

# Marcus Zibrowius

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## Academic career

- since April 2015 **Heinrich Heine University Düsseldorf**  
Junior Professor for Topology and Geometry
- Oct 2014 **Ludwig Maximilian University of Munich**  
–Mar 2015 Stand-in professor
- Oct 2011 **University of Wuppertal**  
–Sep 2014 Assistant position within the topology group
- Feb 2012 **Max-Planck-Institute for Mathematics, Bonn**  
– Mar 2012 Invited visitor
- Oct 2007 **University of Cambridge, UK (Trinity Hall)**  
– Apr 2011 PhD course in Mathematics  
Research supervisor: Prof. Burt Totaro  
Thesis title: *Witt groups of complex varieties*
23. July 2011 Doctor of Philosophy (PhD)
- Oct 2006 **University of Cambridge, UK (Trinity Hall)**  
– Jun 2007 Part III of the Mathematical Tripos
- 21 June 2007 Certificate of Advanced Studies in Mathematics,  
with distinction
23. July 2011 Master of Advanced Study (MASt)
- Oct 2004 **Ruhr-Universität Bochum, Germany**  
– Jul 2006 Degree course in Mathematics and Physics

## Preprints

- 2018 **Chow-Witt rings of split quadrics**  
with Jens Hornbostel and Heng Xie ([arXiv: 1811.12685](https://arxiv.org/abs/1811.12685))
- 2018 **Open manifolds with non-homeomorphic positively curved souls**  
with David González-Álvaro ([arXiv: 1802.07836](https://arxiv.org/abs/1802.07836))
- 2017 **The stable converse soul question for positively curved homogeneous spaces**  
with David González-Álvaro ([arXiv: 1707.04711](https://arxiv.org/abs/1707.04711))

## Publications

- 2017 **Nilpotence in Milnor-Witt K-Theory**  
Appendix to: Hornbostel, Jens: *Some comments on motivic nilpotence*.  
[Trans. Amer. Math. Soc.](https://doi.org/10.1090/S0002-9947-2018-08011-0) 370 (2018), 3001–3015.
- 2017 **The  $\gamma$ -filtration on the Witt ring of a scheme**  
[Q. J. Math.](https://doi.org/10.1017/S0022278X1800002) 69 (2018), no. 2, 549–583.

- 2015 **Symmetric representation rings are  $\lambda$ -rings**  
[New York J. Math.](#), 21 (2015), 1055–1092. (MR3425635)
- 2015 **KO-Rings of Full Flag Varieties**  
[Trans. Amer. Math. Soc.](#) 367 (2015), 2997–3016. (MR3301890)
- 2014 **Witt groups of curves and surfaces**  
[Math. Zeits.](#) 278 (2014), Nr. 1-2, 191–227. (MR3267576)
- 2014 **Twisted Witt groups of flag varieties**  
[J. K-Theory](#) 14 (2014), Nr. 1, 139–184. (MR3238260)
- 2011 **Witt groups of complex cellular varieties**  
[Documenta Math.](#) 16 (2011), 465–511. (MR2823367)

## Grants

- June 2018 **Research Training Center GRK 2240: Algebro-geometric Methods in Algebra, Arithmetic and Topology** (ca. 2.3 M € shared between PIs)  
 – Nov 2022 I am one of eight principal investigators in Düsseldorf and Wuppertal.
- Mar 2019 **Project Grant** (ca. 87 000 €)  
 –Feb 2022 awarded by the [German Research Foundation \(DFG\)](#)  
 part of a bigger joint grant on *Computations of Chow-Witt groups for split quadrics and other smooth varieties* together with Prof. Jens Hornbostel (Bergische Universität Wuppertal)
- Apr 2016 **Project Grant** (ca. 98 000 €)  
 – Sep 2017 awarded by the [Strategic Research Fund](#) of the Heinrich Heine University  
 Project title: *Computing Witt groups via generalized Bernstein-Gelfand-Gelfand correspondences* Grant number: F 2015/946-8
- Jan 2011 **Research Studentship**  
 – Mar 2011 awarded by the Cambridge Philosophical Society

## Teaching experience

- since Sept 2018 **PhD supervisor** of Arthur Martirosian  
 Topic: *The duality on the Steinberg basis*
- since June 2018 **PhD co-supervisor** of Herman Rohrbach  
 Topic: *Hermitian K-groups of classifying spaces*
- Aug 2015 – June 2018 **PhD supervisor** of Tobias Hemmert  
 Topic: *KO-theory of complex flag varieties*
- 2016 **Master thesis supervisor** of Frank Stuhlpfarrer  
 Topic: *The product theorem for united representation rings*
- since 2017 **Bachelor thesis supervisor**  
 Topics: *The writhe of alternating links · Seifert circles and the braid index · Sums-of-squares-formulas · The Jordan Curve Theorem · ...*
- since 2014 **Lecture courses**  
 Linear Algebra I · Homological Algebra · Introduction to Topology · Algebraic Topology (I, II, III) · Algebraic Geometry I

- Oct 2011 **Example classes**
- Sep 2014 Linear Algebra (I, II) · Algebra · Analysis I · Calculus on Manifolds · Topology (Introduction, I)
- Jan 2008 **Supervisions** for the Cambridge Mathematical Tripos
- Dec 2009 Algebraic Geometry · Differential Geometry · Algebraic Topology

## Academic service

- since 2018 **Board member of the Interdisciplinary Graduate and Research Academy Düsseldorf (iGRAD)**  
**Referee for Annals of K-theory (MSP)**
- since 2016 **Referee for Mathematische Zeitschrift (Springer)**
- since 2015 **Member of Governing Body** of the Mathematical Institute Heinrich Heine University Düsseldorf  
**Outreach Officer:** talks for high school students and teachers · supervision of interns · support for gifted high school students taking university courses
- since 2015 **Reviewer for Zentralblatt MATH**
- since 2012 **Referee for The Quarterly Journal of Mathematics (Oxford University Press)**

## Programming: open-source projects

- Esch code base for generating and classifying Eschenburg spaces (C++)  
<https://github.com/TentativeConvert/Calculations-with-Eschenburg-spaces>
- Syndicator dropbox-like GUI for the file synchronization software *Unison* (Python)  
<https://github.com/TentativeConvert/Syndicator>
- LaTeX Note add-on for the memory training program *ANKI* (Python)  
Importer <https://github.com/TentativeConvert/LaTeX-Note-Importer-for-Anki>

## Languages

German (native), English (fluent), French (ALTE: B2 Level 3), Serbian (beginner)