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教授

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程金发

职称：教授

职务：

学历：博士

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教育经历:

1984年9月以优异成绩考入厦门大学数学系, 1988年7月毕业获理学学士学位。1988年9月-1991年7月就读并毕业于华侨大学数学系, 获理学硕士学位。1993年9月-1996年7月就读于湖南大学和上海交通大学数学系, 获理学博士学位。

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工作经历:

1991年9月-1993年7月在江西上饶师范学院数学系任教。
1996年9月至今在厦门大学数学科学学院任教, 历任厦门大学副教授、教授。1998年加入中国民主同盟。
2005年10月-2006年10月由国家留学基金委公派到保加利亚索菲亚大学数学系做访问学者, 与国际著名数学家D.D.Bainov教授和P.S.Simeonov教授进行学习交流。期间曾应邀赴希腊的雅典大学数学系, 土耳其的伊斯坦布尔大学数学系做学术报告。2007年3月曾赴香港理工大学, 澳门科技大学等高校进行短期学术访问和交流。

研究方向:

主要研究领域是: 1.特殊函数与正交函数理论; 2.非一致格子超几何复差分方程; 3.离散与连续型分数阶微积分理论; 4.泛函微分方程理论。 5.单复变函数的K-拟共性映照理论。

授课情况:

1996年-至今, 长期从事研究生和本科生的一线教学任务, 授课包括《数学分析》、《复变函数》、《线性代数》、《常微分方程》、《概率论》等课程的教学。

科研成果:



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(1) 程金发教授代表性工作之一是分数阶差分方程理论的探索和开创性研究：首次创造性地提出了一种分数阶差分方程理论，以及分数阶差分方程的定义，系统深入地研究了分数差分及分数和分之间的一系列基础定理，这些重要的结果，都被系统总结到我们的《分数阶差分方程理论》专著中，这也是国内外第一部该领域的著作，因此在国内外产生了重要的积极影响。需要特别指出的是：运用我们的这种新的定义，使得求解分数阶差分方程得以成功实现，也显现了建立分数阶差分方程理论的光明前景，从而实质上开拓了分数阶差分方程理论这个全新领域的研究方向。目前国内外同行已经逐步了解并认识我们的这种有益的探索和开创性工作，如今，在国内外同行们的共同研究发展下，分数阶差分与和分定义，以及分数阶差分方程一些基础知识与基本理论，已经为业内同行所熟悉，并积极加入到分数阶差分方程理论的研究与应用中来。

(2) 程金发教授代表性工作之二是致力于研究探索非一致格子上复超几何差分方程和非一致格子上离散分数阶微积分的研究。非一致格子复差分方程中，尤以非一致格子上高斯型超几何复差分方程最为著名，它分别由美国科学院数学院士Askey和苏联数学院士Nikiforov等所开拓，是一类最具一般性的复超几何方程，许多特殊函数和正交函数都来自于该方程，美俄两大数学门派都取得的许多非凡的重要成果。目前国内外绝大多数研究者一般从事一致格子的实差分研究，但我们认为非一致格子的复差分研究难度更大更具挑战性，也更与国际前沿接轨。在非一致格子上，复分数阶和分以及差分又如何定义？这目前在国际上都是一个艰难深刻的课题，是最一般性的分数阶差分问题，因为即使在正整数阶差分，Nikiforov在求解非一致格子超几何方程的Rodrigues公式型解时，率先得到了这个公式，这都是一个非凡的成果。如今我们经过长期的酝酿积累和潜心探索，已经能够给出非一致格子上分数阶和分以及差分合理的定义；得到著名的Euler Beta公式以及Cauchy Beta复积分公式在非一致格子上的模拟。这些新概念新定义目前在国际上尚属首次，这是一个较大的创新。利用非一致格子上分数阶微积分，有助于深入研究非一致格子超几何差分方程的解，同时相信也能引出许多新的更困难有趣的问题，激发国际或国内一流学者同行参与钻研，为非一致格子上复分数阶差分方程和特殊函数的研究打开一扇崭新大门。我们一些相关的科研成果，已经被系统总结到专著《非一致格子超几何方程与分数阶差和分》中，于2021年在科学出版社出版。

