

Personal and contact information

Name Armin Straub
born Dec 15, 1983, in Offenbach a.M. (Germany)

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containing preprints, slides of talks, and a current CV

Research Interests special functions, number theory, combinatorics
symbolic and numerical computation

Academic education

Aug 2008 – today Ph.D. student of Mathematics at Tulane University (USA)
advisor: Dr. Victor H. Moll (vhm@tulane.edu)
expected date of award of PhD: May, 2012

Aug 2007 – Apr 2008 Diplom in Mathematics from TU Darmstadt (Germany)
thesis: “Local recognition of reflection graphs on Coxeter groups”
grade: passed with distinction, supervisor: Dr. Ralf Gramlich

Aug 2006 – May 2007 M.S. in Mathematics from Tulane University (USA)

Apr 2003 – Aug 2006 Student of Mathematics at TU Darmstadt (Germany)
minor in Computer Science

Academic visits

Jul 28 – Aug 26, 2011 visited Jonathan M. Borwein at University of Newcastle (AU)

Aug 9 – Nov 6, 2010 visited Jonathan M. Borwein at University of Newcastle (AU)

Jun 21 – Jul 2, 2010 attended the summer graduate workshop “Sage Days 22: Computing with Elliptic Curves”, MSRI, Berkeley, CA

Jul 30 – Aug 20, 2009 visited Jonathan M. Borwein at University of Newcastle (AU)

Jun 1 – June 26, 2009 visited Marc Chamberland at Grinnell College

Mar 2 – Mar 20, 2009 attended the workshop “Number Theory and Physics”, ESI (Erwin Schrödinger International Institute for Mathematical Physics), Vienna (AT)

Refereed publications

- [16] *A Sinc that Sank*
(with David Borwein, Jonathan M. Borwein)
to appear in American Mathematical Monthly, 2011
- [15] *Special values of generalized log-sine integrals*
(with Jonathan M. Borwein)
published in Proceedings of ISSAC 2011 (36th International Symposium on Symbolic and Algebraic Computation), ACM Press, Jun 2011, p. 43-50 — received *ISSAC 2011 Distinguished Student Author Award*
- [14] *Densities of short uniform random walks (with an appendix by Don Zagier)*
(with Jonathan M. Borwein, James Wan, Wadim Zudilin)
to appear in Canadian Journal of Mathematics, 2011
- [13] *Ramanujan's Master Theorem*
(with Tewodros Amdeberhan, Ivan Gonzalez, Marshall Harrison, Victor H. Moll)
to appear in The Ramanujan Journal, 2011
- [12] *Log-sine Evaluations of Mahler measures*
(with Jonathan M. Borwein)
to appear in Journal of the Australian Mathematical Society, 2011
- [11] *A q -analog of Ljunggren's binomial congruence*
published in DMTCS Proceedings: 23rd International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC), Jun 2011, p. 897-902
- [10] *The Method of Brackets. Part 2: Examples and Applications*
(with Ivan Gonzalez, Victor H. Moll)
published in "Gems in Experimental Mathematics", Contemporary Mathematics, Vol. 517, 2010, p. 157-171
- [9] *Three-Step and Four-Step Random Walk Integrals*
(with Jonathan M. Borwein, James Wan)
to appear in Experimental Mathematics, 2011
- [8] *Some arithmetic properties of short random walk integrals*
(with Jonathan M. Borwein, Dirk Nuyens, James Wan)
published in The Ramanujan Journal, Vol. 26, Nr. 1, 2011, p. 109-132
- [7] *Random Walks in the Plane*
(with Jonathan M. Borwein, Dirk Nuyens, James Wan)
published in DMTCS Proceedings: 22nd International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC), Jul 2010, p. 155-166
- [6] *Wallis-Ramanujan-Schur-Feynman*
(with Tewodros Amdeberhan, Olivier Espinosa, Victor H. Moll)
published in American Mathematical Monthly, Vol. 117, Nr. 15, Aug 2010, p. 618-632
- [5] *Closed-form evaluation of integrals appearing in positronium decay*
(with Tewodros Amdeberhan, Victor H. Moll)
published in Journal of Mathematical Physics, Vol. 50, Nr. 10, Oct 2009, 6 p.

- [4] *A fast numerical algorithm for the integration of rational functions*
(with Dante Manna, Luis Medina, Victor H. Moll)
published in *Numerische Mathematik*, Vol. 115, Nr. 2, Apr 2010, p. 289-307
- [3] *The p -adic valuation of k -central binomial coefficients*
(with Tewodros Amdeberhan, Victor H. Moll)
published in *Acta Arithmetica*, Vol. 140, 2009, p. 31-42
- [2] *The local recognition of reflection graphs of spherical Coxeter groups*
(with Ralf Gramlich, Jonathan I. Hall)
published in *Journal of Algebraic Combinatorics*, Vol. 32, Issue 1, Aug 2010, p. 1-14
- [1] *Positivity of Szego's rational function*
published in *Advances in Applied Mathematics*, Vol. 41, Issue 2, Aug 2008, p. 255-264

Preprints and other (non-refereed) publications

- [4] *Mahler measures, short walks and log-sine integrals*
(with Jonathan M. Borwein)
submitted, 2011
- [3] *Log-sine Evaluations of Mahler measures, Part II*
(with David Borwein, Jonathan M. Borwein, James Wan)
submitted, 2011
- [2] *The integrals in Gradshteyn and Ryzhik. Part 9: Combinations of logarithms, rational and trigonometric functions*
(with Tewodros Amdeberhan, Victor H. Moll, Jason Rosenberg, Pat Whitworth)
published in *Scientia, Series A: Math. Sciences* 17, 2009, p. 27-44
- [1] *The integrals in Gradshteyn and Ryzhik. Part 8: Combinations of powers, exponentials and logarithms*
(with Victor H. Moll, Jason Rosenberg, Pat Whitworth)
published in *Scientia, Series A: Math. Sciences* 16, 2008, p. 41-50

