

# 酒 霖

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## 学术岗位经历

- 2020.08– 昆山杜克大学讲师  
杜克大学实践助理教授(Assistant Professor of the Practices, Duke University)
- 2017.09–2020.07 加拿大戴尔豪斯大学数学与统计系 导师: *Karl Dilcher*  
(*Department of Mathematics and Statistics, Dalhousie University*)
- 2017.03–2017.08 奥地利科学院约翰拉东计算与应用数学研究所 导师: *Christoph Koutschan*  
(*Johann Radon Institute for Computational and Applied Mathematics, Austrian Academy of Sciences*)
- 2016.06–2017.02 奥地利约翰开普勒大学符号运算研究所 导师: *Peter Paule* 和 *Carsten Schneider*  
(*Research Institute for Symbolic Computation, Johannes Kepler University*)

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## 教育经历

- 2011.08–2016.05 美国杜兰大学(Tulane University)数学博士 导师: *Victor Hugo Moll*
- 2013.09–2014.02 奥地利约翰开普勒大学符号运算研究所  
博士交换生 导师: *Carsten Schneider*
- 2008.09–2010.07 北京理工大学理学硕士数学专业 导师: 孙华飞
- 2004.09–2008.06 北京理工大学理学学士数学专业 毕业论文指导教师: 孙华飞

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## 研究方向

伯努利与欧拉多项式, 符号积分, 特殊函数, 解析数论, 组合数学

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## 学术论文

34. K. Dilcher and **L. Jiu**, Hankel Determinants of shifted sequences of Bernoulli and Euler numbers, 审稿中.
33. **L. Jiu**, V. H. Moll, and C. Vignat, Compatibility of the method of brackets with classical integration methods, 审稿中.
32. **L. Jiu** and D. Y. H. Shi, On b-ary binomial coefficients with negative entries, 审稿中.
31. Y. Li, B. Li, H. Sun, and **L. Jiu**, Application of entropy in Riemannian manifolds, 审稿中.
30. Y. Li, B. Li, H. Sun, and **L. Jiu**, Matrix geometric means and uncertainty relation, 审稿中.
29. **L. Jiu** and D. Y. H. Shi, Moments and cumulants on identities for Bernoulli and Euler numbers, 已接收 *Math. Rep. (Bucur.)*
28. K. Dilcher and **L. Jiu**, Hankel Determinants of sequences related to Bernoulli and Euler Polynomials, 已接收 *Int. J. Number Theory*.
27. K. Dilcher and **L. Jiu**, Orthogonal polynomials and Hankel determinants for certain Bernoulli and Euler polynomials, *J. Math. Anal. Appl.* **497** (2021), Article 124855.

26. I. Gonzales, **L. Jiu**, and V. H. Moll, An extension of the method of brackets. Part 2, *Open Math.* **18** (2020), 983–955.
25. **L. Jiu** and C. Koutschan, Calculation and properties of zonal polynomials, *Math. Comput. Sci.* **14** (2020), 623–640.
24. N. Takayama, **L. Jiu**, S. Kuriki, and Y. Zhang, Computations of the Expected Euler Characteristic for the Largest Eigenvalue of a Real Wishart Matrix, *J. Multivariate Anal.* **179** (2020), Article 104642.
23. **L. Jiu**, C. Vignat, and T. Wakhare, Analytic Continuation for Multiple Zeta Values using Symbolic Representations, *Int. J. Number Theory* **16** (2020), 579–602.
22. **L. Jiu** and C. Vignat, Connection coefficients for higher-order Bernoulli and Euler polynomials: a random walk approach, *Fibonacci Quart.* **57** (2019), 84–95.
21. **L. Jiu** and D. Y. H. Shi, Matrix representation for multiplicative nested sums, *Colloq. Math.* **158** (2019), 183–194.
20. **L. Jiu** and D. Y. H. Shi, Orthogonal polynomials and connection to generalized Motzkin numbers for higher-order Euler polynomials, *J. Number Theory* **199** (2019), 389–402.
19. 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, 2018.
18. **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.
17. 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.
16. **L. Jiu**, Integral representations of equally positive integer-indexed harmonic sums at infinity, *Research in Number Theory* (2017), Article 10.
15. 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.
14. 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.
13. 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.
12. 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.
11. **L. Jiu** and C. Vignat, On binomial identities in arbitrary bases, *J. Integer Seq.* **19** (2016), Article 16.5.5.
10. **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.
9. 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.

