

Felix Schulze

Contact

Department of Mathematics
University College London
25 Gordon St
London WC1E 6BT, UK
Tel.: +44 20 7679 7897

Email: f.schulze@ucl.ac.uk

www: www.felixschulze.eu

Research Interests

Differential Geometry, Partial Differential Equations, Geometric Analysis

Education

- 2008 Habilitation in Mathematics, Free University Berlin
- 2002 PhD in Mathematics, University of Tübingen,
Thesis advisor: Gerhard Huisken
- 1999 Degree in Mathematics (Diplom), University of Tübingen,
Thesis advisor: Gerhard Huisken

Appointments

- from 10/2019 Professor in Pure Mathematics, University College London, UK
- 02/2013 - 09/2019 Associate Professor (Reader) in Pure Mathematics, University College London, UK
- 05/2008 - 01/2013 Junior Research Group Leader, Emmy Noether Program of the German Research Foundation, Free University Berlin, Germany
- 10/2003 - 04/2008 'Assistent', Geometric Analysis Group of K. Ecker, Free University Berlin, Germany
- 10/2002 - 09/2003 Postdoctoral Fellow, ETH Zürich, Switzerland
- 10/2000 - 09/2002 PhD Position, University of Tübingen, Germany

Grants and Awards

- 02/2020 - 06/2020 Visiting Professorship at the University of Chicago (US)
- 09/2019 - 12/2019 Leverhulme Visiting Professorship on behalf of Prof O. Munteanu to visit UCL (23,000 GBP)
- 06/2019 DFG SPP 2026 Geometry at Infinity grant for the workshop '*Geometric Analysis and General Relativity (60th birthday G. Huisken)*' at ETH Zürich, together with C. Cederbaum, E. Kuwert and J. Metzger (26,000 EUR)

- 12/2017 - 09/2019 Royal Society International Exchanges Grant, together with M. Saez as Co-PI (6,000 GBP)
- 05/2018 - 02/2019 Leverhulme Visiting Professorship on behalf of Prof M. Saez to visit UCL (20,000 GBP)
- 01/2018 HIMR focused research grant '*Lagrangian Mean Curvature Flow: Progress and Problems*' as Co-PI, together with J. Lotay (PI) (7,500 GBP)
- 01/2017 - 03/2021 Leverhulme research grant 'Advances in contact topology via Lagrangian mean curvature flow' as PI, together with J. Lotay (Co-PI) (338,000 GBP)
- 01/2016 - 05/2016 Eisenbud Research Professorship at MSRI Berkeley
- 05/2008 - 01/2013 Emmy Noether Fellowship of the German Research Foundation (733,000 EUR)
- 01/2008 - 03/2010 Feodor Lynen Fellowship of the Alexander von Humboldt Foundation (27,000 EUR)
- 06/2007 - 06/2009 Project Grant in the Program 'Global Differential Geometry' of the German Research Foundation, joint with O. Schnürer (5,000 EUR)
- 09/1997 - 08/1999 Travel Grant of the Fulbright Foundation
- 10/1996 - 04/2000 Fellowship of the German National Academic Foundation

Editorial Boards

Editorial Board, *Advances in Differential Equations*, since 2019

Editorial Advisor, Publications of the LMS (*Bulletin of the LMS*, *Journal of the LMS*, *Proceedings of the LMS*), since 2015

Editorial Advisory Board, *Geometric Flows*, since 2014

Invited Lectures

07/2014 ERC School on Geometric Evolution Problems, Centro De Giorgi, Pisa, Italy

01/2013 KIAS Winter School in Differential Geometry, Korea

Organised workshops and seminars

from 09/2021 Series of Oberwolfach Workshops on '*Partial Differential Equations*', organizer, together with R. Schoen (Irvine) and G. De Philippis (Courant)

06/2019 Conference '*Geometric Analysis and General Relativity*' on the occasion of the 60th birthday of G. Huisken at ETH Zürich, organizer, together with B. Andrews (ANU Canberra), C. Cederbaum (Tübingen), J. Isenberg (Oregon), E. Kuwert (Freiburg), J. Metzger (Potsdam), T. Riviere (ETH), M. Struwe (ETH) and P. Topping (Warwick)

2018 - present **Brussels-London Geometry Seminar**, with J. Fine (ULB Brussels) and J. Lotay (Oxford), once per term

