Geometry and Topology Seminar*.
- October 2015 **Massachusetts Institute of Technology**, *Geometry and Topology Seminar*.
- April 2015 **Harvard University**, *Differential Geometry Seminar*.
- April 2015 **Duke University**, *Geometry/Topology Seminar*.
- March 2015 **Waterloo University**, *Geometry and Topology Seminar*.
- November 2014 **Princeton University**, *Tian's informal seminar*.
- June 2014 **Imperial College London**, *Geometry and Topology Seminar*.
- April 2014 **ETH Zürich**, *Symplectic Geometry Seminar*.
- March 2014 **Cambridge University**, *Differential Geometry Seminar*.
- December 2013 **EPF Lausanne**, *Hamiltonian Dynamics Seminar*.
- November 2013 **Leeds University**.
- November 2013 **Kyoto University**.
- October 2013 **Instituto de Matemática Pura e Aplicada (IMPA)**.
- September 2013 **Unicamp**.
- May 2013 **University of Bielefeld**.
- February 2012 **University of Freiburg**.
- January 2012 **Imperial College London**, *Geometry and Analysis Seminar*.

Teaching

Michigan State University

- Fall 2018 MTH 993 Special Topics in Geometry: Riemannian Manifolds with Special Holonomy
- Spring 2018 MTH 993 Special Topics in Geometry: Spin Geometry
- Fall 2017 MTH 868 Geometry and Topology I

Massachusetts Institute of Technology

- Spring 2017 18.901 Introduction to Topology
- Fall 2016 18.965 Geometry of Manifolds
- Spring 2016 18.152 Introduction to Partial Differential Equations
- Fall 2015 18.03 Differential Equations (recitations)
- Spring 2015 18.03 Differential Equations (recitations)

Imperial College London

- Spring 2014 M4P54 Differential Topology
- Spring 2011 Mathematics for Electrical Engineers (tutorials)

ETH Zürich

- Fall 2008 Analysis I (tutorials)
- Spring 2008 Linear Algebra II (tutorials)
- Fall 2007 Linear Algebra I (tutorials)

Summer 2007 Analysis II (tutorials)
Winter 2006/07 Analysis I (tutorials)

References

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ETH Zürich
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Jörn Dunkel (teaching)
Massachusetts Institute of Technology
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