

# Alex D. Austin

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## Employment

*Postdoc (Assistant Adjunct Professor)*, University of California, Los Angeles, July 2016 - present.

- Mentor: *Professor Mario Bonk*.

## Education

*PhD Mathematics*, University of Illinois at Chicago, 2016.

- Thesis title: *Logarithmic Potentials and Quasiconformal Flows on the Heisenberg Group*.
- Advisor: *Professor Jeremy T. Tyson (University of Illinois at Urbana-Champaign)*.

*MMath*, University of Warwick, 2010.

- Degree classification: *First Class Honors*.
- Final year project supervisor: *Professor Caroline Series*.

## Publications

### Work in Progress

- *Linear methods for Liouville-type theorems on stratified Lie groups*, with E. Prywes.
- *Geometric vector flow*.

### Submitted

- *Logarithmic potentials and quasiconformal flows on the Heisenberg group*, arXiv:1701.04163, submitted to *Advances in Mathematics*, favorably reviewed, under revision.

### Published

- *A new proof of the  $C^\infty$  regularity of  $C^2$  conformal mappings on the Heisenberg group*, with J. T. Tyson, *Colloq. Math.*, 150(2):217-228, 2017.

## Teaching

### University of California, Los Angeles

- *Conformal Mappings (Topics for Undergraduates)*; Spring 2019.
- *History of Mathematics*; Winter 2019.
- *Analysis (Part I)*; Fall 2018, Spring 2019.
- *Probability Theory (Part I)*; Fall 2018.
- *Graduate Boot Camp (Analysis, Inquiry-based)*; Summer 2018.
- *Complex Analysis for Applications*; Spring 2018.
- *Integration and Infinite Series*; Winter 2018.
- *Calculus of Several Variables*; Fall 2017, Winter 2018.
- *Applied Numerical Methods*; Fall 2017.
- *Probability Theory (Part II)*; Summer 2017.
- *Linear and Nonlinear Systems of Differential Equations*; Winter 2017, Spring 2017.
- *Ordinary Differential Equations*; Fall 2016, Winter 2017.

### University of Illinois at Chicago

- Instructor
  - *Intermediate Algebra (Summer Enrichment Workshop)*; Summer 2012 & 2013.
- Teaching Assistant
  - *Linear Algebra for Business*; Summer 2014.
  - *Calculus II*; Fall 2013.
  - *Calculus I*; Fall 2012 & 2015.
  - *Differential Equations*; Fall 2011, Spring 2014 & 2016, Summer 2016.
  - *Precalculus*; Spring 2011, Summer 2015.
  - *Intermediate Algebra*; Fall 2010, Spring 2012.
- Grader
  - *Linear Algebra*; Spring 2013, Fall 2014.

### University of Warwick

- *Supervisor*; Fall 2009, Spring 2010.
- *Peer Tutor*; Fall 2007.

## Mentoring

- REU mentor;  $\delta$ -monotonicity on the Heisenberg group, one student, UCLA, Summer 2018.
- Reading course advisor; *Sobolev spaces*, one student, UCLA, Spring 2018 - present.
- Reading course advisor; *The Krzyż conjecture*, two students, UCLA, Spring 2018.
- Undergraduate seminar organizer, *Titchmarsh Convolution Theorem*, ~twenty students, UCLA, Fall 2018.
- Undergraduate seminar organizer; *Probability, analysis, and geometry*, six students, UCLA, Winter - Summer 2018.
- Undergraduate seminar organizer; *Classical geometry*, six students, UCLA, Fall 2017.

## Outreach

- Guest speaker & facilitator; *Los Angeles Math Circle*, May 13, 2018.
- Guest facilitator; *Los Angeles Math Circle*, May 6, 2018.
- Guest speaker & panel member; *USC Hybrid High Lecture Series and College Fair*, April 27, 2018.