Research Talks

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| <i>Jan 7, 2012</i> | Symbolic evaluation of log-sine integrals in polylogarithmic terms
Joint Mathematics Meetings 2012, Boston |
| <i>Oct 6, 2011</i> | Hypergeometric evaluations of the densities of short random walks
AG11—SIAM Conference on Applied Algebraic Geometry, Minisymposium on Symbolic Combinatorics, North Carolina State University |
| <i>Aug 24, 2011</i> | q -binomial coefficient congruences
CARMA Analysis and Number Theory Seminar, University of Newcastle (AU) |
| <i>Jun 9, 2011</i> | Special values of generalized log-sine integrals
ISSAC 2011—36th International Symposium on Symbolic and Algebraic Computation,
San Jose — received <i>ISSAC 2011 Distinguished Student Author Award</i> |

- May 19, 2011* Applications and evaluations of log-sine integrals
JonFest 2011—Workshop on Computational and Analytical Mathematics in honour of Jonathan Borwein’s 60th birthday, The IRMACS Centre, Simon Fraser University (CA)
- Jan 9, 2011* On the method of brackets
Joint Mathematics Meetings 2011, AMS Special Session on Mathematics Related to Feynman Diagrams, New Orleans
- Oct 14, 2010* On infinite logconcavity
Colloquium of the Mathematics Department, University of Newcastle (AU)
- Aug 2, 2010* Random walks in the plane
FPSAC 2010 (Formal Power Series & Algebraic Combinatorics), San Francisco State University
- Aug 18, 2009* Random walk integrals
CARMA Workshop on Multidimensional Numerical Integration and Special Function Evaluation, University of Newcastle (AU)

Educational Talks

- Oct 27, 2011* Random walks and where to find a drunkard
Science and Engineering Honor Society (SEHS) Student Seminar, Tulane University
- Apr 12, 2011* How far does a drunkard get?
Graduate Student Colloquium of the Mathematics Department, Tulane University

Poster presentations

- Jun 13-17, 2011* A q -analog of Ljunggren’s binomial congruence
FPSAC 2011 (Formal Power Series & Algebraic Combinatorics), Reykjavik (IS)
- Aug 8, 2010* Random walk integrals
School of Science and Engineering Research Day Poster Session, Tulane University — selected 1st place for best graduate student poster

Academic services

- since 2007* Referee for the following journals and proceedings:
- International Journal of Number Theory (2011)
 - Rocky Mountain Journal of Mathematics (2011)
 - Applied Mathematics Letters (2011)
 - The Ramanujan Journal (4 times since 2010)
 - AISC2010 (10th International Conference on Artificial Intelligence and Symbolic Computation) (2010)
 - Contemporary Mathematics (2009)
 - Journal of Symbolic Computation (2007)
- 2009 – 2010* Coorganizer of the Graduate Student Colloquium at Tulane University
- 2008 – 2010* GSSA (Graduate Studies Student Association) representative of the Mathematics Department, Tulane University

Academic awards

- Jul 2011* Poster “Random Walk Integrals” selected for 3rd prize
CARMA (Computer-Assisted Research Mathematics and its Applications) Retreat,
University of Newcastle (AU)
- Jun 2011* ISSAC 2011 Distinguished Student Author Award for the paper *Special
values of generalized log-sine integrals*
International Symposium on Symbolic and Algebraic Computation, San Jose
- May 2011* “Excellence in Mathematics” Graduate Student Award
Dept. of Mathematics, Tulane University
- Apr 2010* Poster “Random Walk Integrals” selected 1st place in Graduate Division
School of Science and Engineering Research Day Poster Session, Tulane University
- May 2009* 2009-10 IBM Fellow in Computational Science
Center for Computational Science, Tulane University
- Apr 2007* Outstanding First Year Graduate Student Award
Dept. of Mathematics, Tulane University
- since Aug 2006* Teaching assistantship, fellowship award, and tuition scholarship
awarded by Tulane University for 2006/07, 2008/09, 2009/10, 2010/11, 2011/12

Teaching experience

- Spring 2012 (expected)* Instructor for Real Analysis 300/600-level introduction to analysis
- Fall 2011* Instructor for Calculus I 100-level calculus class
- Spring 2011* Instructor for Statistics for Business 100-level statistics class
- Spring 2010* Instructor for Statistics for Scientists 100-level statistics class
- Fall 2009* Instructor for Calculus II 100-level calculus class
- Summer 2007* Supervised undergraduate students at the research project “Experimental
Mathematics” lead by Dr. Victor H. Moll, Tulane University
- 2006 – 2008* Course Assistant for Calculus I, II, Linear Algebra, and Experimental
Mathematics at Tulane University
- 2004 – 2008* Course Assistant for Numerical Analysis, Linear Algebra, Statistics,
Stochastic Analysis, and Algebra at TU Darmstadt

Other qualifications

- Languages* German (first language), English (fluent)
- Computer algebra* Experience in several computer algebra systems
including Mathematica, SAGE, GAP, Maple
- Programming skills* Experience in various programming environments
including Python, C++, PHP, SQL, HTML