

PETRA BONFERT-TAYLOR

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Employment:

- 2015 - present, Professor and Instructional Designer, Thayer School of Engineering.
- 2012 - 2015, Professor of Mathematics, Wesleyan University.
- 2010 - 2015, Visiting Associate Professor (National Science Foundation funded 2010-11), Thayer School of Engineering, Dartmouth College.
- 2006 - 2012, Associate Professor of Mathematics (tenured), Wesleyan University.
- 1999 - 2006, Assistant Professor of Mathematics (tenure track), Wesleyan University.
- 1996 - 1999, Term Assistant Professor of Mathematics (postdoctoral fellow), University of Michigan.

Education:

- Ph.D., Mathematics, April 1996, Technical University of Berlin, summa cum laude.
- Diplom (equivalent to MA), Mathematics with concentration in Computer Science, February 1994, Technical University of Berlin, summa cum laude.
- Vordiplom (equivalent to BA), Mathematics with concentration in Computer Science, October 1990, Technical University of Berlin.

Awards:

- Excellence in Teaching Award, Thayer School of Engineering, 2016.
- Recipient of Binswanger Prize for Excellence in Teaching, Wesleyan University, 2014.

Grants:

- NSF Research Grants, 2000-2003, 2003-2007, 2004-2005, 2007-2010, 2010-2011, 2015-2017.
- Fields Institute for Research in Mathematical Sciences, 2014, 2016.
- Banff International Research Station (BIRS), 2005, 2007.
- Mellon research grant, Wesleyan University, 2010.
- Connecticut State Department of Higher Education (CSDHE) grant, co-author with PIMMS, *Hartford Numeracy Coaches Leadership Academy*, a mathematics professional development project for the Hartford school district, 2003-2004.

- Rackham Fellowship (University of Michigan faculty fellowship), 1998.
- Doctoral Fellowship, “Studienstiftung des deutschen Volkes,” 1994 - 1995 (Federal Republic of Germany National Fellowship).
- Student Fellowship, “Studienstiftung des deutschen Volkes,” 1988 - 1994 (Federal Republic of Germany National Fellowship).

Publications:

1. P. Bonfert-Taylor, V. May, H. Wilkinson, and A. Betsinger, *Work in Progress: Improving First-Year Retention Through Support and Engagement*, Paper presented at 2017 ASEE Annual Conference & Exposition, Columbus, Ohio. (2017), <https://peer.asee.org/29162>
2. P. Bonfert-Taylor, *Lessons From the Sharing Economy: Beyond lectures, Inside Higher Ed*, October 31, 2016.
3. P. Bonfert-Taylor, *Bad at math? Don't tell your kids*, MPR News, May 24, 2016.
4. P. Bonfert-Taylor, *Stop telling kids you're bad at math. You are spreading math anxiety 'like a virus.'* The Washington Post, April 25, 2016.
5. P. Bonfert-Taylor, R. Canary, and E.C. Taylor, *Quasiconformal Homogeneity after Gehring and Palka*, Computational Methods and Function Theory, **14**, (2014), no. 2, 417–430.
6. P. Bonfert-Taylor, *Musings on MOOCs*, Notices of the American Mathematics Society, 2014, 69–71.
7. P. Bonfert-Taylor, F. Leblond, Robert Holt, Kenneth Tichauer, B. Pogue, and E. Taylor, *Information Loss and Reconstruction in Highly Diffuse Fluorescence Tomography*, JOSA A, **29** (2012), no. 3, 321–330.
8. P. Bonfert-Taylor, K. Matsuzaki, and E. Taylor, *Large and Small Covers of a Hyperbolic Manifold*, J. Geom. Anal. **22** (2012), no. 2, 455–470.
9. P. Bonfert-Taylor, R. Canary, J. Souto, and E. Taylor, *Exotic quasi-conformally homogeneous surfaces*, Bull. London Math. Soc. **43** (2011), no. 1, 57–62.
10. P. Bonfert-Taylor, G. Martin, A. Reid and E. Taylor, *Teichmüller Mappings, Quasiconformal Homogeneity, and Non-amenable Covers of Riemann Surfaces*, Pure Appl. Math. Q. **7** (2011), no. 2, 455–468.
11. P. Bonfert-Taylor, R.D. Canary, G. Martin, E. Taylor, and M. Wolf, *Ambient Quasiconformal Homogeneity of Planar Domains*, Ann. Acad. Sci. Fenn. **35** (2010), no. 1, 275–283.
12. P. Bonfert-Taylor, and E. Taylor, *Quasiconformally homogeneous planar domains*, Conform. Geom. Dyn. **12** (2008), 188–198.
13. P. Bonfert-Taylor, K. Falk, and E. Taylor, *Gaps in the exponent spectrum of subgroups of discrete quasiconformal groups*, Kodai Math. J. **31** (2008), no. 1, 68–81.