## Service to the Profession

- Organizer; AMS Special Session, *Topics at the interface of analysis and geometry*, Honolulu, Mar. 2019.
- Student session judge; MathFest, Denver, Aug. 2018.
- Referee; *Proceedings of the American Mathematical Society*.
- Organizer; *Undergraduate Mathematics Symposium*, University of Illinois at Chicago, 2013-2015.

## Professional Development

- Minicourse; *Introduction to Inquiry-Based Learning*, MathFest, Denver, Aug. 2018.
- Workshop; *What's the Story? Research Presentations for an Undergraduate Audience*, MathFest, Denver, Aug. 2018.

## Grants, Fellowships, & Awards

- *STEM Faculty Launch Program*, Worcester Polytechnic Institute, Sep. 24-25, 2015.
- *Research Assistant to Jeremy T. Tyson*; Summer 2013, Spring 2014, Spring 2015.
- *Research Assistant to Stefan Wenger*; Summer 2011.
- *Undergraduate Research Scholarship*; Summer 2009, Summer 2010.

## Invited Talks

- *Analysis and PDE Seminar*, UCLA, Oct. 14, 2016.
- *Special Session on Geometry of Nilpotent Groups*, Maine, Sep. 24, 2016.
- *Special Session on Geometric Aspects of Harmonic Analysis*, Maine, Sep. 24, 2016.
- *Harmonic Analysis, Complex Analysis, Spectral Theory and All That*, Będlewo, Aug. 4, 2016.
- *Special Session on Analysis and Geometry in Nonsmooth Metric Measure Spaces*, Seattle, Jan. 7, 2016
- *Colloquium*, Roosevelt University, Chicago, Oct. 23, 2015.
- *Special Session on Metric Spaces: Geometry, Group Theory, and Dynamics*, Chicago, Oct. 3, 2015.
- *Graduate Student Colloquium*, Syracuse University, Feb. 28, 2014.

## Contributed Talks

- *Reinventing the Graduate Boot Camp*, Inquiry-Based Teaching and Learning MAA Contributed Paper Session, JMM, Baltimore, Jan. 18, 2019.

## Conference Participation

- *JMM*, Baltimore, Jan. 2019.
- *MAA Southern California - Nevada Section Meeting*, Scripps College, Oct. 2018.
- *MathFest*, Denver, Aug. 2018.
- *JMM*, San Diego, Jan. 2018.
- *Sanya School in Complex Analysis and Geometry*, Tsinghua Sanya International Mathematics Forum, Jan. 2016.
- *Texas Geometry and Topology Conference*, Rice University, Nov. 2015.
- *Modern Aspects of Complex Geometry*, University of Cincinnati, May 2015.
- *A quasiconformal life, A celebration of F. W. Gehring*, University of Helsinki, Aug. 2013.
- *Rolf Nevanlinna Colloquium*, University of Helsinki, Aug. 2013.
- *Workshop III: Non-smooth Geometry, Interactions between Analysis and Geometry*, IPAM, UCLA, Apr. 2013.
- *Workshop I: Analysis on Metric Spaces, Interactions between Analysis and Geometry*, IPAM, UCLA, Mar. 2013.
- *Tutorials, Interactions between Analysis and Geometry*, IPAM, UCLA, Mar. 2013.
- *Metric Measure Spaces: Geometric and Analytic Aspects*, SMS, CRM, Jun. 2011.

## Professional Memberships

- *Mathematical Association of America*
- *American Mathematical Society*

## Computer Skills

- *Mathematica*
- *MATLAB*
- *C*
- *Excel*

## Employment History Pre-Academia

Atradius, 3 Harbour Drive, Capital Waterside, Cardiff CF10 4WZ, UK.

- *Portfolio Manager*, 2005 - 2006.
- *Data Analyst*, 2001 - 2005.
- *Business Control Assistant*, 2000 - 2001.

Matsushita Electric (UK) Ltd. (Panasonic), Wynclyffe Road, Pentwyn, Cardiff CF23 7XB, UK.

- *Assistant HR Officer*, 1998 - 2000.
- *Administrative Assistant*, 1997 - 1998.