# Lin JIU

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## RESEARCH INTERESTS

Symbolic Computation, Experimental Mathematics, Special Function, Combinatorics, Number Theory, Probability Theory, Information 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 (Will Accepted)**
  *Killam Postdoctoral Fellowship*,
  *Department of Mathematics and Statistics, Dalhousie University*
  Mentor: *Karl Dilcher*
- **March 2017–September 2017(Expected)**
  *Research Scientist (Post-Doc), Symbolic Computation Group*,
  *Johann Radon Institute for Computational and Applied Mathematics, Austrian Academy of Sciences*
  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*
  Mentors: *Peter Paule & Carsten Schneider*

# PUBLICATIONS

1. I. Gonzales, K. Kohl, **L. Jiu**, and V. H. Moll, An extension of the method of brackets, Submitted for Publication.
2. **L. Jiu**, Matrix representation of harmonic sums, Submitted for Publication.
3. Y. Li, B. Li, H. Sun, and **L. Jiu**, Application of entropy in Riemannian manifolds, Submitted for Publication.
4. Y. Li, B. Li, H. Sun, and **L. Jiu**, Matrix geometric means and uncertainty relation, Submitted for Publication.
5. D. Li, H. Sun, C. Tao, and **L. Jiu**, Principal bundles over statistical manifolds, Submitted for Publication.
6. D. Li, H. Sun, C. Tao, and **L. Jiu**, Riemannian holonomy groups of statistical manifolds, Submitted for Publication.
7. I. Gonzalez, K. Kohl, **L. Jiu**, and V. H. Moll, The method of brackets in experimental mathematics, To appear in *Frontiers in Orthogonal Polynomials and q-Series*, Z. Nashed and X. Li eds., World Scientific Publishers.
8. **L. Jiu**, Integral representations of equally positive integer-indexed harmonic sums at infinity, To appear in *Research in Number Theory*.
9. **L. Jiu**, V. H. Moll, and C. Vignat, A symbolic approach to multiple zeta values at the negative integers, To appear in *J. Symbolic Comput.*
10. 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.
11. 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.
12. 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.
13. 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.
14. **L. Jiu** and C. Vignat, On binomial identities in arbitrary bases, *J. Integer Seq.* **19** (2016), Article 16.5.5.
15. **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.
16. 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.
17. 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.
18. 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.
19. **L. Jiu**, V. H. Moll, and C. Vignat, Identities for generalized Euler polynomials, *Integral Transforms Spec. Funct.* **25** (2014), 777–789.
20. Z. Zhang, H. Sun, **L. Jiu**, and L. Peng, A natural gradient algorithm for stochastic distribution systems, *Entropy* **16** (2014), 4338–4352.
21. F. Zhang, H. Sun, **L. Jiu**, and L. Peng, The arc length variational formula on the exponential manifold, *Math. Slovaca* **63** (2013), 1101–1112.
22. L. Peng, H. Sun, and **L. Jiu**, The geometric structure of the Pareto distribution, *Bol. Asoc. Mat. Venez.* **14** (2007), 5–13.
23. **L. Jiu** and H. Sun, On minimal homothetical hypersurfaces, *Colloq. Math.* **109** (2007), 239–249.
24. 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

- CONFERENCES
  - **"Random Walks" for Harmonic Sums**
    *SFB Statusseminar*, Strobl, Austria, Nov. 27th–30th, 2016.
  - **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 19th–20th, 2016.
  - **The Method of Brackets**
    *The 5th International Congress on Mathematical Software (ICMS)*, The Zuse Institute Berlin (ZIB), Berlin, Germany, July 11th–14th, 2016.
  - **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 3rd – 4th, 2014.
- SEMINARS & COLLOQUIA
  - **The Method of Brackets (MoB) and Integrating by Differentiating (IbD) Method**
    *Laboratoire des Signaux et Systemes, Université Paris Sud XI*, Orsay, France, Dec. 9th, 2016.
  - **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 26th, 2016.
  - **On Bernoulli Symbol $\mathscr{B}$ and Its Applications**
    *Center for Combinatorics, Nankai University*, Tianjin, China, July 8th, 2015.
  - **Implementation of an Algorithm on Converting Sums into Nested Sums**
    *Laboratoire des Signaux et Systemes, Université Paris Sud XI,* Orsay, France, Jan. 8th, 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:*

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|---|---|---|
| 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)

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|---|---|---|
| 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.
- **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.