

Curriculum Vitae

David Jekel

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Summary

- **Position:** Ph. D. Candidate at University of California, Los Angeles.
- **Advisor:** Dimitri Shlyakhtenko,
- **Research interests:** Non-commutative probability, non-commutative analytic functions, planar algebras and diagram calculi, analysis on graphs and other discrete structures.

Papers

- “An Elementary Approach to Free Entropy Theory for Convex Potentials.” Preprint May 2018. arXiv:1805.08814. Submitted to Analysis and PDE Journal.
- “Operator-Valued Chordal Loewner Chains and Non-Commutative Probability.” Preprint November 2017. arXiv:1711.02611. Submitted to Journal of Functional Analysis.
- “Algebraic Properties of Generalized Graph Laplacians: Critical Groups, Electrical Networks, and Homological Algebra.” With Avi Levy, Will Dana, Austin Stromme, Collin Litterell. SIAM J. Discrete Math. 32-2 (2018), pp. 1040 - 1110.
- “Layering ∂ -Graphs and Networks: ∂ -Graph Transformations, Discrete Harmonic Continuation, and a Generalized Electrical Inverse Problem.” arXiv:1601.00247.
- “Caffarelli’s Lipschitz Free Boundaries are $C^{1,\alpha}$.” Undergraduate senior thesis under Tatiana Toro.

Education

Ph. D. Student at University of California, Los Angeles

- 2015 - present, anticipated graduation in June 2020.
- Advanced to candidacy in November 2017.
- 4.0 GPA to date.

Undergraduate at University of Washington, Seattle

- Fall 2011 to Spring 2015.
- B.S. in Math and B. A. in Classics, with Honors.
- 3.99 GPA.
- Research on resistor networks under James Morrow.
- Thesis on free boundary problems under Tatiana Toro.
- Classics senior essay under Catherine Connors.

Workshops and Conferences Attended

- Spring 2018 Long Program in Quantitative Linear Algebra at IPAM.
- November 2017 Extended Probabilistic Operator Algebras Seminar at University of California, Berkeley.
- September 2017 Model Theory of Operator Algebras workshop at University of California, Irvine.
- September 2017 Dyson-Schwinger Equation workshop at Columbia University.
- June 2017 Workshop in Subfactors and Planar Algebras at MSRI.
- August 2016 and August 2017 Complex Analysis and Probability Workshop at Montana State University.
- 2015 TA for Summer Mathematics REU at University of Washington.
- 2014 and 2016 Summer School in Analysis at the University of Chicago.
- 2014 Train Tracks Seminar at the University of Utah.
- 2013 Summer Mathematics REU at University of Washington.

Work Experience

Teaching Assistant at UCLA

Duties include teaching discussion section, grading, and holding office hours, as well as tutoring in the Student Math Center. Classes include

- Math 33A Linear Algebra (Fall 2015, Winter 2016).
- Math 33B Differential Equations (Winter 2018).
- Math 61A Discrete Structures (Fall 2017).
- Math 131A Analysis (Spring 2016)
- Math 131B Analysis (Fall 2016, Winter 2017)
- Math 275A Probability (graduate-level, Fall 2016).

Teaching Assistant at University of Washington

First-year honors calculus sequence (Math 134, 135, 136) in 2013-2014, and second-year sequence (Math 334, 335, 336) in 2014-2015. Duties include teaching one class per week, grading quizzes, grading homework, and holding two office hours.

Honors

- Graduate Division Dean's Scholarship at UCLA.
- Deans Medal for Natural Sciences at the UW.
- Gullicksen Award for outstanding juniors in the UW math department.
- Jim Greenfield Classics scholarship at the UW.
- UW Freshman Presidential Medalist (2011-2012).
- National Merit Scholar.

References:

- Dmitri Shlyakhtenko, shlyakht@math.ucla.edu
- Sorin Popa, popa@math.ucla.edu
- Mario Bonk, mbonk@math.ucla.edu
- James Allen Morrow, jamorrow@uw.edu.

- Tatiana Toro, toro@math.washington.edu
- Catherine Connors, cconnors@uw.edu
- Claudia Jensen, cjensen@uw.edu

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