Lin JIU

Killiam Postdoctoral Fellow
Department of Mathematics and Statistics, Dalhousie University,
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Research Interests

Symbolic Computation, Special Function, Combinatorics, Number Theory, Probability Theory, Differential Geometry

Education

- ***Tulane University***
  May 2016: Ph. D. in Mathematics Advisor: *Victor Hugo Moll*
  - **2014-2015** Tea Master & 2015-2016 Tea Doctor (for organizing departmental Tea Time)
  - **2013-2014** Excellence in Mathematics (Math Dept., Tulane Univ.)
  - **2012-2013** Excellent Graduate Student Teacher (Math Dept., Tulane Univ.)

- ***Research Institute for Symbolic Computation, Johannes Kepler University Linz***
  Sept. 2013–Feb. 2014: Exchange Ph.D Student Advisor: *Carsten Schneider*
- ***Beijing Institute of Technology (B. I. T.)***
  July 2010: M. S., Mathematics Advisor: *Huafei Sun*
  June 2008: B. S., Mathematics

  - **2008** Outstanding Graduates (Beijing Institute of Technology)
  - **2007** National Scholarship (Department of Education, P. R. China)
  - **2006** China Aerospace Science and Technology Corporation (CASC) Scholarship, Second Class (China Aerospace Science and Technology Corporation)

Academic Employment

- **September 2017–August 2019(Expected)**
  Killam Postdoctoral Fellowship,
  Department of Mathematics and Statistics, Dalhousie University, Halifax, Canada
  Mentor: *Karl Dilcher*
- **March 2017–September 2017**
  Postdoctorial Research Scientist, Symbolic Computation Group, Austrian Science Fund (FWF) grant P29467-N32
  Johann Radon Institute for Computational and Applied Mathematics, Austrian Academy of Sciences, Linz, Austria
  Mentor: *Christoph Koutschan*
- **June 2016–February 2017**
  Post-Doc Fellow, Austrian Science Fund (FWF) grant, SFB F50 (F5006-N15 and F5009-N15) projects
  Research Institute for Symbolic Computation, Johannes Kepler University Linz, Linz, Austria
  Mentors: *Peter Paule & Carsten Schneider*

PUBLICATIONS

Selected Papers

- **L. Jiu** and Diane Yahui Shi, Matrix representation for multiplicative nested sums, Submitted for Publication.
- **L. Jiu**, V. H. Moll, and C. Vignat, A symbolic approach to multiple zeta values at the negative integers, *J. Symbolic Comput*. **84** (2018), 1–13.
- **L. Jiu**, Integral representations of equally positive integer-indexed harmonic sums at infinity, *Research in Number Theory* **3** (2017), Article 10.
- **L. Jiu** and C. Vignat, On binomial identities in arbitrary bases, *J. Integer Seq.* **19** (2016), Article 16.5.5.
- **L. Jiu**, V. H. Moll, and C. Vignat, A symbolic approach to some identities for Bernoulli-Barnes polynomials, *Int. J. Number Theory* **12** (2016), 649–662.
- T. Amdeberhan, A. Dixit, X. Guan, **L. Jiu** and V. H. Moll, The unimodality of a polynomial coming from a rational integral. Back to the original proof, *J. Math. Anal. Appl.* **420** (2014), 1154–1166.
- **L. Jiu**, V. H. Moll, and C. Vignat, Identities for generalized Euler polynomials, *Integral Transforms Spec. Funct.* **25** (2014), 777–789.
- **L. Jiu** and H. Sun, On minimal homothetical hypersurfaces, *Colloq. Math.* **109** (2007), 239–249.

Other Publications

- Y. Li, B. Li, H. Sun, and **L. Jiu**, Application of entropy in Riemannian manifolds, Submitted for Publication.
- Y. Li, B. Li, H. Sun, and **L. Jiu**, Matrix geometric means and uncertainty relation, Submitted for Publication.
- D. Li, H. Sun, C. Tao, and **L. Jiu**, Principal bundles and holonomy groups on statistical manifolds, Submitted for Publication.
- I. Gonzales, K. Kohl, **L. Jiu**, and V. H. Moll, An extension of the method of brackets. Part 1, *Open Math*. **15** (2017), 1181–1211.
- I. Gonzalez, K. Kohl, **L. Jiu**, and V. H. Moll, The method of brackets in experimental mathematics, *Frontiers of Orthogonal Polynomials and q-Series*, Z. Nashed and X. Li eds., World Scientific Publishers, 2017.
- C. Li, E. Zhang, **L. Jiu**, and H. Sun, Optimal control on special Euclidean group via natural gradient descent algorithm, *Sci. China Inf. Sci.* **59** (2016) Article: 112203.
- I. Gonzalez, **L. Jiu**, and V. H. Moll, Pochhammer symbol with negative indices. A new rule for the method of brackets, *Open Math.* **14** (2016) 681–686.
- T. Amdeberhan, A. Dixit, X. Guan, **L. Jiu**, A. Kuznetsov, V. H. Moll, and C. Vignat, The integrals in Gradshteyn and Ryzhik. Part 30: trigonometric functions, *Scientia Series A: Mathematical Sciences* **27** (2016) 47–74.
- T. Amdeberhan, A. Dixit, X. Guan, **L. Jiu**, V. H. Moll, and C. Vignat, A series involving Catalan numbers. Proofs and demonstrations, *Elem. Math.* **71** (2016), 109–121.
- A. Dixit, **L. Jiu**, V. H. Moll, and C. Vignat, The finite Fourier transform of classical polynomials, *J. Aust. Math. Soc*. **98** (2015), 145–160.
- A. Byrnes, **L. Jiu**, V. H. Moll, and C. Vignat, Recursion rules for the hypergeometric zeta functions, *Int. J. Number Theory* **10** (2014), 1761–1782.
- Z. Zhang, H. Sun, **L. Jiu**, and L. Peng, A natural gradient algorithm for stochastic distribution systems, *Entropy* **16** (2014), 4338–4352.
- F. Zhang, H. Sun, **L. Jiu**, and L. Peng, The arc length variational formula on the exponential manifold, *Math. Slovaca* **63** (2013), 1101–1112.
- L. Peng, H. Sun, and **L. Jiu**, The geometric structure of the Pareto distribution, *Bol. Asoc. Mat. Venez.* **14** (2007), 5–13.
- X. Wang and **L. Jiu**, Characterizing hypersurfaces of generalized rotation through its normal lines, *Journal Of Ningde Normal University (Natural Science)* **02** (2006), 117–119.

