Contact

Martin Kell

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Education and work

since 09.2015	UNIVERSITY OF TÜBINGEN, Tübingen (BW, Germany) *Scientific Employee* in the group of Prof. G. Huisken *Habilitation*, July 2018 Thesis: *Geometry and Analysis of Geodesic Spaces* - mentor Prof. G. Huisken
03.-04.2015	HAUSDORFF RESEARCH INSTITUTE FOR MATHEMATICS, Bonn (NW, Germany) Junior Hausdorff Trimester Program *Optimal Transportation* *Guest Researcher*
09.2014-08.2015	INSTITUT DES HAUTES ÉTUDES SCIENTIFIQUES (IHES), Bures-sur-Yvette (IF, France) *EPDI-PostDoc*
01.-02.2012	INSTITUTO DE MATEMÁTICA PURA E APLICADA (IMPA), Rio de Janeiro (RJ, Brazil) *Summer PhD-Fellow*
09.2010-08.2014	MAX-PLANCK-INSTITUT MIS, Leipzig (SN, Germany) *Dr. rer. nat* (Universität Leipzig), July 2014 Thesis: *On curvature conditions using Wasserstein spaces* - advisor Prof. J. Jost until 02.2014 *IMPRS-Fellow* from 03.2014 *Scientific Employee*
07.2008-12.2009	MICHIGAN STATE UNIVERSITY, East Lansing (MI, USA) *Master of Science in Mathematics*, December 2009 during that time *Graduate Teaching Assistant* at the Department of Mathematics
2005-2010	UNIVERSITY OF ROSTOCK, Rostock (MV, Germany) *Diplom in Mathematik*, August 2010 Thesis: *Conley index of isolated equilibria* - advisor Prof. K.P. Rybakowski *Vordiplom in Computer Science,* September 2007

Awarded Grants and Funding

2017
DFG-Grant *Geometry and Analysis under Generalized Curvature Notions* (additional PhD/PostDoc position 176,700 €)

2014-2015
EPDI-Fellowship at the IHES

2010-2014
IMPRS-Scholarship at the MPI MiS

2005-2010
Scholarship from the *German Academic Scholarship Foundation* (Studentstiftung des deutschen Volkes)

Honors and awards

2015
Otto-Hahn-Medal of the Max Planck Society

2010
Prize of the Department for the thesis *Conley index of isolated equilibria* at the University of Rostock

2003
1st Prize of the national programming contest for high school students (*BwInf*)

Teaching experience

SS19
lecture *Limits of Spaces* at University of Tübingen.

SS17
lecture *Linear partial differential equations* at University of Tübingen.

WS16/17
lecture *Optimal transport* at University of Tübingen.

01.2013
(with A. Kabalak) intensive course *Fundamentals of Advanced Economics - Logic and Game Theory* at the University Witten/Herdecke.

WS12/13
(with Ch. Rodrigues) *Topics in Ergodic Theory and Dynamical Systems* at the MPI MiS.

07.2008-12.2009
Graduate Teaching Assistant at Michigan State University
- recitations for *Calculus II* during the fall and spring terms
- *Trigonometry* during the summer term 2009.

2007
(with M. Grüttmüller) *Selection, preparation in several courses* of the regional team *Mecklenburg-Vorpommern* for the *Baltic Olympiad in Informatics 2007*.

Publications[1]

(with S. Suhr) *On the existence of dual solutions for Lorentzian cost functions* **Annales de l'Institut Henri Poincare / Analyse non lineaire** accepted 2019, 30 pages. (preprint at arXiv:1808.04393)

On Cheeger and Sobolev differentials in metric measure spaces **Revista Matemática Iberoamericana** (2019), 32 pages. DOI:10.4171/RMI/1114.

Symmetric orthogonality and non-expansive projections in metric spaces **manuscripta mathematica** Online First (2018), 19 pages. DOI10.1007/s00229-018-1071-7

(with F. Galaz-García; A. Mondino and G. Sosa) *On quotients of spaces with Ricci curvature bounded below* **Journal of Functional Analysis** 275(6) (2018), 1368–1446.

Sectional curvature-type conditions on metric spaces **Journal of Geometric Analysis**, 29(1) (2018), 616–655.

