福州大学 物理与信息工程学院

夏岩

教授，副院长

夏岩，男，教授，博士生导师，1980年01月出生，研究生学历，博士学位，福州大学旗山学者，入选福建省百千万工程省级人选，新世纪优秀人才计划和福建省教育厅高校杰青培育计划，曾获得福建省青年科技奖，福建省五四青年奖章。

办公室：物理与信息工程学院南楼328室
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工作经历：
2016.06-现在 福州大学物信学院应用物理系教授
2015.12-现在 福建省量子信息与量子光学重点实验室
2016.07-2019.06 福州大学旗山学者
2014.01-2015.01 Quantum Science and Technology Group,Stevens Institute of Technology, N.J., USA, Visiting Scholar, Supervisor: Prof. Ting Yu.
2013.06-现在 物理电子学专业 博士生导师
2012.07-2016.06 福州大学物信学院应用物理系副教授
2010.06-现在 光学专业 硕士生导师
2009.10-2012.10 大连理工大学数学流动站 博士后，合作导师：侯中华教授
2009.07-2012.07 福州大学物信学院物理系量子光学实验室 副教授（校聘）

学习经历：
2006.09-2009.07 大连理工大学理论物理专业 博士，指导教师：宋鹤山教授
2003.09-2006.07 延边大学理论物理专业 硕士，指导教师：张寿教授
1999.09-2003.07 延边大学物理学教育专业 学士

研究兴趣：
1、绝热捷径技术
2、基于腔量子电动力学(QED)的原子及其综综的量子光学特性及量子信息处理
3、基于超导、NV色芯、半导体量子点等量子系统下的量子纠缠态操控和量子计算

4、光子多自由度量子信息处理，如光子量子计算、高容量量子通信等

5、远程量子通信中的基本物理问题，如光量子态保真传输、纠缠产生、纯化、退相干控制等

6、其他一些交叉热点问题

博士、硕士招生方向：量子信息与量子光学

每年有1-2个硕士名额，1-2个博士名额。

欢迎对量子信息与量子光学研究感兴趣的同学email联系：xia-208@163.com，我们将提供有竞争力的待遇。

学术及社会兼职(Academic and social work)

1	国家自然科学基金同行评审专家
2	福建省物理学会常务理事
3	福建省光学学会副理事长、常务理事
4	全国量子物理青年学者研讨会组委会委员

科研项目(Research project)

1	201912	**********	70	国防******课题	2019.12-2024.12	1
2	50010954	软件无线电OFDM系统虚拟仿真实验项目	100	教育部	2018.06-2021.06	1
3	11575045	腔QED系统中多体绝热加速演化方法及应用的理论研究	58.8	国家自然科学基金面上项目	2016.01-2019.12	1
4	GXRC-1687	腔QED系统中绝热捷径构建	25	福州大学旗山学者	2016.9	1
5	11105030	噪音环境下量子纠缠态操纵与高保真传输的理论研究	22	国家自然科学基金青年项目	2012.01-2014.12	1
6	11047122	基于原子-光子比特的量子信息处理的理论研究	4	国家自然科学基金理论物理专款	2011.01-2011.12	1
7	212085	可抵制环境噪音影响的量子纠缠态操纵与高保真通信	10	教育部科学技术重点项目	2012.06-2015.06	1
8	JA11005	量子纠缠态制备及相位门操作的理论研究	10	福建省教育厅新世纪优秀人才项目	2011.01-2016.06	1
9	JA10009	线性光学方法在量子信息中应用的理论研究	5	福建省教育厅高校杰出青年基金	2010.06-2013.05	1
10	2010J01006	线性光学方法在量子纠缠态制备中应用的理论研究	7	福建省自然科学基金面上项目	2010.06-2013.05	1

科技论著(Scientific treatise)

