Felix Voigtlaender

Ph.D. in Mathematics

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▬▬▬ Personal information

Age 27

Nationality German

▬▬▬ Education

2007 **High school Diploma**
Average grade: 1.5 (on a scale of 1 (best) to 5 (worst))
Intensive courses: Mathematics and Physics

2007 **One month internship in the area of high performance computing at the "Forschungszentrum Jülich" (Research centre Jülich)**

2007–2010 **Bachelor student in Mathematics**, RWTH Aachen University
Overall grade: Excellent (1.0)
Thesis: "Integraldarstellung metaplektischer Operatoren" ("Integral representation of metaplectic operators")

2007–2012 **Bachelor student in Computer Science**, RWTH Aachen University
Overall grade: Excellent (1.1)
Bachelor thesis: "Advanced Trace-Based Analysis of Hybrid Programs"

2010–2013 **Master student in Mathematics**, RWTH Aachen University
Overall grade: Excellent (1.0)
Thesis: "Spektralkalkül auf Gruppen von polynomialem Wachstum" ("Spectral calculus on groups of pol. growth")
Contents:
– Generalization of the spectral calc. of the discrete laplacian from $\ell^2(G)$ to $\ell^p(G)$ on groups of polynomial growth
– An elementary proof of Gromov's theorem about the structure of groups of polynomial growth

2013–2015 **Ph.D. student**, RWTH Aachen University
Ph.D. thesis: "Embedding Theorems for Decomposition Spaces with Applications to Wavelet Coorbit Spaces"
Supervisor: Prof. Dr. Hartmut Führ
Contents:
– Interpretation of wavelet-type coorbit spaces as decomp. spaces (generalization of Modulation/Besov spaces)
– Development of a general theory of embeddings for decomposition spaces

Thesis handed in 5. May 2015; thesis defense: 3. November 2015
Grade: Summa cum laude

▬▬▬ Prizes, Awards and Scholarships

2009 **Selected for participation in the RWTH International Research Opportunity Program (IROP)**
Two month stay (June – August) at the Massachusetts Institute of Technology (MIT), Boston.
Participation in the working group "New Media Medicine" at the MIT Media Lab

2009–2013 **Mentioning on the "Dean's List" containing the top 5% of best students**

2011–2013 **Stipend of the education fund of the RWTH Aachen University ("Deutschlandstipendium")**
Funding provided by
– 2011–2012: Ericsson GmbH – Eurolab
– 2012–2013: Dr. Franz Wirtz/proRWTH

2011 **Schöneborn Award 2011**
For outstanding performance in the bachelors program in mathematics

2012 **Schöneborn Award 2012**
For outstanding performance in the bachelors program in computer science

2014 **Springorum Medal 2014**
For completing the masters degree with distinction

2014 **Friedrich Willhelm Award 2014**
For the best master thesis in mathematics at the RWTH in the academic year 2013/2014

Experience in Teaching

2008–2013

Student teaching assistant, RWTH Aachen University, Lehrstuhl A für Mathematik

Student teaching assistant for the courses
- 2008/2009: Analysis for computer scientists
- 2009/2010: Analysis I
- 2010: Analysis II
- 2010/2011: Analysis III
- 2011: Ordinary differential equations
- 2011/2012: Topology
- 2012/2013: Functional analysis

2013–2016

Teaching assistant, RWTH Aachen University, Lehrstuhl A für Mathematik
- 2013/2014: Analysis I
- 2014/2015: Analysis III
- 2015: Harmonic Analysis II
- 2015:/2016: Analysis I

Experience in Research

2013–2016

Research assistant, RWTH Aachen University, Lehrstuhl A für Mathematik
Supervisor: Prof. Dr. Hartmut Führ

Since April 2016

Research assistant, TU Berlin, Applied Harmonic Analysis Group
Supervisor: Prof. Dr. Gitta Kutyniok

2013

Participation in Summer School, *Genoa, September 2013*
"Three mini courses on applied harmonic analysis"

2014

Research visit to Professor Feichtinger, *Marseille, CIRM, October 2014*
Main topic: "Embeddings for decomposition spaces"

2014

Participation in Doctoral School, *Marseille, CIRM, October 2014*
"Computational Harmonic Analysis – with Applications to Signal and Image Processing"

2015

Participation in Oberwolfach Workshop, *Oberwolfach, August 2015*
"Applied Harmonic Analysis and Sparse Approximation"

Publications

1 David Böhme, Markus Geimer, Lukas Arnold, Felix Voigtlaender, and Felix Wolf. Identifying the root causes of wait states in large-scale parallel applications. *ACM Trans. Parallel Comput.*, 3(2):11:1–11:24, July 2016.

2 H.G. Feichtinger and F. Voigtlaender. From Frazier-Jawerth characterizations of Besov spaces to Wavelets and Decomposition spaces. *Submitted for publication*, 2016. Preprint: `http://arxiv.org/abs/1606.04924`.

3 J. Fell, H. Führ, and F. Voigtlaender. Resolution of the Wavefront Set using General Continuous Wavelet Transforms. *J. Fourier Anal. Appl.*, 2015.

4 H. Führ and F. Voigtlaender. Wavelet coorbit spaces viewed as decomposition spaces. *J. Funct. Anal.*, 269(1):80–154, 2015.

5 J. Gimenez, J. Labarta, F.X. Pegenaute, H. Wen, D.J. Klepacki, I. Chung, G. Cong, F. Voigtlaender, and B. Mohr. Guided performance analysis combining profile and trace tools. In *Euro-Par 2010 Parallel Processing Workshops, Ischia, Italy, August 31-September 3, 2010, Revised Selected Papers*, 2010.

6 F. Voigtlaender. Embeddings of decomposition spaces. *Submitted for publication*, 2016. Preprint: `http://arxiv.org/abs/1605.09705`.

7 F. Voigtlaender. Embeddings of Decomposition Spaces into Sobolev and BV Spaces. *Submitted for publication*, 2016. Preprint: `http://arxiv.org/abs/1601.02201`.

Professional Experience

Referee For J. Funct. Anal., J. Four. Anal. Appl. and Int. J. Wavelets Multi

Talks and Posters

2014

Conference: Strobl 2014, *Strobl*, June 2014
Talk title: "Coorbit spaces as decomposition spaces"

2014

Conference: Function Spaces and Harmonic Analysis, *Marseille, CIRM*, October 2014
Talk title: "Embeddings between decomposition spaces"

2014

Seminar talk at the Lehrstuhl für Analysis, University of Jena, *Jena*, November 2014
Talk title: "Embeddings between decomposition spaces"

2015

Conference: SampTA 2015, *American University, Washington D.C.*, May 2015
Talk title: "Resolution of the Wave Front Set using general Wavelet Transforms"

2016

Winter School, *Hausdorff Research Institute for Mathematics, Bonn*, Januar 2016
Title of the poster: "Embeddings of Decomposition Spaces into Sobolev Spaces and BV Spaces"

2016

Conference: Strobl 2016 (Time-Frequency Analysis and Related Topics), *Strobl*, June 2016
Talk title: "Embeddings of decomposition spaces"

2016

Conference: FSDONA (Fct. spaces, diff. op. and nonlin. analysis), *Charles University, Prague*, July 2016
Talk title: "Embeddings of decomposition spaces"