

Alastair N. Fletcher

CONTACT INFORMATION

Department of Mathematical Sciences,
Northern Illinois University,
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EMPLOYMENT

- Associate Professor** August 2015 to present
Department of Mathematical Sciences,
Northern Illinois University
- Assistant Professor** August 2012 to August 2015
Department of Mathematical Sciences,
Northern Illinois University
- EPSRC Postdoctoral Fellow** October 2009 to August 2012
Mathematics Institute,
University of Warwick
- Lecturer in Analysis** January 2009 to October 2009
Department of Mathematics,
University of Glasgow
- Postdoctoral researcher** January 2007 to December 2008
School of Mathematical Sciences,
University of Nottingham
Worked with Professor Jim Langley on an EPSRC project entitled *Entire and Meromorphic Functions*.

EDUCATION

- Ph.D.
- University of Warwick
 - Date completed: December 2006
 - Thesis title: *Local rigidity of infinite dimensional Teichmüller spaces*
 - Thesis Adviser: Professor Vlad Markovic
 - Area of study: Complex analysis and Teichmüller theory
- Mathematical Tripos, including Master of Mathematics (formerly the Certificate of Advanced Study in Mathematics)
- St. Catharine's College, University of Cambridge
 - October 1998 to June 2002
 - Part III grade: Distinction
 - Directors of studies: Professor J.C.Vassilicos and Ms. I.Borzym.
- STEP grades, A-level and GCSE results available on request.

PUBLICATIONS

1. C. Cao, A. Fletcher and Z. Ye, Epicycloids and Blaschke products, to appear in *Jour. Diff. Eq. Appl.*

2. A. Fletcher, On infinitesimal Strebel points, to appear in *Kodai Math. J.*
3. A. Fletcher, D. Macclure, J. Waterman, S. Wesley, The infinitesimal space of uqr mappings, *Journal of Analysis*, Volume 24, Issue 1 (2016), 67-81.
4. A. Fletcher, Fixed curves near fixed points, *Illinois J. Math.*, **59**, no.1 (2016), 189-217.
5. A. Fletcher and D. Nicks, Superattracting fixed points of quasiregular mappings, *Erg. Th. Dyn. Sys.*, **36**, no.3 (2016), 781-793.
6. A. Fletcher and R. Fryer, Dynamics of mappings with constant complex dilatation, *Erg. Th. Dyn Sys.*, **36**, no.2 (2016), 514-549.
7. A. Fletcher, Unicritical Blaschke products and domains of ellipticity, *Qual. Th. Dyn. Sys.*, **14**, no.1 (2015), 25-38.
8. A. Fletcher and D. Macclure, On quasiregular linearizers, *Comp. Meth. Func. Th.*, **15**, no.2 (2015), 263-276.
9. A. Fletcher and J.-M. Wu, Julia sets and wild Cantor sets, *Geom. Ded.*, **174**, no.1 (2015), 263-276.
10. D. Drasin, A. Fletcher and W. Bergweiler, The fast escaping set for quasiregular mappings, *Analysis and Mathematical Physics*, **4** (2014), 83-98.
11. W. Bergweiler, A. Fletcher and D. A. Nicks, The Julia set and the fast escaping set of a quasiregular mapping, *Comp. Meth. Func. Th.*, **14**, no. 2 (2014), 209-218.
12. A. Fletcher, Poincaré linearizers in higher dimensions, *Proc. Amer. Math. Soc.*, **143** (2015), 2543-2557.
13. A. Fletcher, J. Kahn and V. Markovic, The moduli space of Riemann surfaces of large genus, *Geometric and Functional Analysis*, **23**, no.3 (2013), 867-887.
14. A. Fletcher and D. Nicks, Chaotic dynamics of a quasiregular sine mapping, *Journal of Difference Equations and Applications*, **19**, no.8 (2013), 1353-1360.
15. A. Fletcher and R. Fryer, On Böttcher coordinates and quasiregular mappings, *Contemp. Math.*, **575**, volume title: *Quasiconformal Mappings, Riemann Surfaces, and Teichmüller Spaces* (2012), 53-76.
16. A. Fletcher and V. Markovic, Decomposing diffeomorphisms of the sphere, *Bull. London Math. Soc.*, **44**, no.3 (2012), 599-609.
17. A. Fletcher and D. A. Nicks, Iteration of quasiregular tangent functions in three dimensions, *Conformal Geometry and Dynamics*, **16** (2012), 1-21.
18. A. Fletcher and D. A. Nicks, Julia sets of uniformly quasiregular mappings of polynomial type are uniformly perfect, *Math. Proc. Cam. Phil. Soc.*, **151**, no.3 (2011), 541-550.
19. A. Fletcher and D. A. Nicks, Quasiregular dynamics on the n -sphere, *Ergodic Theory and Dynamical Systems*, **31** (2011), 23-31.
20. A. Fletcher and D. Goodman, Quasiregular mappings of polynomial type in \mathbb{R}^2 , *Conformal Geometry and Dynamics*, **14** (2010), 322-336.
21. A. Fletcher, On asymptotic Teichmüller space, *Trans. Amer. Math. Soc.*, **362** (2010), 2507-2523.
22. A. Fletcher, J. K. Langley and J. Meyer, Nonvanishing derivatives and the MacLane class \mathcal{A} , *Illinois J. Math.*, **53** (2009), 379-390.
23. A. Fletcher and J. K. Langley, Integer points of analytic functions in a half-plane, *Proc. Edin. Math. Soc.*, **52**, no.3, (2009), 619-630.
24. A. Fletcher and J. K. Langley, Meromorphic compositions and target functions, *Ann. Acad. Sci. Fenn.*, **34** (2009), 615-636.