1	Robust generation of logical qubit singlet states with reverse engineering and optimal control with spin qubits	Advanced Quantum Technologies (2020)	Wiley	SCI	通讯
2	Effective pulse reverse-engineering for strong field-matter interaction	Opt. Lett. 45, 3597-3600 (2020)	OSA	SCI	通讯
3	Two-path interference for enantiomer-selective state transfer of chiral molecules	Phys. Rev. Applied 13, 044021 (2020)	APS	SCI	其它
4	Implementation of universal quantum gates by periodic two-step modulation in a weakly nonlinear qubit	Phys. Rev. A 101, 042314 (2020)	APS	SCI	通讯
5	Flexible scheme for the implementation of nonadiabatic geometric quantum computation	Phys. Rev. A (2020)	APS	SCI	通讯
6	Pulse reverse-engineering for controlling two-level quantum systems	Phys. Rev. A 101, 023822 (2020)	APS	SCI	通讯
7	Deterministic interconversions between the Greenberger-Horne-Zeilinger states and the W states by invariant-based pulses design	Phys. Rev. A 101, 012345 (2020)	APS	SCI	通讯
8	Effective Rabi dynamics of Rydberg atoms and robust high-fidelity quantum gates with a resonant amplitude-modulation field	Opt. Lett. 45(5), 1200-1203 (2020)	OSA	SCI	其它
9	Multi-qubit phase gate on multiple resonators mediated by a superconducting bus	Opt. Express 28(2/20) 1954 (2020)	OSA	SCI	其它
10	Deterministic entanglement swapping in a superconducting circuit	Phys. Rev. Lett. 123,060502 (2019)	APS	SCI	其它
11	Deterministic conversions between Greenberger-Horne-Zeilinger states and W states of spin qubits via Lie-transform-based inverse Hamiltonian engineering	Phys. Rev. A 100, 012332 (2019)	APS	SCI	通讯
12	Indirect light-matter interaction in dissipative coupled cavities	Opt. Express 27(16), 22674-22684 (2019)	OSA	SCI	其它
13	Robust and highly efficient discrimination of chiral molecules through three-mode parallel paths	Phys. Rev. A 100, 043413 (2019)	APS	SCI	其它
14	Quantum phase transitions triggered by a four-level atomic system in dissipative environments	Phys. Rev. A 99, 043829 (2019)	APS	SCI	其它
15	Enhancement of coherent dipole coupling between two atoms via squeezing a cavity mode	Phys. Rev. A 99, 023833 (2019)	APS	SCI	其它
16	Unconventional geometric phase gate of transmon qubits with inverse Hamiltonian engineering	IEEE Journal of Selected Topics in Quantum Electronics 26(3),6700107 (2020)	IEEE	SCI	通讯
17	Entanglement creations and quantum gate implementations of spin qubits with Lyapunov control	IEEE Journal of Selected Topics in Quantum Electronics 26(3), 6500107 (2019)	IEEE	SCI	通讯
18	Invariant-based inverse engineering for fluctuation transfer between membranes in an optomechanical cavity system	Phys. Rev. A 97, 023841 (2018)	APS	SCI	通讯
19	Accelerated and noise-resistant generation of high-fidelity steady-state entanglement with Rydberg atoms	Phys. Rev. A 97,032328 (2018)	APS	SCI	通讯
20	Pulse design for multilevel systems by utilizing Lie transforms	Phys. Rev. A 97, 033407 (2018)	APS	SCI	通讯
21	Nonadiabatic holonomic quantum computation with blockade of Rydberg atoms	Phys. Rev. A 97, 042336 (2018)	APS	SCI	通讯
22	One-step engineering many-atom NOON state	New J. Phys.20, 093019 (2018)	IOP	SCI	其它
23	Quantum state transfer in spin chains via shortcuts to adiabaticity	Phys. Rev. A 97, 012333 (2018)	APS	SCI	

