温州大学数理学院

 浙江温州，325035

 Email：

2257875920@qq.com

姜年权（博士，教授）

 **教育背景**

2000年9月 硕、博连读研究生，中国科技大学大学化学院,

-2004年6月 理学博士

1983年9月 本科，安徽师范大学物理系,理学学位

-1987年7月

 **经历**

 工作经历

2019年06月 教授，硕导， 温州大学数理学院

-现在

2004年08月 副教授、教授，硕导，温州大学物电学院

-2019年06月

2004年06月 留校任教，中国科技大学化学院材料系

-2004年08月

学术交流经历

2013年12月 高级访问学者， 英国University College London

~2014年12月

教学经历

2004年8月 讲授课程

-至今

 ○ 光学 ○ 原子物理

 ○ 量子力学 ○ 大学物理

 ○ 高等量子力学 ○ 量子光学

 ○ 量子信息物理 ○ 近代物理

 **研究方向**

1. **量子信息**
2. **新能源**
3. **超导理论**

 **荣誉和奖励**

1 温州市“551人才工程”第二层次 （2006年）

2 温州大学优秀教师（2012）

 **主持和参与项目**

教学项目

2008年12月 《高等量子力学》教学模式改革与实践，温州大学学位与研-2010年12月 究生教育教，主持

 学术项目

2010年01月 量子态表象变换中的经典变换及其应用的研究

-2012年12月 （10947017/A05）,国家自然科学基金；

2009年01月 染料敏化太阳电池成套关键技术研发（2009AA050603），

—2011年12月 国家高技术研究发展计划（863计划），参与；

2005年01月 博士研究人员启动基金(10447128)，国家自然科学基金，

—2005年12月 主持；

2008年01月 大面积低价长寿命太阳电池关键科学和技术问题的基础研究

—2010年08月 （2006CB202600），国家重点基础研究发展计划（973计划），参与；

2008年01月 高效低价太阳能电池电极的研究（G20080046），温州市科技

—2010年06月 计划项，主持；

2011年01月 基于光子回声技术的光量子信息固态存储研究（11074190），—2013年12月 国家自然科学基金，参与；

2014年01月 宽波段高效率深刻蚀圆形聚焦光栅及其在太阳电池中的应用

-2017年12月 （[F050202](http://www.medsci.cn/sci/nsfc.do?c=F050202)）, 国家自然科学基金，参与；

2014年01月 新型太阳能高效转化纳米无机结材料及其在杂化太阳能电池中

-2014年12月 研究的应用（Z20140422），温州市引智项目(市级重点)，

主持。

 **论文**

学术论文（\*为通讯作者）

1. Yao Chen, Fo-Liang Lin, Xi Liang and Nian-Quan Jiang\*, Programmable Quantum Processor with Quantum Dot Qubits，Chin. Phys. Lett. 2019, 36(7), 070302.
2. Yang-Qing Guo, Nian-Quan Jiang\*，Controllably Coupling Superconducting Charge and Flux Qubits by Using Nanomechanical Resonator，Chin. Phys. Lett. 2017, 34 (5), 050302
3. [Chunming Sun](http://pubs.rsc.org/en/results?searchtext=Author:Chunming Sun),[Xiaodong Li](http://pubs.rsc.org/en/results?searchtext=Author:Xiaodong Li),[Guojie Wang](http://pubs.rsc.org/en/results?searchtext=Author:Guojie Wang),[Pandeng Li](http://pubs.rsc.org/en/results?searchtext=Author:Pandeng Li), [Wenjun Zhang](http://pubs.rsc.org/en/results?searchtext=Author:Wenjun Zhang),[Tonggang Jiu](http://pubs.rsc.org/en/results?searchtext=Author:Tonggang Jiu),[Nianquan Jiang](http://pubs.rsc.org/en/results?searchtext=Author:Nianquan Jiang)\* and  [Junfeng Fang](http://pubs.rsc.org/en/results?searchtext=Author:Junfeng Fang), Highly efficient inverted polymer solar cells using fullerene derivative modified TiO2 nanorods as the buffer layer, **RSC Adv.**, 2014,**4**, 19529-19532, **DOI:** 10.1039/C4RA02254H
4. [Yanbo Guo](http://link.springer.com/search?facet-author="Yanbo+Guo"),  [Guozhong Wang](http://link.springer.com/search?facet-author="Guozhong+Wang"),  [Nianquan Jiang](http://link.springer.com/search?facet-author="Nianquan+Jiang")\*, Generating χ-Type Four-Qubit Entangled States in Superconducting Transmon Qubit System, **[International Journal of Theoretical Physics](http://link.springer.com/journal/10773)**, 2014, 53(9), 3135-3141, **DOI:** 10.1007/s10773-014-2110-0
5. [Chunming Sun](http://pubs.acs.org/action/doSearch?ContribStored=Sun,+C), [Yulei Wu](http://pubs.acs.org/action/doSearch?ContribStored=Wu,+Y), [Wenjun Zhang](http://pubs.acs.org/action/doSearch?ContribStored=Zhang,+W),[Nianquan Jiang](http://pubs.acs.org/action/doSearch?ContribStored=Jiang,+N), [Tonggang Jiu](http://pubs.acs.org/action/doSearch?ContribStored=Jiu,+T), and [Junfeng Fang](http://pubs.acs.org/action/doSearch?ContribStored=Fang,+J)，Improving Efficiency by Hybrid TiO2 Nanorods with 1,10-Phenanthroline as A Cathode Buffer Layer for Inverted Organic Solar Cells, ACS Appl. Mater. Interfaces, 2014, 6 (2), pp 739–744, DOI: 10.1021/am404423k
6. Zhao Ying-Yan and Jiang Nian-Quan\*，Mesoscopic entangled coherent states implemented with a circuit quantum electrodynamics system，Chin. Phys. B Vol. 22, No. 5 (2013) 050308
7. GAO Gui-Long, SONG Fu-Quan, HUANG Shou-Sheng,WANG Yan-Wei, FAN Zhi-Qiang,YUAN Xian-Zhang, JIANG Nian-Quan\*, Producing and Distinguishing X-Type Four-Qubit States in Flux Qubits, CHIN. PHYS. LETT. Vol. 29, No. 4 (2012) 044214
8. Gao Gui-Long, Song Fu-Quan, Huang Shou-Sheng, Wang Hui,

Yuan Xian-Zhang, Wang Ming-Feng, and Jiang Nian-Quan\*, A simple scheme to generate ­ X -type four-charge entangled states in circuit QED, Chin. Phys. B Vol. 21, No. 4 (2012) 044209

