

Mathematics Department  
Temple University  
Philadelphia, PA 19122

Phone (215) 204-7854  
E-mail [dfuter@math.temple.edu](mailto:dfuter@math.temple.edu)  
<http://www.math.temple.edu/~dfuter>

**Citizenship:** United States.

**Research Interests:** Knot theory, three-dimensional topology, hyperbolic geometry.

### Employment

RTG POSTDOCTORAL INSTRUCTOR, Michigan State University, 2005–2008.

GENERAL MEMBER, Mathematical Sciences Research Institute, August–December 2007.

ASSISTANT PROFESSOR, Temple University, 2008–present.

### Visiting Positions

OSAKA UNIVERSITY, Osaka, Japan. January–February 2006.

CENTER FOR MATHEMATICAL SCIENCES, Hangzhou, China. June–July 2007, July 2008.

UNIVERSITÉ DES SCIENCES ET TECHNOLOGIES DE LILLE, Lille, France, April 2009.

### Education

STANFORD UNIVERSITY, Stanford, CA.

Ph.D. in Mathematics, 2005. Advisor: Steven P. Kerckhoff.

Thesis: *Angled Triangulations of Link Complements*.

UNIVERSITY OF PENNSYLVANIA, Philadelphia, PA.

B.A. in Mathematics and Philosophy, *magna cum laude*, 1999.

M.A. in Mathematics, 1999.

### Selected Awards and Honors

CENTENNIAL TEACHING AWARD, Stanford University School of Humanities and Sciences, 2005.

OUTSTANDING TA AWARD, Stanford University Mathematics Department, 2004.

UNDERGRADUATE RESEARCH PRIZE, University of Pennsylvania Mathematics Department, 1998 and 1999.

## Publications

1. D. Futer, A. Gnepp, D. McMath, B. Munson, T. Ng, S-H Pakk, C. Yoder. “*Cost-minimizing networks among immiscible fluids in  $\mathbb{R}^2$ .*” Pacific Journal of Mathematics **196** (2000), no. 2, 395–414.
2. D. Futer, “*Involutions of knots that fix unknotting tunnels.*” Journal of Knot Theory and its Ramifications **16** (2007), No. 6, 741–748. arXiv:math/0401421.
3. D. Futer and J. Purcell, “*Links with no exceptional surgeries.*” Commentarii Mathematici Helvetici **82** (2007), No. 3, 629–664. arXiv:math/0412307.
4. D. Futer, “*Geometric triangulations of two-bridge link complements.*” Appendix to an article by F. Guéritaud. Geometry & Topology **10** (2006), 1267–1282, arXiv:math/0406242.
5. D. Futer, E. Kalfagianni, and J. Purcell, “*Dehn filling, volume, and the Jones polynomial.*” Journal of Differential Geometry **78** (2008), 429–464. arXiv:math/0612138.
6. D. Futer and F. Guéritaud, “*Angled decompositions of arborescent link complements.*” Proceedings of the London Mathematical Society **98** (2009), Issue 2, 325–364. arXiv:math/0610775.
7. O. Dasbach, D. Futer, E. Kalfagianni, X-S Lin, N. Stoltzfus, “*The Jones polynomial and graphs on surfaces.*” Journal of Combinatorial Theory, Series B **98** (2008), Issue 2, 384–399. arXiv:math/0605571.
8. O. Dasbach, D. Futer, E. Kalfagianni, X-S Lin, N. Stoltzfus, “*Alternating sum formulae for the determinant and other link invariants.*” Submitted. arXiv:math/0611025.
9. D. Futer, E. Kalfagianni, and J. Purcell, “*Symmetric links and Conway sums: volume and Jones polynomial.*” Mathematical Research Letters **16** (2009), Issue 2, 233–253. arXiv:math/0804.1542.
10. D. Futer, E. Kalfagianni, and J. Purcell, “*Cusp areas of Farey manifolds and applications to knot theory.*” Submitted. arXiv:math/0808.2716.
11. D. Futer, M. Ishikawa, Y. Kabaya, T. Mattman, and K. Shimokawa. “*Finite surgeries on three-tangle pretzel knots.*” Algebraic & Geometric Topology **9** (2009), 743–771. arXiv:math/0809.4278.
12. D. Futer, E. Kalfagianni, and J. Purcell, “*On diagrammatic bounds of knot volumes and spectral invariants.*” Submitted. arXiv:math/0901.0119.