2018 - present Joint **KCL/UCL Geometry Seminar**, with Y. Lekili (KCL), weekly

- 01/2018 2 day workshop 'Lagrangian Mean Curvature Flow: Progress and Problems' at UCL, together with J. Lotay (UCL), funded by the Heilbronn Institute for Mathematical Research
- 2013 - present **London Geometric Analysis Reading Seminar**, together with C. Bellettini (UCL), J. Lotay (Oxford) and H. Ngyuen (QMUL), weekly, UCL
- 05/2013 UCL Geometry and Topology Day 3
- 2008 - 2013 Oberseminar Geometry and Physics, weekly, joint with K. Ecker and G. Huisken, Free University Berlin
- 2004 - 2005 Seminar Wave Equations, weekly, joint with K. Ecker and G. Huisken, Max-Planck-Institute for Gravitational Physics, Potsdam

Publications

- [19] *Remarks on the self-shrinking Clifford Torus*, with C.G. Evans and J.D. Lotay, [arXiv:1802.01423](#), (2018), to appear in *J. Reine Angew. Math.*
- [18] *Local foliation of manifolds by surfaces of Willmore type*, with T. Lamm and J. Metzger, [arXiv:1806.00465](#), (2018), to appear in *Annales de l'Institut Fourier*.
- [17] *Ricci flow from spaces with isolated conical singularities*, with P. Gianniotis, *Geom. Topol.* **22** (2018), no. 7, 3925–3977.
- [16] *Consequences of strong stability of minimal submanifolds*, with J.D. Lotay, [arXiv:1802.023941](#), (2018), to appear in *IMRN*.
- [15] *On Short Time Existence for the planar network flow*, with A. Neves and T. Ilmanen, [arXiv:1407.4756](#), (2017), *J. Diff. Geom.*, **111** (1), (2019).
- [14] *A local regularity theorem for mean curvature flow with triple edges*, with B. White, [arXiv:1605.06592](#), (2016), to appear in *J. Reine Angew. Math.*
- [13] *Uniqueness of compact tangent flows in Mean Curvature Flow*, *J. Reine Angew. Math.* (690), 163–172 (2014).
- [12] *The Half-Space Property and entire positive minimal graphs in $M \times \mathbb{R}$* , with H. Rosenberg and J. Spruck, *J. Differ. Geom.*, **95** (2), 321–336 (2013).
- [11] *Expanding solitons with non-negative curvature operator coming out of cones*, with M. Simon, *Math. Z.* **275** (1-2), 625–639 (2013).
- [10] *Stability of Hyperbolic space under Ricci-flow*, with O.C. Schnürer and M. Simon, *Comm. Anal. Geom.* **19**, No. 5, 1023–1047 (2011)
- [9] *Foliations of asymptotically flat spacetimes by surfaces of Willmore type*, with T. Lamm and J. Metzger, 2009, *Math. Ann.* **350**, No. 1, 1–78 (2011).
- [8] *Evolution of convex lens-shaped networks under curve shortening flow*, with O.C. Schnürer, M. Saez, A. Azzouani, M. Georgi, J. Hell, N. Jangle, A. Koeller, T. Marxen, S. Ritthaler, and B. Smith, *Trans. Amer. Math. Soc.* **363**, No. 5, 2265–2294 (2011).
- [7] *Stability of Euclidean space under Ricci-flow*, with M. Simon and O.C. Schnürer, *Comm. Anal. Geom.* **16**, No. 1, 127–158 (2008).

- [6] *Self-similarly expanding networks to curve shortening flow*, with O.C. Schnürer, *Ann. Scuola Norm. Sup. Pisa Cl. Sci. (5) Vol. VI* (2007), 511-528.
- [5] *No mass drop for mean curvature flow of mean convex hypersurfaces*, with J. Metzger, *Duke Math. J.*, Vol. 124 (2) (2008), 283–312.
- [4] *Nonlinear evolution by mean curvature and isoperimetric inequalities*, *J. Differ. Geom.* **79** (2008), 197–241.
- [3] *Stability of translating solutions to mean curvature flow*, with J. Clutterbuck and O. C. Schnürer, *Calc. Var. Partial Differential Equations* **29** (2007), no. 3, 281–293.
- [2] *Convexity estimates for flows by powers of the mean curvature*, appendix with O.C. Schnürer, *Ann. Scuola Norm. Sup. Pisa Cl. Sci. (5)*, Vol. V (2006), 261–277.
- [1] *Evolution of convex hypersurfaces by powers of the mean curvature*, *Math. Z.* **251** (2005), no. 4, 721–733.