1. GAO Gui-Long , CAI Gen-Chang, HUANG Shou-Sheng ,WANG Ming-Feng, and JIANG Nian-Quan\*, One-Step Generation of Multi-Qubit GHZ and W States in Superconducting Transmon Qubit System, Commun. Theor. Phys. 57 (2012) 205-208
2. Zhi-song Yu, Gui-hua Ren, Hong-yi Fan, Gen-Chang Cai, Nian-Quan Jiang\*, Fock-Space Projector Studied in Weyl Ordering Approach, Int J Theor Phys (2012) 51:2256–2261
3. Ying-Yan Zhao, Nian-Quan Jiang\*, Generating mesoscopic entanglement of coherence and squeezed states in circuit QED system, Physics Letters A 376 (2012) 3654-3657
4. Chen Jun-Hua, Fan Hong-Y, and Jiang Nian-Quan, Long-time limit behavior of the solution to an atom's master equation, Chin. Phys. B Vol. 21, No. 8 (2012) 083201
5. Gao GuiLong, Cai GenChang, Huang ShouSheng, Tang LongYing, Gu WenJing, Wang MingFeng and Jiang NianQuan\*, 1→N quantum controlled phase gate realized in a circuit QED system, Science China Physics, Mechanics and Astronomy, 2012, Volume 55, [Issue 8](http://link.springer.com/journal/11433/55/8/page/1), pp 1422-1426
6. Nian-quan Jiang, Hong-yi Fan, Shuai Wang, Jun-hua Chen, Long-Ying Tang, Wen-Jing Gu, Gen-Chang Cai, Virial Theorem for Angular Displacement and Torque, Int J Theor Phys (2011) 50:3610–3615
7. Jiang Nian-Quan, Fan Hong-Yi, Xi Liu-Sheng,Tang Long-Ying, and Yuan Xian-Zhang, Evolution of a two-mode squeezed vacuum in the amplitude dissipative channel, Chin. Phys. B Vol. 20, No. 12 (2011) 120302
8. Gui-Long Gao, Liusheng Xi, Guoliang Gao, Jianping Zhong, Nian-Quan Jiang\*, Preparing arbitrary mode superconducting LC entangled coherent state via a superconducting charge qubit, Physics Letters A, 375 (2011) 3946–3949
9. FAN HongYi, YUAN Hong Chun and JIANG NianQuan\*, New identities about operator Hermite polynomials and their related, Science China Physics, Mechanics and Astronomy, 2011 Vol. 54 No. 12: 2145–2149
10. Hong-Yi Fan, Hong-Chun Yuan, Xue-Xiang Xu and Nian-Quan Jiang\*, New approach for obtaining the squeezing-enhanced state and its Wigner function by virtue of the Weyl–Wigner quantization scheme, Phys. Scr. 83 (2011) 015403
11. Fan Hong-Yi, Xu Xue-Xiang, Yuan Hong-Chun,Wang Shuai, Wang Zhen, Xu Peng, and Jiang Nian-Quan\*, A new approach to obtaining positive-deﬁnite Wigner operator for two entangled particles with different masses, Chin. Phys. B Vol. 20, No. 7 (2011) 070301
12. FAN HongYi, YUAN HongChun, CAI GenChang and JIANG NianQuan\*, Operators’ ordering: fromWeyl ordering to normal ordering, Sci China Phys Mech Astron, August (2011) Vol. 54 No. 8, 1394-1397
13. Xue Li, Huang Shou-Sheng, Wu Lie, Ji Yong-Yun, and Jiang Nian-Quan\*, Scheme to generate and discriminate a type of multipartite maximally entangled states in ion-trap, Chin. Phys. B 20 (2011) 050313
14. Li Xue, Lie Wu, Gen-Chang Cai and Nian-Quan Jiang\*, Maximal engtangled four-qubit state and its preparation in cavity QED system, International Journal of Quantum Information, 9(3) (2011) 875
15. Peng xu, Lie wu and Nian-quan jiang\*, Realization of 1→n controlled phase gate in cavity QED, International Journal of Quantum Information, 9(2) (2011) 773-778