14. P. Bonfert-Taylor, M. Bridgeman, R.D. Canary and E. Taylor, *Quasiconformal homogeneity of hyperbolic surfaces with fixed-point full automorphisms*, *Math. Proc. Cambridge Philos. Soc.* **143** (2007), no. 1, 71–84.
15. P. Bonfert-Taylor and G. Martin, *Quasiconformal groups with small dilatation II*, *Complex Var. Elliptic Equ.* **51** (2006), no. 2, 165–179.
16. P. Bonfert-Taylor and E. Taylor, *Quasiconformal groups and a theorem of Bishop and Jones*, *J. Geom. Anal.* **15** (2005), no. 3, 373–389.
17. P. Bonfert-Taylor, R. Canary, G. Martin and E. Taylor, *Quasiconformal homogeneity of hyperbolic manifolds*, *Math. Ann.* **331** (2005), no. 2, 281–295.
18. P. Bonfert-Taylor and G. Martin, *Quasiconformal groups of compact type*, *Rev. Mat. Iberoamericana* **21** (2005), no. 3, 997–1012.
19. P. Bonfert-Taylor, M. Bridgeman and E. Taylor, *Distortion of the exponent of convergence in space*, *Ann. Acad. Sci. Fenn.* **29** (2004), no. 2, 383–406.
20. J. Anderson, P. Bonfert-Taylor and E. Taylor, *Convergence groups, Hausdorff dimension, and a Theorem of Sullivan and Tukia*, *Geometriae Dedicata* **103** (2004), 51–67.
21. P. Bonfert-Taylor and E. Taylor, *Quasiconformal groups, Patterson-Sullivan theory, and the local analysis of limit sets*, *Trans. Amer. Math. Soc.* **355** (2003), no. 2, 787–811.
22. P. Bonfert-Taylor and E. Taylor, *The exponent of convergence and a theorem of Astala*, *Indiana Univ. Math. J.* **51** (2002), no. 3, 607–623.
23. P. Bonfert-Taylor and E. Taylor, *Hausdorff dimension and limit sets of quasiconformal groups*, *Mich. Math. J.* **49** (2001), no. 2, 243–257.
24. P. Bonfert-Taylor and G. Martin, *Quasiconformal groups with small dilatation I*, *Proc. Amer. Math. Soc.* **129** (2001), no. 7, 2019–2029.
25. P. Bonfert-Taylor, *Jørgensen’s inequality for discrete convergence groups*, *Ann. Acad. Sci. Fenn.* **25** (2000), no. 1, 131–150.
26. P. Bonfert, *On the Brjuno condition, Part II*, *Progress in Complex Dynamics*, Pitman Research Notes in Mathematics **387**, 1998, 17–26.
27. P. Bonfert, *On Iteration in Planar Domains*, *Mich. Math. J.* **44** (1997), no. 1, 47–68.

Meetings organized:

Upcoming:

1. Co-organizer, *Flipping your Linear Algebra Course using Open Educational Resources*, (with D. Farmer, J. Fowler and S. Eichhorn), Minicourse at JMM San Diego, January 10-13, 2018.

Past:

