

# 刘纪彩 博士 教授

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## 教育背景

- 学士 山东大学 2004/9–2008/7
- 硕士 华东师范大学 2008/9–2011/6
- 博士 华东师范大学 2014/9–2017/6

## 工作经历

- 2017/6–2019/11 讲师 温州大学数理学院
- 2019/12–2024/11 副教授、硕士生导师 温州大学数理学院
- 2024/12 至今 教授、硕士生导师 温州大学数理学院

## 讲授课程

- 本科生课程: 《高等代数》、《高等数学》
- 研究生课程: 《计数组合学》、《特殊函数论》、《组合数论》

## 研究方向

- 数论、组合数学、特殊函数论

## 学术项目

- 2022–2025 组合同余式与模形式傅里叶系数  
国家自然科学基金面上项目 (12171370), 50万元, 主持, 在研
- 2019–2021 带  $p$ -adic Gamma 函数的组合同余式研究  
国家自然科学基金青年项目 (11801417), 22万元, 主持, 已结题

## 荣誉奖励

- 温州大学南湖学者 (2021)
- 温州市“瓯越特支计划”青年拔尖人才 (2021)
- 温州大学瓯江特聘教授 CII 类 (2022)
- 温州大学优秀教师 (2022)
- 物华教学基金会物华园丁奖 (2022)

## 学术兼职

- 美国《数学评论》(Mathematical Reviews) 评论员
- 德国《数学文摘》(zbMATH) 评论员

## 学术会议

- 2019年9月20-22日, 洛阳师范学院, 第六届全国组合数论会议  
报告题目:  $q$ -Supercongruences on sums of Catalan numbers and central binomial coefficients (邀请报告)
- 2020年11月20-22日, 浙江师范大学, 第五届组合数学与符号计算研讨会  
报告题目: Some congruences on sums of Apéry-like numbers (邀请报告)
- 2021年11月5-8日, 河南大学, 第七届全国组合数论会议  
报告题目: Some supercongruences on  $q$ -lacunary harmonic sums and  $q$ -trinomial coefficients (邀请报告)
- 2023年6月21-23日, 安徽师范大学, 第八届全国组合数论会议  
报告题目: Supercongruences involving Motzkin numbers and central trinomial coefficients (邀请报告)

## 学术论文 (\*标记通讯作者)

1. **Ji-Cai Liu\***, Wei-Wei Qi, Some supercongruences for  $q$ -trinomial coefficients, Rocky Mountain J. Math., to appear.
2. **Ji-Cai Liu\***, Xue-Ting Jiang, Yeong-Nan Yeh, On super Catalan numbers modulo 8, Bull. Math. Soc. Sci. Math. Roumanie (N.S.), to appear.
3. **Ji-Cai Liu**, On the binomial transforms of Apéry-like sequences, Canad. Math. Bull., in press, doi: 10.4153/S0008439524000924.

