

Alan Sola

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Employment

Visiting Assistant Professor, University of South Florida (USF), 08/2015—present

Postdoctoral Research Fellow/Visiting Assistant Professor, University of Cambridge, 01/2012–08/2015

Postdoctoral Research Fellow, Institut Mittag-Leffler (Djursholm, Sweden), 09/2011–12/2011.

Visiting Assistant Professor, Oklahoma State University (OSU), 08/2010–06/2011.

Education

2010: Ph.D. in Mathematics, Royal Institute of Technology (KTH), Stockholm, Sweden.

Thesis: *Conformal maps, Bergman spaces, and random growth models*.

Advisor: Håkan Hedenmalm.

2005: M.Sc. in Engineering Physics, Royal Institute of Technology (KTH), Stockholm, Sweden.

Research Interests

Complex and harmonic analysis: conformal mapping, harmonic measures, capacities, Loewner's differential equation, spaces of analytic functions, invariant subspaces, reproducing kernels, zero set problems.

Probability theory: planar random aggregation processes, random Loewner chains, Lévy processes, Brownian webs, Dyson's Brownian motions, fluid limit theorems.

Research Papers

1. (with G. Knese, L. Kosiński, and T. J. Ransford) Anisotropic Dirichlet spaces in the bidisk, 23pp. Submitted; available at arxiv.org/abs/1512.04871
2. (with C. Bénéteau, D. Khavinson, C. Liaw, and D. Seco) Orthogonal polynomials, reproducing kernels, and zeros of optimal approximants, 22pp. *J. London Math. Soc.*, to appear.
3. (with C. Bénéteau, G. Knese, L. Kosiński, C. Liaw, and D. Seco) Cyclic polynomials in two variables, 20pp. *Trans. Amer. Math. Soc.*, to appear.
4. (with C. Bénéteau, A. A. Condori, C. Liaw, and D. Seco) Cyclicity in Dirichlet-type spaces and extremal polynomials II: functions on the bidisk, *Pacific J. Math.* **276** (2015), 35-58.

5. (with C. Bénéteau, A. A. Condori, C. Liaw, and D. Seco) Cyclicity in Dirichlet-type spaces and extremal polynomials,
J. Anal. Math. **126** (2015), 259-286.
6. A note on Dirichlet-type spaces and cyclic vectors in the unit ball of \mathbb{C}^2 ,
Arch. Math. (Basel) **104** (2015), 247-257.
7. (with F. Johansson Viklund and A. Turner) Small-particle limits in a regularized Laplacian random growth model,
Comm. Math. Phys. **334** (2015), 331-366 .
8. (with I.E. Pritsker) Expected discrepancy for zeros of random algebraic polynomials,
Proc. Amer. Math. Soc. **142** (2014), 4251-4263.
9. Elementary examples of Loewner chains generated by densities,
Ann. Univ. Mariae Curie-Skłodowska Sect. A **67** (2013), 83-101.
10. (with F. Johansson Viklund and A. Turner) Scaling limits of anisotropic Hastings-Levitov clusters,
Ann. Inst. H. Poincaré (B) Probab. Stat. **48** (2012), 235-257.
11. (with F. Johansson Viklund) Rescaled Lévy-Loewner hulls and random growth,
Bull. Sci. Math. **133** (2009), 238-256.
12. (with H. Hedenmalm) Spectral notions for conformal maps: a survey,
Comput. Methods Funct. Theory **8** (2008), 447-474.
13. (with H. Hedenmalm and S. Shimorin) Norm expansion along a zero variety,
J. Funct. Anal. **254** (2008), 1601-1625.
14. An estimate of the universal means spectrum of conformal maps,
Comput. Methods Funct. Theory **6** (2006), 423-436.

Research Visits

Columbia University, USA (host: F. Johansson Viklund); October 2010, March 2012, March 2013.

Lancaster University, UK (host: A. Turner); May 2009, May 2012, July 2012.

University of Seville, Spain (host: S. Díaz-Madrigal); September 2012.

University of South Florida, USA (host: C. Bénéteau); April 2013.

University of Tennessee, USA (host: S. Richter); March 2014.

Presentations since 2012

Probability Seminar, January 2012;
University of Cambridge, Cambridge, UK.

AMS Sectional Meeting, March 2012;
University of Kansas, Lawrence, KS, USA.

Analysis Seminar March 2012;
OSU, Stillwater, OK.

Pure Mathematics Seminar, May 2012;
Lancaster University, Lancaster, UK.