(with A. Mondino) *On the volume measure of non-smooth spaces with Ricci curvature bounded below* **Annali della Scuola Normale Superiore di Pisa. Classe di scienze (5)** Vol. XVIII(2) (2018), 593–610.

Transport maps, non-branching sets of geodesics and measure rigidity **Advances in Mathematics** 320 (2017), 520–573.

Uniformly convex metric spaces **Analysis and Geometry in Metric Spaces** 2(1) (2014), 359–380.

(with M. Bačák; B. Hua; J. Jost and A. Schikorra) *A notion of nonpositive curvature for general metric spaces* **Differential Geometry and its Application** 28 (2015), 22–32.

On interpolation and curvature via Wasserstein geodesics **Advances in Calculus of Variations** 10(2) (2017), 125–168.

q-heat flow and the gradient flow of the Renyi entropy in the p-Wasserstein space **Journal of Functional Analysis** 271(8) (2016), 2045–2089.

(with J. Jost and Ch. Rodrigues) *Representation of Markov chains by random maps: existence and regularity conditions* **Calculus of Variations and Partial Differential Equations** 54(3) (2015), 2637–2655.

Conley index of isolated equilibria **Topological Methods Nonlinear Analysis** 38(2) (2011), 373–393.

Submitted Preprints

(with V. Kapovitch and Ch. Ketterer) *On the structure of RCD spaces with upper curvature bounds* arXiv:1908.07036, 30 pages.

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[1]Except for the poublication *Kell (2011)*, preprint versions are available under `arxiv.org`.

Referee and review activities

Bulletin of the London Mathematical Society

Cambridge Journal of Mathematics

Canadian Mathematical Bulletin

Discrete and Continuous Dynamical Systems

Documenta Mathematica

Inventiones Mathematicae

Journal of Fixed Point Theory and Applications

Journal of Functional Analysis

Journal of Geometric Analysis

Mathematical Reviews

Mathematische Zeitschrift

Revista Matemática Iberoamericana

SIGMA

List of talks and conferences

06.2019	Speaker at *Material theories, statistical mechanics, and geometric analysis*, Max-Planck-Institute MiS (Leipzig, Germany)
04.2019	Speaker at *Optimal Transport and Geometric Analysis*, Venice (Italy) organized by A. Mondino (Warwick, UK)
03.2019	Talk at University of Frankfurt (Germany)
03.2019	Speaker at *Yorkshire and Durham Geometry Days*, Durham University (UK)
11.2018	Speaker at *Optimal Transportation*, CRM (Pisa, Italy)
04.2018	Talk at Technical University of Darmstadt (Germany)
11.2017	Seminar talk at University of Münster (Germany)
11.2017	Seminar talk at Max-Planck-Institute MiS (Leipzig, Germany)
07.2017	Speaker at *Geometric Analysis on smooth and non-smooth spaces*, SISSA (Trieste, Italy)
06.2017	Speaker at *39. Süddeutsches Kolloquium über Differentialgeometrie*, University of Frankfurt (Germany)
05.2017	Seminar talk at University of Hamburg (Germany)
03.2017	Speaker at *Curvatures of Graphs, Simplicial Complexes and Metric Spaces*, TSIMF (Sanya, China)
09.2016	Speaker at Follow-up meeting *Optimal Transportation*, HIM (Bonn, Germany)
08.2016	Research stay & Seminar talk at Fudan University (Shanghai, China)
07.2016	Participant at *Calculus of Variations*, MFO (Oberwolfach, Germany)

07.2016	Speaker at *New Methods in Finsler Geometry*, University of Leipzig (Germany)
01.2016	Seminar talk at Fudan University (Shanghai, China)
01.2016	Speaker at *Young Geometric Analysts' Forum 2016*, TSIMF (Sanya, China)
12.2015	Seminar talks at Max-Planck-Institute MiS (Leipzig, Germany)
05.2015	Colloquium talk at University of Ulm (Germany)
05.2015	Seminar talk at KIT (Karlsruhe, Germany)
03.-04.2015	Participant in the Junior Hausdorff Trimester Program *Optimal Transportation*, HIM (Bonn, Germany)
10.2014	Seminar talk at University of Jyväskylä (Finland)
08.2014	Speaker *Compact Seminar on Optimal Transport*, Max-Planck-Institute MiS (Leipzig, Germany)
07.2014	Speaker at *Analysis and geometry on singular space*, SNS (Pisa, Italy)