## Invited Academic Talks

### DEPARTMENTAL COLLOQUIA:

- 2007: Oberlin College.
- 2008: Gettysburg College, Haverford College, Florida State U, Temple U, UC Santa Cruz, U Connecticut, Washington U. St. Louis.

### GEOMETRY/TOPOLOGY SEMINARS:

- 2005: Stanford, Michigan, Michigan State, UC Davis.
- 2006: Osaka, Michigan State, UIC, Louisiana State, Michigan, USC, British Columbia.
- 2007: UT Austin, MSRI, UC Davis, Columbia.
- 2008: Michigan State, Pomona College, Columbia, Penn, Yale, Temple, Bryn Mawr.
- 2009: BYU, Rutgers, CUNY, Lafayette College, Lille.

### CONFERENCE TALKS:

- 2005: AMS Western Section Meeting, Santa Barbara, CA.
- 2005: Arkansas–Oklahoma Workshop in Topology and Geometry, Fayetteville, AR.
- 2006: Hiroshima Topology Conference, Hiroshima.
- 2006: Around the Volume Conjecture, New York.
- 2006: Hyperbolic Geometry Workshop, Fields Institute, Toronto.
- 2006: Park City Math Institute summer program, Park City, UT.
- 2007: AMS National Meetings, New Orleans, LA.
- 2007: A Second Time Around the Volume Conjecture, Baton Rouge, LA.
- 2007: Geometric Topology Conference, Beijing.
- 2007: International Conference on Geometric Topology, Hangzhou.
- 2007: AIM Workshop on Triangulations, Heegaard Splittings & Hyperbolic Geometry.
- 2008: AMS Western Section Meeting, Claremont, CA.
- 2008: One–Day Conference on 3–Manifolds, Hangzhou.
- 2009: Spring Topology & Dynamics Conference, Gainesville, FL.
- 2009: Moab Topology Conference, Moab, UT.
- 2009: Interactions Between Hyperbolic Geometry, Quantum Topology and Number Theory, Columbia U.

### MINI-COURSES:

- 2006: “*Angle structures and hyperbolic structures.*” Series of 8 lectures (joint with François Guéritaud) at Osaka U.
- 2007: “*Angled triangulations and hyperbolic geometry.*” Series of 4 lectures, Center for Mathematical Sciences, Hangzhou.
- 2008: “*Introduction to Geometrization.*” Series of 4 lectures, Center for Mathematical Sciences, Hangzhou.
- 2009: “*Introduction to hyperbolic knots.*” Series of 3 lectures. Interactions Between Hyperbolic Geometry, Quantum Topology and Number Theory, Columbia U.

## Teaching Experience

**INSTRUCTOR.** *Lectured three times weekly, designed syllabus and exams. Coordinated special learning accommodations for a blind student and a deaf student.*

Lower-level undergraduate courses:

- First-semester calculus, Stanford University, 2002; Michigan State University, 2005.
- Second-semester calculus, Michigan State University, 2008.
- Multivariable calculus, Temple University, 2008.
- Linear algebra, Stanford University, 2005.

Upper-level undergraduate courses:

- Real analysis, Michigan State University, 2006.
- Metric spaces and topological spaces, Michigan State University, 2006.

Graduate courses:

- Algebraic topology, Michigan State University, 2007.

**INDEPENDENT STUDY SUPERVISOR.** *Guided reading projects for a group of two undergraduates and a group of two graduate students.*

- Point-set topology, Michigan State University, 2007.
- Hyperbolic 3-manifolds, Michigan State University, 2008.

**SEMINAR LEADER.** *Presented conceptual review and moderated biweekly problem sessions for graduate students studying for their qualifying exams in complex analysis.*

- Complex analysis, Stanford University, 2001–2003.

## Service Activities

**TEACHING LIAISON AND CONSULTANT:** Stanford University, 2002 – 2005.

- Trained teaching assistants, facilitated in-class evaluations for new instructors, organized lunch seminars.

**SEMINAR ORGANIZER:**

- Hyperbolic geometry seminar, Park City Math Institute, 2006.
- Joint postdoctoral seminar, Mathematical Sciences Research Institute, 2007.
- Departmental colloquium, Temple University, 2008–2009.

**REFEREE:**

- Annals of Combinatorics.
- Algebraic & Geometric Topology.
- Communications in Analysis and Geometry.
- Geometry & Topology.
- Pacific Journal of Mathematics.