16. XUE Li and JIANG Nian-Quan\*, Implementing 1-M Economical Phase-Covariant Telecloning in Cavity QED, Commun. Theor. Phys. 55 (2011) 441–444
17. FAN Hong-Yi and JIANG Nian-Quan\*, Quantum Mechanical Correspondence of Poisson Integral Formula, Commun. Theor. Phys. 55 (2011) 217–220
18. Nian-Quan Jiang, Hong-Yi Fan and Li-yun Hu，Evolution of chaotic field in laser process: Evolution law of density operator and photon number decay, J. Phys. A: Math. Theor. 44 (2011) 195302
19. Ming-Feng Wang, Nian-Quan Jiang, Qing-Li Jin, and Yi-Zhuang Zheng, Continuous-variable controlled-Z gate using an atomic ensemble, Phys. Rev. A 83, 062339 (2011)
20. Yong He and Nian-Quan Jiang\*, Yong-Yun Ji, One-dimensional cluster state generated in one step via one cavity, Optics Communications, 283（2010）1979
21. Yong He and Nian-Quan Jiang\*, Schemes to generate and distinguish a type of genuine four-qubit entangled states in a cavity QED system, Optics Communications, 283（2010）1558
22. Dong-Xing Kou, Wei-Qing Liu, Lin-Hua Hu, Song-Yuan Dai and Nian-Quan Jiang\*, The investigation on the mechanism of enhanced performance of dye-sensitized solar cells after anode modified, Acta Phys. Sin, 59 (2010) 5857
23. Wei-Qing Liu, Dong-Xing Kou, Lin-Hua Hu, Yang Huang, Nian-Quan Jiang and Song-Yuan Dai, Processes of charge transport and transfer in dye-sensitized solar cell by electrical and optical modulation techniques, Acta Phys. Sin, 59 (2010) 5141
24. Yang Huang, Song-Yuan Dai, Shuang-Hong Chen, Lin-Hua Hu, Fan-Tai Kong, Dong-Xing Kou and Nian-Quan Jiang, Model for series resistance photovoltaic performance of large-scale dye-sensitized solar cells, Acta Phys. Sin, 59 (2010) 0643
25. Hong-Yi Fan, HongChun Yuan and NianQuan Jiang\*, Deriving new operator identities by alternately using normally, antinormally, and Weyl ordered integration technique, Sci China Phys Mech Astron, 53 (2010) 1626
26. Hong-Yi Fan and Nian-Quan Jiang\*, Operator Formulas Involving Generalized Stirling Number Derived by Virtue of Normal Ordering of Vacuum Projector, Commun. Theor. Phys., 54 (2010) 651
27. Hong-Yi Fan, Gang Ren, Li-Yun Hu and Nian-Quan Jiang\*, Solving nonlinear master equation describing quantum damping by virtue of the entangled state representation, Chin. Phys. B, 19 (2010) 114206
28. Hong-Yi Fan and Nian-Quan Jiang\*, Energy average formula of photon gas rederived by using the generalised Hermann–Feynman theorem, Chin. Phys. B, 19 (2010) 090301
29. Yong He and Nian-Quan Jiang\*, Nondestructive and complete Bell-state analysis for atomic qubit systems, Chin. Phys. B, 19 (2010) 090310
30. Nian-Quan Jiang and Yu-Jian Wang, Criterion for Genuine Multipartite Entanglement Quantum Channels, Chin. Phys. Lett., 27（2010）010302
31. Yong He and Nian-Quan Jiang\*, Efficient Atomic One-Qubit Phase Gate Realized by a Cavity QED and Identical Atoms System, Commun. Theor. Phys., 53 (2010) 97
32. Hong-Yi Fan and Nian-Quan Jiang\*, New Approach for Normalizing Photon-Added and Photon-Subtracted Squeezed States, Chin. Phys. Lett., 27 （2010）044206