INVITED TALKS

10. **Bernoulli Symbol on Multiple Zeta Values at Negative Integers**
    23rd Conference on Applications of Computer Algebra (Commemorating the heritage of Jonathan Michael Borwein), Jerusalem, Israel, July 17–21, 2017.
9. **On Bernoulli Symbol** $\mathscr{B}$
    Klagenfurt-Linz-Wien Workshop, Riefnitz, Austria, May 3–6, 2017.
8. **The Method of Brackets (MoB) and Integrating by Differentiating (IbD) Method**
    Laboratoire des Signaux et Systemes, Université Paris Sud XI, Orsay, France, Dec. 9, 2016.
7. **"Random Walks" for Harmonic Sums**

SFB Statusseminar, Strobl, Austria, Nov. 27–30, 2016.

6. **On Binomial Identities in Arbitrary Bases**
   Beijing Key Laboratory on Mathematical Characterization, Analysis and Applications of Complex Information, Beijing Institute of Technology, Beijing, China, July 26, 2016.
5. **Random Walk: A Probabilistic and Geometric Approach to Number Theory**
   International Conference on Mathematical Characterization, Analysis and Applications of Complex Information, Beijing Institute of Technology, Beijing, China, July 19–20, 2016.
4. **The Method of Brackets**
   The 5th International Congress on Mathematical Software (ICMS), The Zuse Institute Berlin (ZIB), Berlin, Germany, July 11–14, 2016.
3. **On Bernoulli Symbol $\mathscr{B}$ and Its Applications**
   Center for Combinatorics, Nankai University, Tianjin, China, July 8, 2015.
2. **Recursion Rules for the Hypergeometric Zeta Functions**
   Midwest Number Theory Conference for Graduate Students and Recent PhDs, X, University of Illinois at Urbana-Champaign, Urbana, IL, U. S. A., June 3–4, 2014.
1. **Implementation of an Algorithm on Converting Sums into Nested Sums**
   Laboratoire des Signaux et Systemes, Université Paris Sud XI, Orsay, France, Jan. 8, 2014.

TEACHING EXPERIENCE

- **Instructor**
  Tulane University:

Spring	2016	Long Calculus II
Fall	2015	Consolidated Calculus
Spring	2015	Long Calculus I
Summer	2014	Long Calculus II

- **Teaching Assistant**
  Tulane University:

Fall	2014	Real Analysis I
Spring	2014	Combinatorics
Spring	2013	Real Analysis I, Calculus II
Fall	2012	Calculus III, Experimental Mathematics
Spring	2012	Real Analysis I
Fall	2011	Calculus I

  Beijing Institute of Technology: (For Special Joint Class with University of Central Lancashire, U. K., completely in English)

Spring	2011	Calculus for Engineering II
Fall	2010	Calculus for Engineering I
Spring	2010	Calculus for Engineering II
Fall	2009	Calculus for Engineering I

RELEVANT SKILLS

- **Language:** Mandarin (native), English (fluent)
- **Computer:** Mathematica, Sage, LyX, LaTeX

REFERENCES

- **Victor Hugo Moll**, vhm@tulane.edu
  Prof., Dr., Department of Mathematics, Tulane University.
- **Karl Dilcher**, dilcher@mathstat.dal.ca
  Prof., Dr., Department of Mathematics and Statistics, Dalhousie University.
- **Peter Paule**, Peter.Paule@risc.jku.at
  Univ.-Prof., Dr., Director of Research Institute for Symbolic Computation, Johannes Kepler University Linz
- **Carsten Schneider**, Carsten.Schneider@risc.jku.at
  Priv.-Doz. Dipl.-Inf. Dr., Research Institute for Symbolic Computation, Johannes Kepler University Linz

- **Christoph Koutschan**, Christoph.koutschan@ricam.oeaw.ac.at
  Dr., Research Institute for Symbolic Computation, Johannes Kepler University Linz
  Research Scientist, Johann Radon Institute for Computational and Applied Mathematics, Austrian Academy of Sciences
- **Christophe Vignat**, Christophe.VIGNAT@lss.supelec.fr
  Prof., Dr., Laboratoire des Signaux et Systemes, Université Paris Sud XI.
- **Huafei Sun**, huafeisun@bit.edu.cn
  Prof., Dr., Department of Mathematics, Beijing Institute of Technology.
  Director, Beijing Key Laboratory on Mathematical Characterization, Analysis and Applications of Complex Information.