- (1) 程金发著，分数阶差分方程理论，南强丛书，厦门大学出版社，厦门，2011年。
- (2) 程金发著，非一致格子超几何方程与分数阶差和分，科学出版社，北京，2021年。

主持项目：



Theory of Fractional Difference Equations
Special Functions and Orthogonal Polynomials
Science Foundation

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National Natural Science Foundation, 2003-2005

Fujian Natural Science Foundation, 2009-2009

(../szdw.htm)/xsky.htm)/djgz.htm)/szgz.htm)/ghhd.htm)/xygz.htm)/gzzd.htm)/wdzl.htm)

论文:

(../yjsjy.htm)

54. Jinfa Cheng, On the Definitions of Fractional Sum and Difference on Non-uniform Lattices, arxiv.org/abs/1910.05130 (http://arxiv.org/abs/1910.05130), Accepted for publication in Appl. Math. J. Chinese Univ., 2021.

53. Cheng Jinfa, Lukun Jia, Generalizations of Rodrigues Type Formulas for Hypergeometric Difference Equations on Nonuniform, Journal of Difference Equations and Applications, Vol. 26, (4) 2020, 435-457. https://doi.org/10.1080/10236198.2020.1748019 (https://doi.org/10.1080/10236198.2020.1748019).

52. Cheng Jinfa, Dai Weizhang, Adjoint Difference Equation for a Nikiforov-Uvarov-Suslov Difference Equation of Hypergeometric Type on Non-uniform Lattices, Accepted for publication in The Ramanujan Journal (2020)53: 285-318. arXiv:1812.10591 [math.CA], https://doi.org/10.1007/s11139-020-00298-3 (https://doi.org/10.1007/s11139-020-00298-3)

51. Jinfa Cheng; Yuming Chu, Note on Fractional Green's Function, Journal of Nonlinear Modeling and Analysis, Vol. 2, 2020 (3), 333-343. http://dx.doi.org/10.12150/jnma.2020.333 (http://dx.doi.org/10.12150/jnma.2020.333)

50. Jinfa Cheng, Fractional Vector Taylor and Cauchy Mean Value Formulas, Journal of Fractional Calculus and Applications, Vol. 11(2) July 2020, pp. 130-147.

49. Jinfa Cheng, On the Complex Difference Equation of Hypergeometric Type on Non-uniform



heng, Fractional parabolic two-step model and its accurate numerical
(../..) scheme for nanoscale heat conduction, Journal of Computational and Applied Mathematics
(2020), doi: <https://doi.org/10.1016/j.cam.2020.112812>
(<https://doi.org/10.1016/j.cam.2020.112812>).



网站首页 学院概况 学院动态 本科教育 研究生教育 师资队伍 学术科研 党建工作 思政工作 工会活动 校友工作 规章制度 文档资料

47. Jinfang Cheng, Lukun Jia, Hypergeometric Type Difference Equations on Nonuniform Lattices:

Rodrigues Type Representation for the Second Kind Solution, Acta Mathematica Scientia, (Chin. Ser.) 2019, 39A (4): 875–893.
(../index.htm)/xygk/xyjj/xyjdt.htm)../bkjy.htm) (../szdw.htm)/xsky.htm)../djgz.htm)../szgz.htm)../ghhd.htm)/xygz.htm)../gzzd.htm)../wdzl.htm)

46. Cheng Jinfang, On Multivariate Fractional Taylor's and Cauchy's Mean Value Theorem, J. Math. Study, Vol. 52(2019), No. 1, pp. 38-52. doi: 10.4208/jms.v52n1.19.04
(../yjsjy.htm)

45. Cheng, Jinfang; Dai, Weizhong Higher-order fractional Green and Gauss formulas. J. Math. Anal. Appl. 462 (2018), no. 1, 157–171. 26A33 (26B20)

44. Jia, Lu Kun; Cheng, Jin Fang; Wen, Yong Ming Approximations of a Poincaré map. (Chinese) Xiamen Daxue Xuebao Ziran Kexue Ban 56 (2017), no. 3, 384–390.