25. A. Fletcher, J. K. Langley and J. Meyer, Slowly growing meromorphic functions and the zeros of differences, *Math. Proc. R. Ir. Acad.*, **109A(2)** (2009), 147-154.
26. A. Fletcher and V. Markovic, Infinite dimensional Teichmüller spaces. A survey article in the *Handbook of Teichmüller theory, Volume 2* by the European Mathematical Society, 2009.
27. W. Bergweiler, A. Fletcher, J. K. Langley and J. Meyer, The escaping set of a quasiregular mapping, *Proc. Amer. Math. Soc.*, **137** (2009), 641-651.
28. A. Fletcher, On Bank-Laine functions, *Computational Methods and Function Theory*, **9**, no.1, (2009), 227-238.
29. A. Fletcher, Gaussian integer points of functions analytic in a half-plane, *Math. Proc. Cam. Phil. Soc.*, **145**, no.2 (2008), 257-272.
30. A. Fletcher, Local rigidity of infinite dimensional Teichmüller spaces, *J. London Math. Soc.*, (2) **74** (2006), 26-40.
31. A. Fletcher and V. Markovic, On the zeros of functions in the Bers space, *Publications de l'Institut Mathématique, Nouvelle série*, **75**, (2004), 185-197.

PREPRINTS

- A. Fletcher, D. Macclure, Strongly automorphic mappings and their uniformly quasiregular Julia sets, submitted.
- A. Fletcher, B. Wallis, The orbits of generalized derivatives, submitted.

BOOK

- A. Fletcher and V. Markovic, *Quasiconformal Maps and Teichmüller Theory*, Oxford Graduate Texts in Mathematics 11, Oxford University Press, 2007.

AWARDS

- Simons Foundation, Collaboration Grants for Mathematicians, \$35,000 over 5 years.
- Research and Artistry grant, Northern Illinois University, \$5,090.
- EPSRC Postdoctoral Research Fellowship to the amount of 220,376GBP over 3 years for a project entitled *Aspects of Complex Analysis*.
- Award for the One Day Function Theory Meeting 2012 by the London Mathematical Society to the amount of 1,446GBP.

SERVICE

- Acted as reviewer for many international mathematical journals, including *Inventiones*, *Nonlinearity*, *Illinois Journal of Mathematics*, *Journal of the London Mathematical Society*, *Bulletin of the London Mathematical Society*, *Computational Methods and Function Theory*, *Glasgow Journal of Mathematics*, *Journal of Mathematical Analysis and Applications*, *Monatshefte fuer Mathematik*, *Ann. Acad. Sci. Fenn.*, *Israel Journal of Mathematics*, *Central European Journal of Mathematics*
- Reviewer for *Math Reviews* and for the *Zentralblatt* online database.
- Organizer for the One Day Function Theory Meeting 2012. Included arranging speakers and applying for grants.
- Co-organizer of the Special Session on Analysis, Dynamics and Geometry In and Around Teichmüller Spaces at the Spring Central Sectional Meeting of the AMS, Ames, Iowa, April 2013.
- Committees at NIU: Advisory committee, Graduate studies committee, Personnel committee, Math Club faculty advisor, Colloquium, Putnam competition, Pi Mu Epsilon faculty advisor.
- Organizer of NIU complex analysis seminar.

Assistant Professor/Associate Professor, Northern Illinois University August 2012 to present

- Lectured 230 Calculus II, 360 Mathematical Modelling, 430/530 Advanced Calculus I, 431/531 Advanced Calculus II, 440/540 Complex Analysis and 632 Complex Analysis courses.
- Given Math 730 graduate level courses in complex dynamics, quasiconformal mappings and hyperbolic geometry.
- One current Ph.D. student, with an additional one likely to follow.
- Reading courses given in hyperbolic geometry, Riemann surfaces and complex dynamics.
- Summer research project with undergraduate on quasiregular dynamics.

EPSRC Research Fellow, University of Warwick

October 2009 to August 2012

- Acting as advisor for Ph.D. student; worked on a quasiregular dynamics project together.
- Temporary tutor for several students while permanent tutor on leave; involved weekly tutorials and some pastoral work.
- Lectured 4th year graduate level course *Riemann surfaces*, involved setting and marking exams.
- Supervisor for 4th year extended project.

