

# Brief CV

Daniel J. Fresen\*

December 31, 2018

## General

- PhD (Mathematics) 2012, University of Missouri. Dissertation: Geometric and nonlinear limit theorems in probability theory.
- Research: Probability, high dimensional geometry.

## Papers

1. The floating body and the hyperplane conjecture. Arch. Math. (Basel) 98 (4), 389-397 (2012)
2. A multivariate Gnedenko law of large numbers. Ann. Probab. 41 (5), 3051-3080 (2013)
3. (with R. A. Vitale) Concentration of random polytopes around the expected convex hull. Electron. Commun. Probab. 19 (59), 1-8 (2014)
4. Explicit Euclidean Embeddings in permutation invariant normed spaces. Adv. Math. 266, 1-16 (2014)
5. Euclidean arrangements in Banach spaces. Studia Math. 227 (1), 55-76 (2015)
6. Gaussian behavior on hyperplanes. arXiv:1108.5011.
7. Variations and extensions of the Gaussian concentration inequality. arxiv: 1812.10938.

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## Employment

- University of Pretoria, Lecturer, January 2017-present.
- Weizmann Institute of Science, Postdoctoral Fellow, research, September 2015 to December 2016.
- Yale University, Gibbs Assistant Professor, research and teaching, July 2012 to June 2015.
- The University of Missouri, Teaching Assistant, teaching, August 2006-May 2012.
- The University of Pretoria, Assistant Lecturer, teaching, January 2006-May 2006.

## Teaching

University of Pretoria:

- 2017: WTW 258 (Calculus), WTW 124 (Mathematics).
- 2018: WTW 258 (Calculus), WTW 124 (Mathematics).

Yale University:

- 2012: Math 736 (Asymptotic Convex Geometry).
- 2013: Math 300 (Topics in Analysis), Math 250 (Linear Algebra and Matrix Theory).
- 2014: Math 300 (Topics in Analysis), Math 120 (Multivariable Calculus), Math 735 (Probabilistic Aspects of Convex Geometry).
- 2015: Math 325b/525b (Functional Analysis), Math 115 (Calculus II) using the 'flipped classroom' method.

University of Missouri:

- As instructor: College Algebra, Finite Mathematics, Calculus for the Social and Life Sciences, Calculus II, Calculus III (multivariate).
- As teaching assistant: Analytic Geometry and Calculus I, Calculus II, Advanced Calculus I, Advanced Calculus II (multivariate).

University of Pretoria:

- As assistant lecturer (instructor): WTW 134 (Mathematics).

## Talks

1. Results surrounding Dvoretzky's theorem, University of Missouri, Analytic and probabilistic techniques in modern convex geometry, Conference on the occasion of Alexander Koldobsky's 60th birthday, November 2015.

2. Gaussian behavior on hyperplanes, University of Missouri, lecture, November 2015.
3. Results surrounding Dvoretzky's theorem, Tel-Aviv University, geometric functional analysis seminar, October 2015.
4. The probabilistic method in functional analysis, City University of New York, College of Staten Island, April 2015.
5. Concentration in stochastic geometry, Iowa State University, colloquium, April 2015.
6. Asymptotic structure of large random samples: global shape and local limiting Poisson process, City University of New York, Graduate School, probability seminar, February 2015.
7. Explicit subspaces in Dvoretzky's theorem, University of Alberta, colloquium, February 2015.
8. Explicit subspaces in Dvoretzky's theorem, Michigan State University, colloquium, February 2015.
9. Explicit subspaces in Dvoretzky's theorem, University of Michigan, informal analysis and probability seminar, October 2014.
10. Euclidean grid structures in Banach spaces, University of Michigan, analysis and probability seminar, March 2014.
11. Euclidean structures in high dimensional normed spaces. Yale YPNG seminar, statistics department, series of 3 talks. November 2013.
12. Euclidean grid structures in Banach spaces, AMS special session on convex geometry and its applications. October 2013.
13. A multivariate Gnedenko law of large numbers. Yale YPNG seminar, statistics department, 2 talks, May 2013.
14. A non-asymptotic central limit theorem, AMS special session on harmonic analysis and convexity, October 2012.
15. A non-asymptotic central limit theorem, Yale University, combinatorics and probability seminar, October 2012.
16. Variation of random polytopes in the space of convex bodies, Cornell University, probability seminar, 2012.

### **Conferences**

- Analytic and probabilistic techniques in modern convex geometry, Conference on the occasion of Alexander Koldobsky's 60th birthday, University of Missouri, November 2015.
- IMA Workshop 'Analytic Tools in Probability and Applications', 2015.

- Informal Analysis and Probability Seminar, University of Michigan, 2014.
- AMS Sectional Meeting, Washington University in St Louis, 2013.
- AIM Workshop 'Sections of Convex Bodies', 2013.
- AMS Sectional Meeting, University of Akron, 2012.
- Geometric Analysis on Euclidean and Homogeneous Spaces, Tufts University, 2012.

**Short academic visits**

- 2015: Iowa State University, University of Alberta, Michigan State University.
- 2014: University of Michigan.
- 2012: Yale University, Cornell University.
- 2011: University of Minnesota, University of Michigan, Case Western Reserve University.