24	Driving many distant atoms into high-fidelity steady state entanglement via Lyapunov control	Opt. Express 26(2), 951-962 (2018).	AOP	SCI	通讯其它
25	Implementing stabilizer codes in noisy environments	Phys. Rev. A 96, 032336 (2017)	APS	SCI	通讯其它
26	Coherent control in quantum open systems: A promising approach for accelerating dissipation-based quantum state generation	Phys. Rev. A 96, 043853 (2017)	APS	SCI	通讯
27	Speeding up adiabatic passage by adding Lyapunov control	Phys. Rev. A 96, 033803 (2017)	APS	SCI	通讯
28	Fast quantum state engineering via universal SU(2) transformation	Phys. Rev. A 96, 022314 (2017)	APS	SCI	通讯
29	Complete Bell-state analysis for superconducting-quantum-interference-device qubits with transitionless tracking algorithm	Phys. Rev. A 96, 022304 (2017)	APS	SCI	通讯
30	Optimal shortcut approach based on an easy-to-get intermediate Hamiltonian	Phys. Rev. A 95, 062319 (2017).	APS	SCI	通讯
31	Generation of long-living entanglement between two distant three-level atoms in non-	Opt. Express. 20(10), 10961 (2017).	AOP	SCI	其它
32	Reverse engineering of a nonlossy adiabatic Hamiltonian for non-Hermitian systems	Phys. Rev. A 94, 053424(2016)	APS	SCI	通讯
33	Arbitrary quantum state engineering in three-state systems via Counterdiabatic driving	Scientific Reports (2016)	NPG	SCI	通讯
34	Fast preparation of W states with superconducting quantum interference devices by using	Phys. Rev. A 94,052311 (2016)	APS	SCI	通讯
35	Fast generation of W states of superconducting qubits with multiple Schrodinger dynamics	Scientific Reports (2016)	NPG	SCI	通讯
36	Improving the stimulated Raman adiabatic passage via dissipative quantum dynamics	Opt. Express. 24, 22847 (2016)	OSA	SCI	通讯
37	Fast coherent manipulation of quantum states in open systems	Opt. Express. 24, 21674 (2016)	OSA	SCI	其它
38	Fast generating Greenberger-Horne-Zeilinger state via iterative interaction pictures	Laser Phys. Lett.13, 105202 (2016)	IOP	SCI	通讯
39	Method for constructing shortcuts to adiabaticity by a substitute of counterdiabatic driving terms	Phys. Rev. A 93, 052109 (2016)	APS	SCI	通讯
40	Reverse engineering of a Hamiltonian by designing the evolution operators	Scientific Reports (2016)	NPG	SCI	通讯
41	Fast generation of three-atom singlet state by transitionless quantum driving	Scientific Reports 6, 22202 (2016)	NPG	SCI	通讯
42	Shortcuts to adiabatic passage for fast generation of GHZ states by transitionless quantum driving	Scientific Reports 5, 15616 (2015)	NPG	SCI	通讯
43	Implementation of quantum state manipulation in a dissipative cavity	Scientific Reports 5, 10656 (2015)	NPG	SCI	通讯
44	Fast and noise resistant implementation of quantum phase gates and creation	Phys. Rev. A 91, 012325 (2015)	APS	SCI	通讯
45	Shortcuts to adiabatic passage for multiparticle in distant cavities	Laser Phys. Lett. 11, 115201 (2014)	IOP	SCI	通讯

46	Efficient shortcuts to adiabatic passage for fast population transfer in multiparticle systems	Phys. Rev. A 89, 033856 (2014)	APS	SCI	通讯
47	Shortcuts to adiabatic passage for population transfer and maximum entanglement creation	Phys. Rev. A 89, 022326 (2014)	APS	SCI	通讯
48	Direct conversion of a four atom W state to a GHZ state via a dissipative process	Phys. Rev. A 88, 024305 (2013)	APS	SCI	其它
49	Dissipative preparation of multibody entanglement via quantum feedback control	Phys. Rev. A 86, 034303 (2012)	APS	SCI	2
50	Efficient hyperentangled GHZ states analysis with cross Kerr nonlinearity	J. Opt. Soc. Am. B 29, 1029 (2012)	OSA	SCI	1
51	Effective quantum teleportation of an atomic state between two cavities	J. Appl. Phys. 109, 103111 (2011)	AIP	SCI	1
52	Efficient creation of continuous variable entanglement for two atomic ensembles in coupled cavities	Phys. Rev. A 83, 052309 (2011)	APS	SCI	3
53	Joint remote state preparation of a W type state via W type states	Phys. Lett. A 374, 4483 (2010)	Elsevier	SCI	通讯
54	Generation of two mode squeezed states for two separated atomic ensembles via coupled cavities	Phys. Rev. A 81, 015804 (2010)	APS	SCI	3
55	Quantum nodes for W state generation in noisy channels	Phys. Rev. A 78, 024302 (2008)	APS	SCI	2
56	Secure direct communication based on secret transmitting order of particles	Phys. Rev. A 73, 022338 (2006)	APS	SCI	2
57	One-step generation of cluster state by adiabatic passage in coupled cavities	Appl. Phys. Lett.96, 071102 (2010)	AIP	SCI	2
58	Linear optical protocol for preparation of N photon GHZ state with conventional photon detectors	Appl. Phys. Lett. 92, 021127 (2008)	AIP	SCI	1