Curriculum Vitae

Full Name	Maria Margarethe Dostert		
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Education & Employment

Since 09/2017	Postdoc in Mathematics EPFL, Lausanne, Switzerland Number theory group of Maryna Viazovska
02/2018 – 05/2018	Postdoctoral Fellowship ICERM, Brown University
08/2013 – 06/2017	PhD in Mathematics University of Cologne, Germany Advisor: Frank Vallentin
03/2010 – 02/2013	Master of Science in Computer Science University of Applied Sciences, Trier, Germany Advisor: Peter Rosmanith (RWTH Aachen, Germany) Heinz Schmitz (University of Applied Sciences Trier)
03/2007 – 02/2010	Bachelor of Science in Computer Science University of Applied Sciences, Trier, Germany Advisor: Heinz Schmitz (University of Applied Sciences, Trier)

Publications

Preprints

- *Exact semidefinite programming bounds for packing problems*
  Maria Dostert, David de Laat, Philippe Moustrou, 24 pages
  https://arxiv.org/abs/2001.00256

- *Kissing number in spherical space*
  Maria Dostert, Alexander Kolpakov, 9 pages
  https://arxiv.org/abs/1910.02715

- *Kissing number in hyperbolic space*
  Maria Dostert, Alexander Kolpakov, 13 pages.
  https://arxiv.org/abs/1907.00255

- New dense superball packings in three dimensions
  Maria Dostert, Frank Vallentin, 11 pages, to appear in Advances in Geometry.
  https://arxiv.org/abs/1806.10878

Journal publication

- *New upper bounds for the density of translative packings of three-dimensional convex bodies with tetrahedral symmetry*
  Maria Dostert, Cristóbal Guzmán, Fernando Mário de Oliveira, Frank Vallentin
  2017, 30 pages, accepted for publication in Discrete & Computational Geometry,
  http://arxiv.org/abs/1510.02331

- *A Complexity Analysis and an Algorithmic Approach to Student Sectioning in Existing Timetables*
  Maria Dostert, Andreas Politz, Heinz Schmitz, April 2015, 9 pages, Journal of Scheduling, Springer, http://link.springer.com/article/10.1007%2Fs10951-015-0424-2

Surveys

- *Das Problem der Kugelpackung* (in German)
  Maria Dostert, Stefan Krupp, Jan Rolfes, Snapshot of modern mathematics from Oberwolfach, April 2016, 12 pages,
  https://imaginary.org/snapshot/das-problem-der-kugelpackung

Extended Abstracts

- *New upper bounds for the density of translative packings of superballs*
  Maria Dostert, page 58-60, February 2016, Oberwolfach Report 3/2016

- *Die parametrisierte Komplexität des Student Sectioning Problems* (in German)
  Maria Dostert, March 2013, page 15-18, GI-Edition Lecture Notes in Informatics
  http://subs.emis.de/LNI/Seminar/Seminar12/S-12.pdf

Theses

- *Geometric packings of non-spherical objects*
  PhD-thesis for mathematics, 2017

- *Analysis of the parameterized complexity of the student sectioning problem*
  Master thesis for computer science, 2013

- *Entwurf und Implementierung einer grafischen Benutzeroberfläche zur Steuerung von Planungsalgorithmen* (in German)
  Bachelor thesis for computer science, 2010

Talks & Poster

- *Exact semidefinite programming bounds for packing problems*
  Université de Bordeaux, November 2019 (invited seminar talk)

- *Exact semidefinite programming bounds for packing problems*
  University of Cologne, June 2019 (invited seminar talk)

- *Kissing number of the hemisphere in dimension 8*
  A^3 — Arctic Applied Algebra, April, 2019, Tromsø (conference talk)

- *Kissing number of the hemisphere in dimension 8*
  SIAM Conference Applied Algebraic Geometry, Bern, July, 2019 (invited conference talk)

- *Packings of Superballs*
  Université de Neuchâtel, November, 2018 (invited colloquium talk)

- *Introduction to Semidefinite Optimization*, Université de Neuchâtel, November, 2018 (invited to give a minicourse of two lectures)

- *Introduction to Semidefinite Optimization*, Workshop *Discrete geometry and automorphic forms*, AIM, San Jose CA, September 18th, 2018 (invited conference talk)

- *Packings of Superballs*
  Workshop *Computational Challenges in the Theory of Lattices*, ICERM, Brown, Providence RI, April, 2018 (invited conference talk)

- *New bounds for the density of geometric packings*
  ABC Seminar, Cologne, June 2017 (talk)

- *New upper bounds for the density of translative packings of three-dimensional convex bodies with tetrahedral symmetry*
  Summer School on Real Algebraic Geometry and Optimization, Georgia Tech (conference talk)