33. Hong-Yi Fan and Nian-Quan Jiang\*, Quantum Mechanical Version for Bessel Beam's Propagation in ABCD Optical System, Commun. Theor. Phys., 53 （2010）473
34. Weiqing Liu, Linhua Hu, Songyuan Dai, Lei Guo, Nianquan Jiang, Dongxing Kou，The effect of the series resistance in dye-sensitized solar cells explored by electron transport and back reaction using electrical and optical modulation techniques，Electrochimica Acta，55 (2010) 2338
35. Cui-Hong Lü, Hong-Yi Fan, and Nian-Quan Jiang\*, Two mutually conjugated tripartite entangled states and their fractional Fourier transformation kernel, Chin. Phys. B 19 (2010) 120303
36. Hong-yi Fan and Nian-quan Jiang\*, Entangled state representation for describing both squeezing and entanglement involved in the parametric down-conversion process, Phys. Scr. 82 (2010) 055403
37. Weiqing Liu, Dongxing Kou, Molang Cai, Linhua Hu, Jiang Sheng, Huajun Tian, Nianquan Jiang\*, and Songyuan Dai, The Intrinsic Relation between the Dynamic Response and Surface Passivation in Dye-Sensitized Solar Cells Based on Different Electrolytes, J. Phys. Chem. C, 114 (2010) 9965
38. Hong-Yi Fan and Nian-Quan Jiang\*, Relation between Characteristic Function of Density Operator and Tomogram, Chin. Phys. Lett., 26（2009）110302
39. Hong-yi Fan and Nian-Quan Jiang\*, Phase Operator and Phase State in Thermo Field Dynamics, Mod. Phys. Lett. A, 24 (2009) 1219
40. Ming-Feng Wang, Yi Zhang, Nian-Quan Jiang and Yi-Zhuang Zheng， Efficient two-mode squeezing and quantum-state teleportation of macroscopic atomic ensembles , Phys. Rev. A, 79 (2009) 012327
41. Nian-Quan Jiang, Yu-Jian Wang, Yi-Zhuang Zheng and Gen-Chang Cai, Tractable Quantification of Entanglement for Multipartite Pure States, Chin. Phys. Lett., 25 (2008) 1943
42. Nian-Quan Jiang and Hong-Yi Fan, New Three-Mode Squeezing Operators Gained via Tripartite Entangled State Representation, Commun. Theor. Phys., 49 (2008) 225
43. Hong-yi Fan and Nian-Quan Jiang\*, Thermo Wigner operator in thermo field dynamics: its introduction and application, Phys.Scr., 78 (2008) 045402
44. Nian-Quan Jiang, Bai-qi Jing, Yi Zhang and Gen-Chang Cai, Common eigenstates of many-particle compatible observables, Europhysics Letters (EPL), 84 (2008) 14002
45. Hong-yi Fan and Nian-Quan Jiang, Magnetic translation and degeneracy of some landau states studied by virtue of the entangled state representation, Modern Physics Letters B (MPLB), 21（2007）365
46. Nian-Quan Jiang and Yi-Zhuang Zheng, General Einstein-Podolsky-Rosen-type entanglement of continuous variables for bosons, Phys.Rev.A, 74 (2006) 012306
47. Hong-yi Fan and Nian-Quan Jiang, Feynman propagator for an electron in a quantum dot in the presence of a uniform magnetic field, International Journal of Modern Physics B (IJMPB), 20（2006）4909
48. Nian-Quan Jiang, A tomography theory for an n-partite entangled system, Phys. Lett. A, 339 (2005) 255
49. Nian-Quan Jiang, The n-partitie entangled Wigner operator and its applications in Wigner function, J. Opt. B: Quantum Semiclass, Opt.7 (2005) 264