4. **Ji-Cai Liu**, A combinatorial approach to Berkovich type identities, Proc. Amer. Math. Soc., in press, doi: 10.1090/proc/17171.
5. **Ji-Cai Liu\***, Jing Liu, A  $q$ -supercongruence arising from Andrews'  ${}_4\phi_3$  identity, Bull. Aust. Math. Soc., in press, doi: 10.1017/S0004972724000467.
6. **Ji-Cai Liu**, Supercongruences involving Motzkin numbers and central trinomial coefficients, Proc. Edinb. Math. Soc. 67 (2024), 1060–1084.
7. **Ji-Cai Liu**, On the Kimoto–Wakayama supercongruence conjecture on Apéry-like numbers, Arch. Math. (Basel) 123 (2024), 615–624.
8. **Ji-Cai Liu**, A supercongruence related to Ramanujan-type formula for  $1/\pi$ , Bull. Math. Soc. Sci. Math. Roumanie (N.S.) 115 (2024), 483–492.
9. **Ji-Cai Liu\***, Anni Zhang, An approach to  $q$ -binomial theorem via  $m$ -modular diagram, Proc. Rom. Acad. Ser. A Math. Phys. Tech. Sci. Inf. Sci. 25 (2024), 167–169.
10. **Ji-Cai Liu**, On the vanishing coefficients of odd powers of Ramanujan's theta functions, Ramanujan J. 65 (2024), 45–52.
11. **Ji-Cai Liu\***, Yan-Ni Li, On the divisibility of sums of  $q$ -super Catalan numbers, Bull. Aust. Math. Soc. 109 (2024), 215–224.
12. **Ji-Cai Liu\***, Wei-Wei Qi, Two new  $q$ -supercongruences arising from Carlitz's identity, Proc. Amer. Math. Soc. 152 (2024), 1733–1741.
13. **Ji-Cai Liu\***, Yuan-Yuan Zhao, Combinatorial proofs of two  $q$ -binomial coefficient identities, Bull. Math. Soc. Sci. Math. Roumanie (N.S.) 114 (2023), 383–388.
14. **Ji-Cai Liu**, On the divisibility of  $q$ -trinomial coefficients, Ramanujan J. 60 (2023), 455–462.
15. Victor J.W. Guo, **Ji-Cai Liu\***, Michael J. Schlosser, An extension of a supercongruence of Long and Ramakrishna, Proc. Amer. Math. Soc. 151 (2023), 1157–1166.
16. **Ji-Cai Liu\***, Shan-Shan Zhao, Truncations of Gauss' square exponent theorem, Czechoslovak Math. J. 72 (2022), 1183–1189.
17. Sheng Yang, **Ji-Cai Liu\***, On the divisibility of sums involving Apéry-like polynomials, Bull. Aust. Math. Soc. 106 (2022), 203–208.
18. **Ji-Cai Liu**, A variation of the  $q$ -Wolstenholme theorem, Ann. Mat. Pura Appl. 201 (2022), 1993–2000.
19. **Ji-Cai Liu\***, Xue-Ting Jiang, On the divisibility of sums of even powers of  $q$ -binomial coefficients, Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A Mat. 116 (2022), Art. 76.

20. **Ji-Cai Liu**, Ramanujan-type supercongruences involving Almkvist–Zudilin numbers, *Results Math.* 77 (2022), Art. 67.
21. Long Li, **Ji-Cai Liu\***, On two supercongruences of double binomial sums, *Period. Math. Hungar.* 83 (2021), 159–164.
22. **Ji-Cai Liu\***, He-Xia Ni, On two supercongruences involving Almkvist–Zudilin sequences, *Czechoslovak Math. J.* 71 (2021), 1211–1219.
23. **Ji-Cai Liu**, On two supercongruences for sums of Apéry-like numbers, *Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A Mat.* 115 (2021), Art. 151.
24. **Ji-Cai Liu**, Supercongruences for sums involving Domb numbers, *Bull. Sci. Math.* 169 (2021), Art. 102992.
25. **Ji-Cai Liu**, Supercongruences arising from transformations of hypergeometric series, *J. Math. Anal. Appl.* 497 (2021), Art. 124915.
26. **Ji-Cai Liu**, A supercongruence relation among Apéry-like numbers, *Colloq. Math.* 163 (2021), 333–340.
27. Moa Apagodu, **Ji-Cai Liu\***, Congruence properties for the trinomial coefficients, *Integers* 20 (2020), Art. 38.
28. **Ji-Cai Liu\***, Zhong-Yu Huang, A truncated identity of Euler and related  $q$ -congruences, *Bull. Aust. Math. Soc.* 102 (2020), 353–359.
29. **Ji-Cai Liu**, On two congruences involving Franel numbers, *Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A Mat.* 114 (2020), Art. 201.
30. **Ji-Cai Liu**, On a congruence involving  $q$ -Catalan numbers, *C. R. Math. Acad. Sci. Paris* 358 (2020), 211–215.
31. **Ji-Cai Liu**, Proof of Sun’s conjectural supercongruence involving Catalan numbers, *Electron. Res. Arch.* 28 (2020), 1023–1030.
32. **Ji-Cai Liu**, Some supercongruences arising from symbolic summation, *J. Math. Anal. Appl.* 488 (2020), Art. 124062.
33. **Ji-Cai Liu**, On a sum of Apéry-like numbers arising from spectral zeta functions, *Colloq. Math.* 160 (2020), 1–6.
34. **Ji-Cai Liu**, Supercongruences arising from hypergeometric series identities, *Acta Arith.* 193 (2020), 175–182.
35. **Ji-Cai Liu\***, Fedor Petrov, Congruences on sums of  $q$ -binomial coefficients, *Adv. in Appl. Math.* 116 (2020), Art. 102003.
36. Victor J.W. Guo, **Ji-Cai Liu\***, Some congruences related to a congruence of Van Hamme, *Integral Transforms Spec. Funct.* 31 (2020), 221–231.