Korenblum Memorial Conference, August 2012;
Institut Mittag-Leffler, Stockholm, Sweden.

Mathematics Colloquium, April 2013;
University of South Florida, Tampa, FL.

Analysis Seminar, April 2013;
OSU, Stillwater, OK.

Probability Seminar, October 2013;
University of Cambridge, Cambridge, UK.

Stochastic Analysis Seminar, October 2013;
University of Oxford, Oxford, UK.

30th Southeastern Analysis Meeting (SEAM), March 2014;
Clemson University, Clemson, SC.

Mathematics Colloquium, March 2014;
Baylor University, Waco, TX.

AMS Sectional Meeting, March 2014;
University of Tennessee, Knoxville, TN.

Analysis Seminar, March 2014;
University of Tennessee, Knoxville, TN.

Analysis and PDE Seminar, March 2014;
University of Kentucky, Lexington, KY.

Midlands Probability Seminar, May 2014;
University of Warwick, UK.

Analysis Seminar, October 2014;
University of Warwick, UK.

Functional Analysis Seminar, November 2014;
University of Oxford, UK.

Joint Mathematics Meeting, AMS Special Session, January 2015;
San Antonio, TX.

Functional Analysis Seminar, May 2015;
Newcastle University, UK.

Analysis Seminar, August 2015;
University of South Florida, Tampa, FL.

Analysis Seminar, September 2015;
Florida Atlantic University, Boca Raton, FL.

Analysis Seminar, September 2015;
Georgia Institute of Technology, Atlanta, GA.

Analysis Seminar, January 2016;
University of South Florida, Tampa, FL.

Teaching

USF, instructor:

MAC 2281 Engineering Calculus I, Fall 2015.

Duties: Teaching classes, preparing examination material, grading.

MAC2312 Calculus II, Spring 2016.

Duties: Teaching classes, preparing examination material, grading.

MAP2302 Differential Equations, Spring 2016.

Duties: Teaching classes, preparing examination material, grading.

University of Cambridge, lecturer:

Part III Advanced Probability (Masters level), fall 2012, fall 2013 (jointly with P. Sousi), fall 2014.

Duties: Delivering lectures, writing lecture notes and preparing examination material, conducting oral examinations for PhD students, coordinating supervisors.

Typical class size: 40-50 students.

Part II Probability and Measure (Third year undergraduate), fall 2014.

Duties: Delivering lectures, writing lecture notes.

Typical class size: 50-60 students.

University of Cambridge, supervisor:

Part II Probability and Measure, fall 2013.

Supervisions (tutorials) for one Part III student.

University of Cambridge, Part III essays (master level):

Part III essay topic proposed for four students; essays successfully completed in spring 2015.

University of Cambridge, committee work:

Member of the Computer-aided teaching of all mathematics (CATAM) committee, fall 2014-fall 2015.

OSU, instructor: Math 1613 Trigonometry, Math 2153 Calculus II; 2010–2011.

Duties: Teaching classes, preparing examination material, grading.

Typical class size: 30-40 students.

KTH, lecturer: Linear Algebra (Mechanical Engineering Program, first year), fall 2008, fall 2009.

Duties: Delivering lectures, preparing examination material, coordinating teaching assistants.

Typical class size: 100-120 students.

KTH, Co-organizer of the KTH Mathematical Circle for high school students, 2008-2010.

Duties: Selecting topics, writing lecture notes and problem sets.

Attended by around 50 students.

Professional activities and service

Conference organization:

Co-organizer of international conference *Completeness problems, Carleson measures, and spaces of analytic functions*, Institut Mittag-Leffler, June/July 2015.

Co-organizer of Scandinavian graduate student conference in complex analysis *Komplex Analys utan seniorer (KAUS)*, held at KTH, January 2008.

Editorial: Editor-in-chief of proceedings volume for *Completeness problems, Carleson measures, and spaces of analytic functions*, Institut Mittag-Leffler, June/July 2015.

Reviewer: Zentralblatt MATH.

Referee:

Israel Journal of Mathematics, Michigan Mathematical Journal, Complex Variables and Elliptic Equations, Journal of Classical Analysis.

Participant in *The Beauty in Science* Art Exhibition, Lancaster University, 2013.

Member: American Mathematical Society (AMS).

Additional information

Citizenship: Swedish.

Language skills: Swedish, Polish (native speaker); English, German (fluent); French (intermediate).

Last updated: January 26, 2016