43. Jia, Lukun; Cheng, Jinfang; Feng, Zhaosheng A q-analogue of Kummer's equation. Electron. J. Differential Equations 2017, Paper No. 31, 20 pp. 39A13

42. Xu, Ce; Cheng, Jin Fang The 7-order sums of the Riemann zeta function. (Chinese) Acta Mathematica Sinica (Chin. Ser.) 59 (2016), no. 2, 151–162. 11M06

41. Xu, Ce; Cheng, Jinfang Some results on Euler sums. Funct. Approx. Comment. Math. 54 (2016), no. 1, 25–37. (Reviewer: Sandro Bettin) 11M06

40. Cheng, Jin Fang Solution to sequence fractional difference equations of order (m,q). (Chinese) Xiamen Daxue Xuebao Ziran Kexue Ban 53 (2014), no. 6, 761–764. 39A13

39. Cheng, Jin-Fang; Chu, Yu-Ming Necessary and sufficient conditions for oscillation of the solutions of even order differential equations. Rev. Anal. Numér. Théor. Approx. 41 (2012), no. 1, 18–26(2013). (Reviewer: Zuzana Pátíková) 34C10

38. Cheng, Jin-Fang; Chu, Yu-Ming Fractional difference equations with real variable. Abstr. Appl. Anal. 2012, Art. ID 918529, 24 pp. 39A10

37. Cheng, Jin Fa; Wu, Guo Chun Solutions of fractional difference equations of order $(2,q)$.

(Chin. Ser.) 55 (2012), no. 3, 469–480. (Reviewer: Zhenhai Liu) 39A10

36. Cheng, Jin Fa Solutions of fractional difference equations of order (k,q) . (Chinese) Acta Math.

Appl. Sin. 34 (2011), no. 2, 313–330. (Reviewer: Qin Sheng) 39A10 (26A33 65L05)

35. Cheng, Jin-Fa; Chu, Yu-Ming On the fractional difference equations of order $(2,q)$. Abstr.

Appl. Anal. 2011, Art. ID 497259, 16 pp. (Reviewer: Jan ?ermak) 26A33 (39A10 39A12)

34. Cheng, Jinfa; Chu, Yuming Oscillation of one order neutral differential equation with impulses. Commun. Korean Math. Soc. 26 (2011), no. 2, 197–205. 34K11 (34K40 34K45)

33. Cheng, Jin-Fa; Chu, Yu-Ming Solution to the linear fractional differential equation using

Adomian decomposition method. Math. Probl. Eng. 2011, Art. ID 587068, 14 pp. 34A45 (34A08 45J05 65L99)

32. Cheng, Jin-Fa; Chu, Yu-Ming Oscillatory criteria for the two-dimensional difference systems.

J. Inequal. Appl. 2010, Art. ID 209309, 13 pp. (Reviewer: ?zkan ?calan) 39A21

31. Cheng, Jin-Fa; Chu, Yu-Ming Oscillations of second-order neutral impulsive differential

equations. J. Inequal. Appl. 2010, Art. ID 493927, 29 pp. (Reviewer: ?zkan ?calan) 34K11 (34K40 34K45)

30. Cheng, Jin-fa; Chu, Yu-ming Sufficient and necessary conditions for oscillation of n th-order

differential equation with retarded argument. J. Inequal. Appl. 2009, Art. ID 892936, 17 pp. (Reviewer: Wei Nian Li) 34K11