8. 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.
  7. 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.
  6. **L. Jiu**, V. H. Moll, and C. Vignat, Identities for generalized Euler polynomials, *Integral Transforms Spec. Funct.* **25** (2014), 777–789.
  5. Z. Zhang, H. Sun, **L. Jiu**, and L. Peng, A natural gradient algorithm for stochastic distribution systems, *Entropy* **16** (2014), 4338–4352.
  4. F. Zhang, H. Sun, **L. Jiu**, and L. Peng, The arc length variational formula on the exponential manifold, *Math. Slovaca* **63** (2013), 1101–1112.
  3. L. Peng, H. Sun, and **L. Jiu**, The geometric structure of the Pareto distribution, *Bol. Asoc. Mat. Venez.* **14** (2007), 5–13.
  2. **L. Jiu** and H. Sun, On minimal homothetical hypersurfaces, *Colloq. Math.* **109** (2007), 239–249.
  1. 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.
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## 学术报告

23. **Random Walk Models for Non-trivial Identities Involving Bernoulli and Euler Polynomials of Higher-orders**  
2021年苏州地区数学青年会议  
2021年09月25日至26日, 江苏省苏州市, 苏州大学
22. **Random Walks and Identities Involving Bernoulli and Euler Polynomials of Higher-order**  
邀请报告  
2021年6月18日, 北京, 人民大学, 统计与大数据研究院.
21. **Examples on Computer Proofs**  
邀请报告  
2021年5月28日, 湖北省武汉市, 武汉大学.
22. **Hankel Determinant of Sequences Related to Bernoulli and Euler Polynomials**  
昆山杜克大学—武汉大学数学与统计学院学术交流会  
2021年5月28日, 湖北省武汉市, 武汉大学.
20. **Hankel Determinant on Sequences Related to Bernoulli and Euler Polynomials**  
2020年苏州地区数学青年会议  
2020年11月14日至15日, 江苏省苏州市昆山市, 昆山杜克大学
19. **Three Examples on Computer Proofs**  
昆山杜克大学祖冲之数学与计算科学中心  
2020年11月6日, 江苏省苏州市昆山市, 昆山杜克大学.
18. **Orthogonal Polynomials for Higher-order Euler Polynomials**  
*15th International Symposium on Orthogonal Polynomials, Special Functions and Applications*

2019年7月22日至26日, 奥地利哈根贝格, 符号运算研究所.

**17. On Harmonic Sums: Integral and Matrix Representations with Connections to Partition-theoretic Generalization of the Riemann Zeta-function and Random Walks**

*Analytic and Combinatorial Number Theory: The Legacy of Ramanujan (A conference in honor of Bruce C. Berndt's 80th birthday)*

2019年6月6日至6月9日, 美国伊利诺伊州, 伊利诺伊大学厄巴纳-香槟分校.

**16. Random Walk Approaches to Identities on Higher-order Bernoulli and Euler Polynomials**

*American Mathematical Society Spring Southeastern Sectional Meeting*

2019年3月15日至3月17日, 美国阿拉巴马州奥本市, 奥本大学.

**15. Matrix Representation for Higher-Order Euler Polynomials**

*2019 Joint Mathematics Meetings*

2019年1月16日至1月19日, 美国马里兰州巴尔的摩市.

**14. Bernoulli Symbol and Sum of Powers**

*6th International Congress on Mathematical Software*

2018年7月24日至7月28日, 美国印第安纳州圣母市, 圣母大学.

**13. Random Walks and Identities for High-order Bernoulli and Euler Polynomials**

*18th International Conference on Fibonacci Numbers and Their Applications*

2018年7月1日至7月8日, 加拿大新斯科舍省哈利法克斯, 戴尔豪斯大学.

