

AXEL KÖLSCHBACH ORTEGO

PERSONAL INFORMATION

<i>Citizenships</i>	German, Spanish
<i>Born</i>	Cologne, 25 May 1997 (Age 24)
<i>Email</i>	koelschbach@mpim-bonn.mpg.de
<i>Website</i>	akoelschbach.github.io

EDUCATION

<i>Max-Planck Institute for Mathematics</i> <i>University of Bonn</i>	2019–2022	IMPRS PhD Student (expected) PhD in Pure Mathematics, advised by Peter Scholze and David Hansen
	2018–2019	Master of Science Masters program in Mathematics. Thesis: <i>On the affine Grassmanian in mixed characteristic</i> , advised by Peter Scholze
<i>University of Cambridge</i>	2017–2018	Master of Advanced Study Part III of the Mathematical Tripos in Pure Mathematics. Pass with distinction.
	2014–2017	Bachelor of Science Bachelor Program in Mathematics. Minor in Economics. Passed with overall grade 1.1, “ <i>Ausgezeichnet</i> ” (=excellent). Thesis: <i>The Transcendental Motive of a Surface</i> , advised by Daniel Huybrechts ¹
<i>Universität Cologne</i>	2006–2014	Abitur Grade 1.0. Specialized in Maths and Physics.

TEACHING EXPERIENCE

<i>Winter term 2018/19</i>	Teaching Assistant for Algebra II (Johannes Anschutz) One semester Bachelor/Master level course on algebraic number theory. Taught weekly example classes via Zoom, graded homework, prepared and held mock oral exams.
<i>Winter term 2018/19</i>	Teaching Assistant for Advanced Algebra I (Oliver Bräunling) One semester Master level course on local fields and class field theory. Formulated problems sheet, taught weekly example classes, graded homework and exams.
<i>2016–2017</i>	Teaching Assistant for Algebraic Geometry I and II (Peter Scholze) Two semester Master level course on scheme theory. Taught weekly example classes, graded homework and exams.
<i>2015–2016</i>	Teaching Assistant for Linear Algebra I and II (Jens Franke) Two semester proof-based course for first year students. Taught weekly example classes, graded homework and exams.

HONORS AND AWARDS

<i>2017–2018</i>	Scholar of the Cambridge European Trust
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¹ <http://www.math.uni-bonn.de/people/huybrech/Koelschbach.pdf>

- 2017-2018 Study Abroad Scholarship, German National Academic Merit Foundation
- 2015 Offered membership in the Honor's Program of the University of Bonn
- 2015-2019 Scholar of the German National Academic Merit Foundation (*Studienstiftung des Deutschen Volkes*)
- 2014 Awarded the High School Graduate Awards (*Abiturpreis*) of the German Mathematical and Physical Societies (*DMV, DPG*)

CONFERENCES AND SUMMER SCHOOLS ATTENDED

- 2021 **Dynamic Games in Climate Economics**, MiniCourse at the University of Oslo
- 2020 **Workshop on topics in Category Theory**, International Centre for Mathematical Sciences, Edinburgh
- 2020 **Introductory workshop to the special trimester on K-Theory, algebraic cycles and motivic homotopy theory**, Isaac Newton Institute, Cambridge
- 2019 **Hausdorff School on the Emerton–Gee stack**, Bonn
- 2019 **Arizona Winter School**, University of Arizona, Tucson
- 2018 **School in Arithmetic Geometry**, Essen
- 2018 **Rapoport's 70th birthday conference**, Bonn
- since 2017 **"Kleine AG Arithmetische Algebraische Geometrie"**, Regular participant for German workshop on advanced Master, PhD and PostDoc level, Bonn and Heidelberg

SELECTED TALKS

- 2021 **Perverse Sheaves and Morse Theory**, IMPRS student seminar, Bonn
- 2020 **Iwahori—Whittaker Geometric Satake**, ARGOS, Bonn
- 2020 **The Neukirch–Uchida theorem**, Anabelian Geometry Seminar, MPIM Bonn
- 2020 **Khovanov Homology**, IMPRS student seminar, Bonn
- 2020 **Fully faithfulness of the Prismatic Dieudonné functor**, ARGOS, Bonn
- 2019 **p-adic period mappings**, IMPRS student seminar, Bonn
- 2019 **Prismatic and Breuil–Kisin cohomology**, School on the Emerton–Gee stack, Bonn
- 2019 **The Jacquet–Rallis Fundamental lemma**, ARGOS, Bonn
- 2019 **Twisted Jacobi sums**, Seminar on the polynomial $X^2 + Y^4$, Bonn
- 2018 **Examples for prismatic cohomology**, ARGOS, Bonn
- 2018 **Tilting induces homeomorphisms**, Berkeley lectures study group, Bonn
- 2018 **Schlessinger's Criterion**, Arithmetic Geometry Workshop "Kleine AG", Bonn
- 2018 **Étale π_1 and GAGA**, Part III Seminar Talk, Cambridge
- 2017 **Motivic Galois Groups**, Part III Seminar Talk, Cambridge
- 2017 **Proof of Drinfeld's 'Basic Theorem'**, Study group on p-adic Uniformization of Shimura Curves, Cambridge

- 2017 **Examples of K3 surfaces**, *Reading course on K3 surfaces*, Cambridge
- 2017 **The Weak Lefschetz Theorem**, *Graduate reading seminar on Hodge Theory*, Bonn
- 2017 **\mathbb{E}_k - ∞ -operads and the Segal construction**, *Seminar on Higher Algebra*, Bonn
- 2017 **Nonlinear Phase Unwinding**, *Seminar on Fourier Analysis*, Bonn
- 2016 **Stiefel–Whitney numbers**, *Seminar on Characteristic Classes*, Bonn
- 2016 **Thom Transversality Theorem**, *Seminar on Differential Topology*, Bonn
- 2016 **Computing the Index of Line Bundles**, *Seminar on Abelian Varieties*, Bonn
- 2016 **Burnside’s Theorem**, *Seminar on Representations of Finite Groups*, Bonn
- 2015 **A Proof of the Banach–Tarski Paradox**, *Interdisciplinary workshop on Paradoxes in Computer Science, Mathematics, Physics, and Philosophy*, La Villa, Italy
- 2015 **Presentations of Coxeter Groups**, *Seminar on Coxeter Groups*, Bonn

SERVICE

- 2019 Organizer for *Kleine AG* on the work of Lawrence–Venkatesh
- 2018 Organizing a study group on Scholze’s Berkeley lectures
- 2017 Filled in as bassoon teacher at music school in Germany
- 2016-2017 Treasurer for the regional orchestra of the German National Academic Merit Foundation (*Studienstiftungsorchester NRW*)
- 2016 Actively participated on a workshop on “writing in the media” by Sebastian Gallander, then leader of the *Vodafone ThinkTank*
- 2016 Translated a report on a wildlife research project from English into Spanish reported to the government of Peru
- 2015 Grader for nationwide high school competition in Computer Science (*Bundeswettbewerb Informatik*)
- 2013 Worked in a special elementary school for children with behavioural problems

NON-MATHEMATICAL SKILLS

- Music* Bassoon and piano. Awarded prizes in several German nationwide competitions as solo bassoonist and chamber musician. Played principal bassoon in several youth and university orchestras in Germany and Cambridge. Performed as internationally as soloist. Concert tours to China, Germany, Spain, Italy, and Luxembourg. Played keyboards in a rock band during high school.
- Languages* German (native), Spanish (native), English, French (fluent)
- Computer Skills* LaTeX, C, C++, Python, Haskell, Mathematica, Matlab

June 22, 2021