29. Gu, Guang Ze; Cheng, Jin Fa Oscillation of the bounded solution to a second-order

differential equation with impulse. (Chinese) J. Hunan Univ. Nat. Sci. 36 (2009), no. 6, 83–85. 34K11 (34K45)

28. Chu, Yuming; Cheng, Jinfa; Wang, Gendi Remarks on John disks. Acta Math. Sci. Ser. B (Engl.

Ed.) 29 (2009), no. 1, 160–168. 30C62

27. Chu, Yu Ming; Cheng, Jin Fa; Zhang, Xiao Hui Hyperbolic geodesics and quasidisks. (Chinese)

Chinese Ann. Math. Ser. A 29 (2008), no. 4, 567–572. 30C62 (30F45)

26. Chu, Yu Ming; Cheng, Jin Fa Quasihyperbolic metric and John disks. (Chinese) Acta Math.



Sinica (Chin. Ser.) 51 (2008), no. 3, 417–422. (Reviewer: Shan Shuang Yang) 30C62

Yuming Oscillation theorem for second-order difference equations.

8), no. 3, 623–633. (Reviewer: Radha Nath Rath) 39A11

24. Weiming, Gong; Jinfa, Cheng; Yuming, Chu Existence of nonoscillatory solution of second order neutral differential equation. Bull. Inst. Math. Acad. Sin. (N.S.) 2 (2007), no. 3, 785–795.

34K11

网站首页 学院概况 学院动态 本科教育 研究生教育 师资队伍 学术科研 党建工作 思政工作 工会活动 校友工作 规章制度 文档资料

23. Cheng, Jinfa Kamenev-type oscillation criteria for delay difference equations. Acta Math. Sci.

Ser. B (Engl. Ed.) 27 (2007), no. 3, 574–580. (Reviewer: Guang Zhang) 39A11

../index.htm/xygk/xyjj/xyjdt.htm../bkjy.htm../szdw.htm../xsky.htm../djgz.htm../szgz.htm../ghhd.htm/xygz.htm../gzzd.htm../wdzl.htm

22. Cheng, Jinfa Existence of a nonoscillatory solution of a second-order linear neutral difference equation. Appl. Math. Lett. 20 (2007), no. 8, 892–899. (Reviewer: A?ac?k Zafer) 39A11 (39A10)

../yjsjy.htm

21. Cheng, Jinfa; Chu, Yuming The oscillation of certain high order partial difference equations. Bull. Inst. Math. Acad. Sin. (N.S.) 1 (2006), no. 4, 507–522. (Reviewer: Eugenia N. Petropoulou) 39A11 (39A10 39A20)

20. Cheng, Jin Fa Oscillation criteria for second-order functional difference equations. (Chinese) Acta Math. Sinica (Chin. Ser.) 49 (2006), no. 2, 317–326. (Reviewer: Xuezhong He) 39A11

19. Jinfa, Cheng; Yuming, Chu Oscillation criteria for n-th order neutral functional differential equations. Far East J. Appl. Math. 22 (2006), no. 3, 275–284. (Reviewer: Elmetwally M. Elabbasy) 34K11 (34K40)

18. Jinfa, Cheng; Markova, N. Remarks on the oscillation of impulsive of one order differential equation. Int. J. Pure Appl. Math. 27 (2006), no. 4, 509–516. 34C10 (34A37)

17. Cheng, Jin Fa; Chu, Yu Ming Remarks on the characteristic property of quasidisks. (Chinese) Chinese Ann. Math. Ser. A 26 (2005), no. 1, 99--104; translation in Chinese J. Contemp. Math. 26 (2005), no. 1, 99–104 (Reviewer: Jixiu Chen) 30C62

16. Cheng, Jin Fa; Annie, Z. Existence of nonoscillatory solution to a second-order linear neutral delay equation. (Chinese) J. Systems Sci. Math. Sci. 24 (2004), no. 3, 389–397. 34K06 (34K40)