37. Ke-Yu Lin, **Ji-Cai Liu\***, Congruences for the truncated Appell series  $F_3$  and  $F_4$ , *Integral Transforms Spec. Funct.* 31 (2020), 10–17.
38. **Ji-Cai Liu**, Supercongruences for truncated Appell series, *Colloq. Math.* 158 (2019), 255–263.
39. **Ji-Cai Liu\***, Chen Wang, Congruences for the  $(p - 1)$ th Apéry number, *Bull. Aust. Math. Soc.* 99 (2019), 362–368.
40. **Ji-Cai Liu**, Semi-automated proof of supercongruences on partial sums of hypergeometric series, *J. Symbolic Comput.* 93 (2019), 221–229.
41. **Ji-Cai Liu**, On Van Hamme’s (A.2) and (H.2) supercongruences, *J. Math. Anal. Appl.* 471 (2019), 613–622.
42. **Ji-Cai Liu**, Congruences on sums of super Catalan numbers, *Results Math.* 73 (2018), Art. 140.
43. Victor J.W. Guo, **Ji-Cai Liu\***,  $q$ -Analogues of two Ramanujan-type formulas for  $1/\pi$ , *J. Difference Equ. Appl.* 24 (2018), 1368–1373.
44. **Ji-Cai Liu**, A generalized supercongruence of Kimoto and Wakayama, *J. Math. Anal. Appl.* 467 (2018), 15–25.
45. **Ji-Cai Liu**, Supercongruences involving  $p$ -adic Gamma functions, *Bull. Aust. Math. Soc.* 98 (2018), 27–37.
46. **Ji-Cai Liu\***, Long Li, Su-Dan Wang, Some congruences on Delannoy numbers and Schröder numbers, *Int. J. Number Theory* 14 (2018), 2035–2041.
47. **Ji-Cai Liu**, Some supercongruences on truncated  ${}_3F_2$  hypergeometric series, *J. Difference Equ. Appl.* 24 (2018), 438–451.
48. **Ji-Cai Liu**, Some finite generalizations of Gauss’s square exponent identity, *Rocky Mountain J. Math.* 47 (2017), 2723–2730.
49. **Ji-Cai Liu\***, Jichun Liu, Some Extensions of the Prabhu-Srivastava Theorem Involving the  $(p, q)$ -Gamma Function, *Filomat* 31 (2017), 4507–4513.
50. **Ji-Cai Liu**, A  $p$ -adic supercongruence for truncated hypergeometric series  ${}_7F_6$ , *Results Math.* 72 (2017), 2057–2066.
51. **Ji-Cai Liu**, Proof of some divisibility results on sums involving binomial coefficients, *J. Number Theory* 180 (2017), 566–572.
52. **Ji-Cai Liu**, Some finite generalizations of Euler’s pentagonal number theorem, *Czechoslovak Math. J.* 142 (2017), 525–531.
53. **Ji-Cai Liu**, Congruences for truncated hypergeometric series  ${}_2F_1$ , *Bull. Aust. Math. Soc.* 96 (2017), 14–23.

54. **Ji-Cai Liu\***, Wilberd van der Kallen, Proof of Sun's conjectures on Schröder-like numbers, *Int. J. Number Theory* 13 (2017), 1627–1638.
55. Victor J.W. Guo\*, **Ji-Cai Liu**, Proof of a congruence on sums of powers of  $q$ -binomial coefficients, *Int. J. Number Theory* 13 (2017), 1571–1577.
56. **Ji-Cai Liu**, Some congruences for Schröder type polynomials, *Colloq. Math.* 146 (2017), 187–195.
57. **Ji-Cai Liu**, On two conjectural supercongruences of Apagodu and Zeilberger, *J. Difference Equ. Appl.* 22 (2016), 1791–1799.
58. **Ji-Cai Liu**, A supercongruence involving Delannoy numbers and Schröder numbers, *J. Number Theory* 168 (2016), 117–127.
59. Victor J.W. Guo\*, **Ji-Cai Liu**, Proof of some conjectures of Z.-W. Sun on the divisibility of certain double sums, *Int. J. Number Theory* 12 (2016), 615–623.
60. Victor J.W. Guo\*, **Ji-Cai Liu**, Proof of a conjecture of Z.-W. Sun on the divisibility of a triple sum, *J. Number Theory* 156 (2015), 154–160.

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