Preprints

- [5] *On the regularity of Ricci flows coming out of metric spaces*, with A. Deruelle and M. Simon, [arXiv:1904.11870](https://arxiv.org/abs/1904.11870), (2019).
- [4] *Uniqueness of asymptotically conical tangent flows*, with O. Chodosh, [arXiv:1901.06369](https://arxiv.org/abs/1901.06369), (2019).
- [3] *Ancient solutions in Lagrangian mean curvature flow*, with B. Lambert and J.D. Lotay, [arXiv:1901.05383](https://arxiv.org/abs/1901.05383), (2019).
- [2] *Generic uniqueness of expanders with vanishing relative entropy*, with A. Deruelle, [arXiv:1812.08504](https://arxiv.org/abs/1812.08504), (2018).
- [1] *Optimal isoperimetric inequalities for surfaces in arbitrary codimension in Cartan-Hadamard manifolds*, [arXiv:1802.00226](https://arxiv.org/abs/1802.00226), (2018).

Surveys

- [1] *Evolution of networks with triple junctions*, with C. Mantegazza, M. Novaga and A. Pluda, [arXiv:1611.08254](https://arxiv.org/abs/1611.08254), (2016).

Invited talks over the last 4 years

- 2020 · Geometric Analysis Conference, Rutgers, USA
- Workshop 'New Directions in Geometric Flows', BIRS, Banff, Canada
- 2019 · Workshop 'Recent trends in Geometric analysis and applications', Centro De Giorgi, Pisa, Italy
- Workshop 'Partielle Differentialgleichungen', MFO, Oberwolfach, Germany
- Workshop 'Differentialgeometrie im Grossen', MFO, Oberwolfach, Germany
- Conference 'Geometric Analysis and General Relativity', ETH Zürich, Switzerland
- Geometry Seminar, University of Cologne, Germany

- Conference 'Optimal Transport and Geometric Analysis', Venice, Italy
 - Geometry Seminar, University of Bath, UK
 - UK-Japan Winter School, Leeds, UK
- 2018
- Geometric Analysis Seminar, University of Fribourg, Switzerland
 - Colloquium, University of Fribourg, Switzerland
 - Workshop 'Mean Curvature and Regularity', Institute of Advanced Studies, Princeton, USA
 - Workshop 'Ricci flow, mean curvature flow and related singular flows', University of Hamburg, Germany
 - Workshop 'Geometric PDEs in Freiburg', Freiburg, Germany
 - Simons Collaboration workshop 'Geometric flows in special holonomy', Imperial College, London, UK
 - Workshop 'Geometrie', MFO, Oberwolfach, Germany
 - 'Conference on geometric analysis', Tsinghua University, Beijing, China
 - Oberseminar Analysis, MPI Leipzig, Germany
 - Workshop 'Geometric Evolution Equations', University of Regensburg, Germany
 - Workshop 'Geometry: exchanges and perspectives', Institut Henri Poincaré, Paris, France
- 2017
- Workshop 'Geometric flows and related problems', Tokyo Institute of Technology, Japan
 - PDE and Real Analysis Seminar, University of Tokyo, Japan
 - Workshop 'Geometric Analysis', Centre Henri Lebesgue, Roscoff
 - Workshop 'Analysis, Geometry and Topology of Positive Scalar Curvature Metrics', MFO, Oberwolfach, Germany
 - Workshop 'Partial Differential Equations', MFO, Oberwolfach, Germany
 - Workshop 'Minimal and Evolving Networks', Centro de Giorgi, Pisa, Italy
 - Advances in Geometric Analysis, ETH Zürich, Switzerland
 - LMS Workshop 'Variational methods in submanifold theory', University of York, UK
- 2016
- Geometric PDE Workshop, University of Warwick, UK
 - Oberseminar Geometrie, University of Münster, Germany
 - Seminar on Differential Geometry and Analysis, University of Magdeburg, Germany
 - Geometry Seminar, Université Pierre et Marie Curie (Jussieu), France
 - Geometry Seminar, University of Leeds, UK
 - Clay Research Conference, Workshop 'Mean Curvature Flow', Oxford, UK
 - Workshop 'Geometrie', MFO, Oberwolfach, Germany
 - Differential Geometry and PDE Seminar, UBC Vancouver, Canada
 - MSRI Workshop 'Geometric Flows in Riemannian and Complex Geometry', Berkeley, USA.
 - Differential Geometry Seminar, UC Irvine, Irvine, USA
 - Geometry Seminar, Stanford University, Stanford, USA
 - Geometry and Analysis Seminar, UC Santa Cruz, Santa Cruz, USA
 - Colloquium, University of Arizona, Arizona,, USA