1. Co-organizer, *CuratedCourses in Linear Algebra*, (with S. Eichhorn, D. Farmer and J. Fowler), The Ohio State University, Columbus, Ohio, June 7-10, 2017.
2. Co-organizer, *Flipping your Linear Algebra Course using Open Educational Resources*, (with D. Farmer, J. Fowler and S. Eichhorn), Minicourse at JMM Atlanta, January 4-7, 2017.
3. Co-organizer, *CuratedCourses Workshop*, (with S. Eichhorn, D. Farmer and J. Fowler), American Institute of Mathematics, August 8-12, 2016.
4. Co-organizer, *Digital Open Mathematics Education*, (with J. Chadam, S. Eichhorn, J. Fowler and S. Furino), Fields Institute for Research in Mathematical Sciences, June 20-22, 2016.
5. Co-organizer, *Open Online Mathematics Instruction*, (with J. Chadam and J. Fowler), Fields Institute for Research in Mathematical Sciences, August 5-6, 2014.
6. Co-organizer, *Mathematics in the time of MOOCs*, (with J. Chadam and J. Fowler), American Institute of Mathematics, February 2-9, 2014.
7. Co-organizer, *AMS 2008 Fall Eastern Section Meeting, special session "Geometric Function Theory and Geometry,"* (with E. Taylor and K. Matsuzaki), Wesleyan University, October 11 - 12, 2008.
8. Co-organizer, *Wesleyan Dynamical Systems Conference*, (with A. Fieldsteel, M. Keane and E. Taylor), Wesleyan University, October 13 - 14, 2007.
9. Co-organizer, *Diversity in the Mathematics and Scientific Community I and II*, (with R. Kuske, N. Nigam, K. Park, S. Pinho and E. Taylor), Banff International Research Station, July 27 - 29, 2007.
10. Co-organizer, *Mini-Conference in Geometric Analysis and Topology* (with E.C. Taylor and R. Canary), Wesleyan University, Spring 2005.
11. Co-organizer, *Conference on Hyperbolic Manifolds and Geometric Analysis*, including graduate student pre-conference lecture series, (with E.C. Taylor and R. Canary), Wesleyan University, October 15 - 17, 2004.

Classes Taught:

- Introductory level mathematics classes: *Calculus I, II* and *Multivariable Calculus, Vectors & Matrices* and *Linear Algebra, Discrete Mathematics*.
- Junior and senior level mathematics major classes: *Complex Analysis, Topology, Real Analysis, Probability* and reading courses.
- Graduate classes: *Iteration of Rational Functions, Advanced Complex Analysis, Topics in Hyperbolic Geometry, The Mathematics of Medical Imaging*.
- *Introduction to Scientific Computing*

- *The Internet of Things*, co-teacher
- Coursera MOOC: “Analysis of a Complex Kind”, 2013, 2016-2017.

Curricular Development:

- Development of blended flipped curriculum for *Introduction to Probability; An Invitation to Complex Analysis; Multivariable Calculus; Introduction to Scientific Computing*. Curricula include interactive online lectures, pre-class online exercises, joint online document annotation, collaborative in-class programming exercises, in-class group work.
- Development and implementation of a “Massively Open Online Course” (MOOC) *Analysis of a Complex Kind* on Coursera, Fall 2013, reworked and expanded 2016.
- Consultant to the SAYLOR Foundation in the development of a course in Complex Analysis, Spring 2013.
- Development of innovative sequence of courses in geometric analysis and geometry, taught jointly at Boston College and Wesleyan University (simulcast, integrated between the two student cohorts), lecture series by outside researchers; joint with M. Bridgeman of Boston College and E. Taylor of Wesleyan University; NSF funded, Spring 2004.

Selected Administrative Work:

National/International:

- Web Editor, Committee on Women in Mathematics of the International Mathematics Union, since 2017.
- Editor, AMS “Electronic Journal of Conformal Geometry and Dynamics”, since 2014.
- Member, Ethics Committee of the American Mathematical Society, 2009-2012.
- Member of Schafer Prize selection committee, 2006-2009 (chair, 2008-2009).
- Referee for NSF proposals; panelist 2008, 2009, 2011, 2012.
- Referee for numerous mathematics journals
- Reviewer for Math Reviews.

Thayer School of Engineering, Dartmouth:

- Undergraduate Curriculum Committee, since 2015.
- Teaching Spaces Advisory Committee, since 2015.
- Thayer Scholars Committee
- Dartmouth Emerging Engineers Committee Chair
- Diversity Assessment and Research Team (DART) “Inclusive Excellence”.
- Working group: Student Performance in STEM.
- Working group: Universal Design at Dartmouth.

Wesleyan University:

- Member, Wesleyan University College of Integrative Sciences Steering Committee, since 2014.
- Elected member, Wesleyan University Honors Committee, 2012-2013.
- Elected member, Wesleyan University Advisory Committee on Tenure and Promotion, 2007-2008.
- Member, Wesleyan International Studies Committee, Fall 2004, 2005-2006, 2008-2009.
- Member, Mathematics Department Curriculum Committee, 2014.
- Member, Mathematics Department Graduate Education Committee, 2004-2005.
- Member, Mathematics Department Undergraduate Advisory Committee, 2000-2004.

Membership in Professional Societies:

- American Mathematical Society.
- Association for Women in Mathematics.
- American Society for Engineering Education.