**12. Matrix Representations for Bernoulli and Euler Polynomials**

*2018 Canadian Mathematical Society Summer Meeting*

2018年6月1日至6月4日, 加拿大新不伦瑞克省弗雷瑞克登, 新不伦瑞克大学.

**11. The Probabilistic and Combinatorial Interpretations of the Bernoulli Symbol**

*2017 Canadian Mathematical Society Winter Meeting*

2017年12月8日至12月11日, 加拿大安大略省滑铁卢, 滑铁卢大学.

**10. Bernoulli Symbol on Multiple Zeta Values at Negative Integers**

*23rd Conference on Applications of Computer Algebra (Commemorating the heritage of Jonathan Michael Borwein)*

2017年7月17日至7月21日, 以色列耶路撒冷, 耶路撒冷技术学院.

**9. On Bernoulli Symbol  $B$**

*Klagenfurt-Linz-Wien Workshop*

2017年5月3日至5月6日, 奥地利赖弗尼茨.

**8. The Method of Brackets (MoB) and Integrating by Differentiating (IbD) Method**

*Laboratoire des Signaux et Systèmes, Université Paris Sud XI*

2016年12月9日, 法国奥尔赛, 巴黎十一大学.

**7. "Random Walks" for Harmonic Sums**

*SFB Statusseminar*

2016年11月27日至11月30日, 奥地利施特罗布尔.

**6. On Binomial Identities in Arbitrary Bases**

北京理工大学复杂信息数学表征分析与应用实验室  
2016年7月26日, 北京.

5. **Random Walk: A Probabilistic and Geometric Approach to Number Theory**  
*International Conference on Mathematical Characterization, Analysis and Applications of Complex Information*  
2017年7月19日至7月20日, 北京, 北京理工大学.
4. **The Method of Brackets**  
*5th International Congress on Mathematical Software*  
2017年7月11日至7月14日, 德国柏林, 祖斯研究院.
3. **On Bernoulli Symbol  $\beta$  and Its Applications**  
南开大学组合数学中心  
2015年7月8日, 天津.
2. **Recursion Rules for the Hypergeometric Zeta Functions**  
*Midwest Number Theory Conference for Graduate Students and Recent PhDs, X*  
2014年6月3日至6月4日, 美国伊利诺伊州, 伊利诺伊大学厄巴纳-香槟分校.
1. **Implementation of an Algorithm on Converting Sums into Nested Sums**  
*Laboratoire des Signaux et Systemes, Université Paris Sud XI*  
2014年1月8日, 法国奥尔赛, 巴黎十一大学.

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所获荣誉与奖励

2013-2014	数学科研奖 (Excellence in Mathematics)
2012-2013	优秀教学奖 (Excellent Graduate Student Teacher)
2008	北京理工大学优秀毕业生
2007	国家奖学金
2006	中国航天科技集团公司CASC二等奖学金

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教学经历

2021	春季	MATH205	Probability and Statistics	@昆山杜克大学
		MATH301	Advanced Introduction to Probability	@昆山杜克大学
2020	秋季	MATH105	Calculus	@昆山杜克大学
		MATH201	Multivariable Calculus	@昆山杜克大学
2019	暑期	MATH1030	Matrix Theory and Linear Algebra I	@加拿大戴尔豪斯大学
2019	春季	MATH 3080	Introduction to Complex Variables	@加拿大戴尔豪斯大学
2016	春季	MATH 1160	Long Calculus II	@美国杜兰大学
2015	秋季	MATH 1310	Consolidated Calculus	@美国杜兰大学
2015	春季	MATH 1210	Long Calculus I	@美国杜兰大学
2014	暑期	MATH 1160	Long Calculus II	@美国杜兰大学

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其他技能

语言: 英语(流畅, 可教学、报告)

计算机：SageMath, Python, Mathematica, Maple, LyX, L<sup>A</sup>T<sub>E</sub>X

• 程序包：	Zonal.sage	<a href="https://jiulin90.github.io/Packages/Zonal.sage">https://jiulin90.github.io/Packages/Zonal.sage</a>
	BNE.sage	<a href="https://jiulin90.github.io/Packages/BNE.sage">https://jiulin90.github.io/Packages/BNE.sage</a>