15. Cheng, Jin Fa Necessary and sufficient conditions for the oscillation of first-order functional difference equations. (Chinese) J. Biomath. 18 (2003), no. 3, 295–298. 39A11

14. Cheng, Jin Fa; Annie, Z. Oscillation criteria for mth order neutral functional difference





equations. (Chinese) Acta Math. Sinica (Chin. Ser.) 45 (2002), no. 6, 1207–1212. 39A11

and sufficient conditions for the oscillation of first-order difference

equations. (Chinese) Xiamen Daxue Xuebao Ziran Kexue Ban 41 (2002), no. 4, 423–426. 39A11

12. Cheng, Jin Fa Oscillations of higher-order mixed neutral differential equations. (Chinese) J. Systems Sci. Math. Sci. 21 (2001), no. 3, 287–291. 34K11 (34K40)

11. Cheng, Jin Fa; Lin, Bao De Oscillation for solutions to higher-order neutral difference equations of mixed type. (Chinese) Xiamen Daxue Xuebao Ziran Kexue Ban 39 (2000), no. 4,

432–436. (Reviewer: Guoting Chen) 39A11 (39A10)

(../index.htm)/xygk/xyjz/xyjzdt.htm)../bkjy.htm) (../szdw.htm)/xsky.htm)../djgz.htm)../szgz.htm)../ghhd.htm)/xygz.htm)../gzzd.htm)../wdzl.htm)

10. Cheng, Jinfang; Fang, Ainong, Quasiregular mappings in higher dimensions, Acta Mathematicae Applicatae Sinica, Vol. 23 (3), 2000, 472–474. (../yjsjy.htm)

9. Cheng, Jin Fa; Fang, Ai Nong (G,H)-quasiregular mappings and B-harmonic equations. (Chinese) Acta Math. Sinica (Chin. Ser.) 42 (1999), no. 5, 883–888. (Reviewer: Jixiu Chen) 30C62

8. Cheng, Jin Fa, An improved estimate for the Beurling-Ahlfors integral inequality and its application. (Chinese) Xiamen Daxue Xuebao Ziran Kexue Ban 37 (1998), no. 5, 640–645. 30C62

7. Cheng, Jinfang, The existence of infinitely many Teichmüller type extremal mappings with special boundary correspondence. Northeast. Math. J. 14 (1998), no. 1, 47–56. (Reviewer: Steffen Timmann) 30C62

6. Cheng, Jin Fa; Fang, Ai Nong Systems of generalized Beltrami equations in spaces of even dimension and systems of Beltrami equations in higher-dimensional spaces. (Chinese) Chinese Ann. Math. Ser. A 18 (1997), no. 6, 789–798. (Reviewer: Sheng Gong) 30C62

5. Cheng, Jin Fa; Chu, Yu Ming; Gu, Guang Ze Teichmüller extremal mappings of an angular region. (Chinese) Hunan Daxue Xuebao 23 (1996), no. 5, 10–14, 19. 30F30

4. Chu, Yu Ming; Cheng, Jin Fa Quasidisks and modulus monotone domains. (Chinese) Acta Math. Sinica (Chin. Ser.) 39 (1996), no. 4, 556–560. (Reviewer: Shan Shuang Yang) 30C65

3. Fang, Ai Nong; Chu, Yu Ming; Cheng, Jin Fa Quasiconformal mappings and linearly locally connected sets. (Chinese) Acta Math. Sinica (Chin. Ser.) 39 (1996), no. 1, 45–49. 30C65

2. Cheng, Jin Fa; Chu, Yu Ming Extremal mappings of elliptic regions under prescribed conditions and their properties. (Chinese) J. Shanghai Jiaotong Univ. 29 (1995), no. 5, 136–143.



(Reviewer:Puqi Tang) 30C62 (30C70)



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u Ming Extremal quasiconformal mappings for parabolic regions.

ebao 22 (1995), no. 5, 3–7.

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