Lukas Koch

German. Born 19.01.1995 in Heidelberg, Germany

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Education

since 10/2017	PhD student at University of Oxford, supervised by Jan Kristensen
10/2013-07/2017	studies for Master of Mathematics at Merton College, University of Oxford. (07/2017: MMath 1st class; highest achievable grade in the UK)
summer 2016	summer research project "On maximum principles for Second Order Elliptic PDE" at the Mathematical Institute, University of Oxford, supervised by Yves Capdeboscq

Publications and preprints

I. Chlebicka, C. de Filippis, and L. Koch. Boundary regularity for manifold constrained p(x)-Harmonic maps. *arXiv:2001.06243*, 2020. Submitted.

A. Guerra, L. Koch, and S. Lindberg. Nonlinear open mapping principles, with applications to the Jacobian equation and other scale-invariant PDEs. *arXiv:2010.10497*, 2020. Submitted.

A. Guerra, L. Koch, and S. Lindberg. The Dirichlet problem for the Jacobian equation in critical and supercritical Sobolev spaces. *arXiv Prepr. arXiv1909.03923*, 2020. Submitted.

L. Koch. Global improved integrability for minimisers of convex functionals with (p,q)-growth. *arXiv:2010.15766*, 2020.

C. de Filippis, L. Koch, and J. Kristensen. Regularity in relaxed convex problems, 2020. In preparation.

A. Guerra, L. Koch, and S. Lindberg. Energy minimisers with prescribed Jacobian, 2021. In preparation.

Awards

since 10/2017	EPSRC grant covering PhD fees and living stipend
10/2016-08/2017	scholar of Stiftung der deutschen Wirtschaft (SdW), covering tuition fees and living stipend. SdW is part of the German scholarship system aiming to support the top 1% of German students.

Invited talks

2020	"Global higher integrability for minimisers of convex functionals with (p,q)-growth", at online seminar "Monday's Nonstandard Seminar",

https://www.mimuw.edu.pl/~ichlebicka/nonstandard-seminar.html, on 16.11.

"A nonlinear open mapping principle, with applications to nonlinear PDEs", at Oberseminar Analysis, Regensburg, Germany, on 30.11.

"A nonlinear open mapping principle, with applications to nonlinear PDEs", at Oberseminar Analysis, Hamburg, Germany, on 9.12.

"A nonlinear open mapping principle, with applications to nonlinear PDEs", at Oberseminar Analysis, Heidelberg, Germany, on 10.12.

Teaching experience

since 10/2019	annual stipendiary lectureship at St. Hilda's College, University of Oxford, renewed for the academic year 2020/21. Marking and teaching three 1-hour problem classes per week with 2-3 students each covering second-year undergraduate Mathematics courses in Metric spaces and Complex Analysis, Numerical Analysis, Integration, Integral Transforms, Calculus of Variations
summer 2019	tutor for second year course Calculus of Variations; marking and teaching bi-weekly problem classes for 2-3 students
spring 2019	tutor for second year courses on differential equations and integral transforms; marking and teaching bi-weekly problem classes for 2-3 students
fall 2018	teaching assistant for 4th year undergraduate course on Functional Analytic Methods for PDEs; marking and some teaching for a bi-weekly problem class of 10-15 students.
fall 2018	teaching assistant for graduate level introductory course to function spaces and distribution; marking and some teaching for a weekly class of 10-15 students

Academic and outreach activities

10/2020	talk on "A nonlinear open mapping principle and applications to the incompressible Euler equations" at Mathematical Institute, University of Oxford
06/2019-06/2020	co-organiser of the weekly Oxford CDT in PDEs lunchtime seminar series
summer 2016	tutor for Problem Solving Matters (outreach program by the Mathematical Institute, Oxford preparing students for MAT)

Languages

languages	German: native speaker. English: fluent. French: beginner.

Non-academic internships

06/2015-09/2015 Internship with Morgan Stanley, London, United Kingdom: Proof of concept for a dynamic failover mechanism

Oxford, 26 October 2020