Lecturer in Analysis, University of Glasgow

January 2009 to September 2009

- Lectured 1st year course 1T in Analysis, including marking.
- Lectured 2nd year course E2N on numerical methods for engineers, including taking examples classes, setting and marking the exam.
- Supervised 3rd year essay group.
- Chaired Ambassador scheme talks.

Postdoc, University of Nottingham

January 2007 to December 2008

- Teaching assistant for Mathematical analysis 2nd year course.
- Teaching assistant for Complex analysis 2nd year course.

Graduate student, University of Warwick

September 2002 to December 2006

- Supervisor for several groups of 2nd year students between 2002 and 2005. Courses covered include Algebra I, Analysis III, Vector Analysis, Applied Analysis, Differentiation and Metric Spaces.
- Teaching assistant for the 1st year course Analysis II (2003) and the 2nd year courses Applied analysis (2004) and Differentiation (2004).

1. AMS Sectional Meeting, Hunter College, New York, May 2017.
2. Complex dynamics seminar, University of Michigan, Ann Arbor, USA, April 2016.
3. Complex dynamics seminar, Stony Brook, USA, October 2014.
4. Iberoamerican Congress, Special Session on hyperbolic geometry, NY, USA, May 2014.
5. Complex analysis seminar, CUNY, USA, February 2014.
6. Analysis seminar, University of Illinois at Urbana-Champaign, USA, October 2013.
7. Mini-course on Infinite dimensional Teichmüller spaces, Morelia, Mexico, July/August 2013.
8. The role of complex analysis in complex dynamics, Edinburgh, UK, May 2013.
9. Special Session on Analysis, Dynamics and Geometry In and Around Teichmüller Spaces at the Spring Central Sectional Meeting of the AMS, Ames, Iowa, April 2013
10. Analysis seminar, University of Kiel, Germany, January 2013.

11. Complex analysis seminar, Northern Illinois University, October 2012, September 2013.
12. Ergodic Theory and Dynamical Systems seminar, University of Warwick, UK, May 2012.
13. Analysis seminar, Open University, May 2012
14. Harmonic and complex analysis and its Applications, Puerto de la Cruz, Tenerife, March 2012.
15. Function Theory seminar, Purdue University, November 2011.
16. Pure Mathematics Colloquium, University of Durham, October 2011.
17. Conference in honour of P. Gauthier and K. Gowrisankaran, CRM, Montreal, Canada, June 2011.
18. Complex Analysis and Geometry Meeting, Open University, May 2011.
19. Ahlfors-Bers Colloquium, Rice University, Houston, TX, USA, March 2011.
20. Analysis seminar, University of Birmingham, December 2010.
21. CODY Autumn in Warsaw, Transcendental Dynamics session, Warsaw, Poland, November 2010.
22. Special Session on Quasiconformal Mappings, Riemann Surfaces, and Teichmüller Spaces (in honour of C. J. Earle), Syracuse, NY, USA, October 2010.
23. One Day Function Theory meeting, University College, London, September 2010.
24. Conference on Complex Analysis (in honour of D. Drasin and L. Sons), University of Illinois at Urbana-Champaign, USA, May 2010.
25. International conference on Analysis and Applications, Sultan Qaboos University, Muscat, Oman, January 2010.
26. Ergodic Theory and Dynamical Systems seminar, University of Warwick, November 2009.
27. Analysis seminar, University of Glasgow, September 2009.
28. Summer school in Conformal Geometry and Potential Theory, NUI Maynooth, June 2009.
29. Computational Methods and Function Theory Meeting, Bilkent University, Ankara, Turkey, June 2009.
30. Analysis seminar, University of Glasgow, January 2009.
31. Analysis seminar, University of Edinburgh, October 2008.
32. Aspects of Transcendental Dynamics, Jacobs University, Bremen, Germany, June 2008.
33. The fourth Ahlfors-Bers Colloquium, Rutgers University, NJ, USA, May 2008.
34. Series of three talks on *Asymptotic Teichmüller space*, Complex analysis seminar, University of Nottingham, February/March 2008.
35. Geometry and Topology seminar, University of Warwick, February 2008.
36. Series of five talks entitled *A beginner's guide to quasiconformal mappings*, Complex analysis seminar, University of Nottingham, February/March 2007.
37. Complex Analysis seminar, DPMMS, University of Cambridge, November 2006.
38. One Day Function Theory Meeting, London, September 2005.
39. Geometry and Topology seminar, University of Warwick, November 2004.
40. Spaces of Kleinian Groups workshop, Isaac Newton Institute, Cambridge, August 2003 (presented poster).

CONFERENCES

ATTENDED
(SELECTED)

1. The XXIst Rolf Nevanlinna Colloquium, Kyoto, Japan, September 2009.
2. Complex Function Theory (in honour of B. Twomey), University College, Cork, Ireland, April 2008.
3. Lars Ahlfors Centennial Celebration, University of Helsinki, Finland, August 2007.