- *New upper bounds for the density of translative packings of three-dimensional convex bodies with tetrahedral symmetry*
  SIGOPT 2016: International Conference on Optimization, Trier, April 2016 (conference talk)

- *New upper bounds for the density of translative packings of superspheres*
  Oberwolfach workshop: Lattices and Applications in Number Theory, January 2016 (invited conference talk)

- *New upper bounds for the density of translative packings of superspheres*
  Seminar Combinatorics and Optimization, Centrum Wiskunde & Informatica, Amsterdam, November 2015 (invited seminar talk)

- *New upper bounds for the density of translative packings of superspheres*
  FRICO 2015 – 19th Workshop on Future Research in Combinatorial Optimization, Cologne, August 2015 (conference talk)

- *SOS polynomials invariant under finite reflection groups*
  Third ERC Workshop FU Berlin, March 2015 (Poster)

- *SOS polynomials invariant under finite reflection groups*
  Research Seminar, University of Cologne, January 2015 (seminar talk)

Conferences & Workshops

2019

- Summer School: Sphere Packings and Optimal Configurations, Kopp
- SIAM Conference Applied Algebraic Geometry, Bern
- Arctic Applied Algebra, Tromsø

2018

- Fields Medals Day, University of Bern
- Workshop *Discrete geometry and automorphic forms*, American Institute of Mathematics
- ICERM semester program *Point configurations in geometry, physics, and computer science*, Brown, Providence RI
- Seminar Real Geometry and Algebra, University of Konstanz

2017

- *CTW conference*, Cologne

2016

- Workshop *Combinatorial Optimization meets Parameterized Complexity*, Bonn
- Oberwolfach workshop: Lattices and Applications in Number Theory
- SIGOPT 2016: International Conference on Optimization, University of Trier
- Summer School on Real Algebraic Geometry and Optimization, Georgia Tech, Atlanta

2015

- Third ERC Workshop: Discrete Models in Geometry and Topology, FU Berlin
- Summer School: Convex geometry - discrete and computational, Berlin
- FRICO 2015 – 19th Workshop on Future Research in Combinatorial Optimization, Cologne
- Workshop: Efficient algorithms in game theory, optimization and data science, Aachen
- Conference: Panorama of Mathematics, Hausdorff Center Bonn

2014

- Workshop: Applications of Real algebraic geometry, Helsinki
- Symposium: Diskrete Mathematik, Frankfurt am Main
- Oberwolfach seminar: Recent Methods in Sphere Packing and Optimization

2013

- Second ERC Workshop: Delaunay Geometry, Triangulations and Spheres, FU Berlin

Referee for academic journals

- Advances in Mathematics
- Experimental Mathematics

Grants

- DAAD Mobility grant, 2016, 1155 €

Teaching assistant

Winter 2017/2018, Winter 2018/2019

- *Riemann surfaces*, Lecture, Master students and PhD students
  EPFL, Lausanne, Switzerland

Winter 2019/2020

- *Discrete mathematics*, Lecture, Bachelor students
  EPFL, Lausanne, Switzerland

Winter 2019/2020

- *Semidefinite optimization and applications to geometric and combinatorial problems*, Organizer of PhD course
  EPFL, Lausanne, Switzerland

Winter 2016/2017
- *Theoretical computer science*, Lecture, Master students
  University of Cologne, Germany

Summer 2016
- *Operations research*, Lecture, Bachelor students
  University of Cologne, Germany

Winter 2015/2016
- *Convex optimization*, Lecture, Master students
  University of Cologne, Germany

June 29 – July 10 2015
- *Convex geometry: discrete and computational*, Lecture, PhD Students
  BMS Summer school, Berlin, Germany

Winter 2014/2015
- *Polynomial optimization*, Seminar, Bachelor and Master students
  University of Cologne, Germany

Winter 2013/2014
- *Nonlinear optimization*, Lecture, Master students
  University of Cologne, Germany

Winter 2012/2013
- *Theoretical computer science*, Lecture, Bachelor students
  University of Applied Sciences, Trier, Germany

Summer 2012
- *Linear algebra*, Lecture, Bachelor students
  University of Applied Sciences, Trier, Germany

Winter 2011/2012
- *Theoretical computer science*, Lecture, Bachelor students
  University of Applied Science, Trier, Germany

Summer 2011
- *Linear algebra*, Lecture, Bachelor students
  University of Applied Sciences, Trier, Germany

Winter 2010/2011
- *Theoretical computer science*, Lecture, Bachelor students
  University of Applied Sciences, Trier, Germany

Students

Informal Thesis Co-Advisor
- Alexander Pütz, *On upper bounds for the density of translative packings of convex bodies invariant under finite reflection groups*, Master thesis.
  University of Cologne, principal advisor: Frank Vallentin