

Benjamin A Steinhurst

Department of Mathematics
196 Auditorium Road
University of Connecticut
U-3009
Storrs, CT 06269-3009
Citizenship: USA

Phone: (860) 486 - 1287
Fax: (860) 486-4238
steinhurst@math.uconn.edu
<http://www.math.uconn.edu/~steinhurst/>

Education

Ph.D. Mathematics, University of Connecticut, 2010 (Expected)

- Title: “Diffusions and Laplacians on Laakso, Barlow-Evans, and other Fractals.”
- Advisor: Alexander Teplyaev

M.S. Mathematics, University of Connecticut, 2007

B.A. Mathematics, Williams College, 2005

Research Interests

Functional Analysis, Analysis on Fractals, Metric Measure Spaces

Research Experience

REU Program Coordinator

Summers 2008 and 2009
University of Connecticut

I was the coordinator and project leader for a small REU program run both summers hosting a total of 7 students conducting 4 projects. The students included University of Connecticut students as well as students from other universities including Princeton University. Two of the four papers generated by this program has been published (see Romeo-S below) and two submitted.

Publications

D. Ford, B. Steinhurst, *Vibration Spectra of the m -Tree Fractal* [arXiv:0812.2867](#) (to appear in Fractals)

K. Romeo, B. Steinhurst, *Eigenmodes of a Laplacian on some Laakso Spaces*, Complex Variables and Elliptic Equations, **54**:6, pp. 623-637 (2009) [arXiv:0903.4661](#).

N. Bajorin, T. Chen, C. Emmons, M. Hussein, M. Khalil, P. Mody, B. Steinhurst, A. Teplyaev, *Vibration Spectra of Finitely Ramified Symmetric Fractals*, Fractals, **16**:3, 2008.

N. Bajorin, T. Chen, C. Emmons, M. Hussein, M. Khalil, P. Mody, B. Steinhurst, A. Teplyaev, *Vibrations Modes of $3n$ -gaskets and Other Fractals*, J. Phys. A, **41**:1, 2008.

J. Corneli, P. Holt, G. Lee, N. Leger, E. Schoenfeld, B. Steinhurst, *The Double Bubble Problem on the Flat Two-Torus*. Trans. Amer. Math. Soc. **356** (2004), no. 9, 3769–3820.

Pre-prints

M. Begue, L. DeValve, D. Miller, B. Steinhurst, *Heat Kernel Asymptotics On General Laakso Spaces* (submitted), [arXiv:0912-2176](#).

S. Makisumi, G. Stadnyk, B. Steinhurst, *Modified Hanoi Towers Groups and Limit Spaces* (submitted), [arXiv:0909.3529](#).

B. Steinhurst, *Dirichlet Forms on Laakso and Barlow Evans Fractals of Arbitrary Dimension* (submitted), [arXiv:0811.1378](#).

In Preparation

B. Steinhurst, *Uniqueness of Brownian Motion on Laakso Spaces*.

Teaching Experience

Instructor, Mathematics, University of Connecticut, 2005-Present

- Engineering Calculus (Single Variable), Introductory Calculus (Single Variable), Finite Mathematics for Business, Calculus for Business.

Co-Coordinator of Directed Reading Program at University of Connecticut, 2009-Present

- Spring 2009: Advised reading in graph theory.

Instructor, University of Connecticut Center for Academic Programs, Summer 2007

- Teaching basic algebra skills in a summer bridge course for primarily minority students.

Presentations

Dirichlet Forms on Laakso Spaces, Joint Mathematical Meeting, San Francisco, CA, 2010.

Spectrum of a Laplacian on Laakso Spaces, Workshop on Fractals and Tilings, Strobl Austria, 2009

From Graphs to Fractals, Math Club, University of Connecticut, 2009.

Dirichlet Forms and Markov Processes on Laakso Spaces, Northeast Sectional Meeting of the American Mathematical Society, Wesleyan University, 2008.

A Dirichlet Form and Markov Processes on Laakso and Barlow-Evans Fractals of Arbitrary Dimension, Analysis and Probability on Fractals 3, Cornell University, 2008.

Optimal Double Bubbles on the Torus, Northeastern Section of the MAA Meeting, Williams College, 2002.

Some Workshops and Conferences Attended

Joint Mathematical Meetings, San Francisco, CA, USA, 2010.

Workshop on Fractals and Tilings 2009, Stroble, Austria, 2009.

Northeast Sectional Meeting of the AMS, Worcester Polytechnic Institute, 2009.

Laplacian Eigenvalues and Eigenfunctions: Theory, Computation, Application, Institute for Pure and Applied Mathematics, Los Angeles CA, February 2009.

Northeast Sectional Meeting of the AMS, Wesleyan University, 2008.

Analysis and Probability on Fractals 3, Cornell University, 2008.

MathFest, Burlington VT, 2002 .

Northeastern Section Meeting of the MAA, Williams College, 2002.

Service and Funding

Department of Mathematics Student Advisory Committee, Williams College, 2004-2005.

Founding member of organizing committee for *Directed Reading Program*, University of Connecticut, 2008-2010.

Member of *TA Network*, Dept. of Math, University of Connecticut, 2009-2010.

Summer Support through A. Teplyaev's NFS Grant. Summers 2008, 2009, (2010 expected)

Departmental Dissertation Fellowship - Department of Mathematics, University of Connecticut. Spring 2010

Doctoral Dissertation Fellowship - Graduate School, University of Connecticut. Spring 2010.