50. Nian-Quan Jiang, New representation of n-mode squeezed state gained via n-partite entangled state, Opt. Commun, 254 (2005) 256
51. Nian-Quan Jiang, Multi-partite EPR Entangled State Representation for Continuous Variables and Its Application in Squeezing Theory, Chin. Phys. Lett., 22 (2005) 1131
52. Nian-Quan Jiang, FAN Hong-Yi, A Kind of Three-Mode Entangled States of Continuum Variables Generated by Beam Splitter and Parametric Down-Conversion Amplifier, Commun. Theor. Phys, 43 (2005) 208
53. Nian-Quan Jiang, FAN Hong-Yi and LU Hai-Liang, Bose Description of Pauli Spin Operators and Related Coherent States, Commun. Theor. Phys, 43 (2005) 17
54. Hong-yi Fan and Nian-Quan Jiang , Special Two-Mode Unitary Transform and Maximum Entanglement State for Four Wave Mixing, Physica Scripta, 71 (2005) 277
55. Hong-yi Fan, Nian-Quan Jiang and Hai-Liang Lu, A new representation for two-mode squeezed states, Opt. Commun, 234 (2004) 277
56. Hong-yi Fan and Nian-Quan Jiang, The relation between three types of three-mode squeezing operators and the tripartite entangled state, J. Opt. B: Quantum Semiclass, Opt. 6 (2004) 238
57. Nian-Quan Jiang and Hong-yi Fan, Fractional entangled Fourier transform and non-unitary SU(2) bosonic operator realization, IL NUOVO CIMENTO, 119 B (2004) 547
58. Hong-yi Fan and Nian-Quan Jiang, Three-Mode Entangled State Representation of Continuum Variables and Optical Four-Wave Mixing, International Journal of Theoretical Physics, 43 (2004) 2275
59. Hong-yi Fan and Nian-Quan Jiang , From Complex Fractional Fourier Transform to Compex Fractional Radon Transform, Commun. Theor. Phys, 42 (2004) 23
60. Hong-yi Fan and Nian-Quan Jiang, Tripartite entangled Wigner operator, the Wigner function and its marginal distributions, J. Opt. B: Quantum Semiclass, Opt. 5 (2003) 283
61. Hong-yi Fan and Nian-Quan Jiang, Theory of Tomography for the Wigner Function of Tripartite Entangled Systems, International Journal of Modern Physcis B, 17 (2003) 5737
62. Hong-yi Fan and Nian-Quan Jiang, On the Entangled Fractional Fourier Transform in Tripartite Entangled State Representation, Commun. Theor. Phys., 40 (2003) 39
63. Hong-yi Fan and Nian-Quan Jiang, New Three-Mode Einstein-Podolsky-Rosen Entangled State Representation and Its Application in Squeezing Theory, Chin. Phys. Lett., 19 (2002) 1403
64. Hong-yi Fan, Nian-Quan Jiang and Hai-Liang Lu, Tripartite Entangled State Representation and its Application in Quantum Teleportation, Mod. Phys.Lett. B, 16 (2002) 1193

教学论文（\*为通讯作者）

[1] 张毅 姜年权\*, EPR型连续变量纠缠态的正规乘积方法求解, [大学物理](http://www.cqvip.com/qk/96200X/index.shtml%22%20%5Ct%20%22_blank), 27 (2008) 3。

 **指导硕士生**

2006 级 张毅，王育建

2007 级 何勇，寇东星

2008 级 许朋，薛丽，王利军

2009 级 黄寿胜，高贵龙，李毅

2010 级 赵英燕，王辉

2011 级 陈娟，孙春明

2012 级 郭琰博，林初伦

2013 级 刘祥

2014 级 段慧慧，郭羊青

2016 级 陈垚

2017 级 林佛良

2018 级 梁喜

 **指导本科生竞赛**

xxxx年 奖项名称 奖项等级

 **科研获奖**

姜年权，《多粒子纠缠态的产生、度量与应用的研究》获浙江省高等学校科研

 成果三等奖，2010年；

姜年权，《多粒子体系相容可观测量的共同本征态》获温州市第十三届自然科学优秀论文二等奖，2009年。