

Curriculum Vitae of Congjun Wu

RESEARCH AREA

My research is on the study of **new states of matter** and their **organizing principles** in condensed matter and cold atom systems. It includes superconductivity, magnetism, orbital physics, topological states, strongly correlated cold atom systems, and quantum Monte-Carlo simulations.

EDUCATION

- Ph. D. in Physics, Stanford University, Jun. 2002 - Sept. 2005.
Advisor: Prof. Shou-Cheng Zhang (deceased).
- University of Illinois at Urbana-Champaign, May 2000 - May 2002.
Advisor: Prof. Eduardo H. Fradkin.
- M.S. in Physics, Peking University, Beijing, China, Sept. 1997 - Jun. 2000.
Advisor: Prof. Zhao-Bin Su.
- B.S. in Physics, Tsinghua University, Beijing, China, Sept. 1992 - Jul. 1997.

EMPLOYMENT

<i>Mar. 2021 -</i>	Chair Professor, Department of Physics, School of Science, Westlake University, Hangzhou, China
<i>Jul. 2017- Mar. 2021</i>	Professor, Department of Physics, University of California, San Diego (UCSD)
<i>Jul. 2011- Jun. 2017</i>	Associate Professor, Department of Physics, UCSD.
<i>Jul. 2007- Jun. 2011</i>	Assistant Professor, Department of Physics, UCSD.
<i>Aug. 2005- Jun. 2007</i>	Postdoctoral Research Associate, Kavli Institute for Theoretical Physics, University of California, Santa Barbara.

HONORS and AWARDS

- American Physical Society (APS) Fellowship, nominated by Division of Condensed Matter Physics, APS (2018).
Citation: “For research in helical edge liquids of topological insulators, itinerant magnetism, novel states of matter including cold fermions with high symmetries, orbital physics in optical lattices, spin-orbit coupled Bose-Einstein condensates, and for work on the quantum Monte-Carlo sign problem”.
- Air Force Office of Scientific Research (AFOSR), Young Investigator Award, 2011-2014.
- Alfred P. Sloan Research Fellowship, 2008.
- “*Outstanding Young Researcher Award*” of Overseas Chinese Physics Association, 2008.
- The most influential paper award from Chinese Physics Society 2013 for *Wu, Mondragon-Shem, and Zhou, Chin. Phys. Lett. 28, 086104 (2011)* (This paper is one of two earliest works theoretically studying spin-orbit coupled BEC”).

CITATION RECORDS

- Web of Science: Total citations **6800**, **H-index:** 43
- Researcher ID: <http://www.researcherid.com/rid/L-1750-2015>
- Google Scholar: <https://scholar.google.com/citations?user=RVhTP8oAAAAJ&hl=en>
Total citations **9800**.

PH. D. STUDENTS CULTIVATED

1. Dr. Yi Li, Ph.D. 2013.

She is currently an Assistant Professor at **Johns Hopkins University** since 07/2016. She was

awarded the Sloan Research Fellowship in 2018, and the NSF Career Award in 2019.

She did postdoctoral research at **Princeton Center of Theoretical Sciences** from 07/2013 to 06/2016.

2. Dr. Shenglong Xu, Ph. D. 2016.

He is currently a Research Assistant Professor from Department of Physics, **Texas A&M University** since 01/ 2020. He was a postdoctoral researcher at **University of Maryland** from 09/2016 - 12/2019.

3. Dr. Wang Yang, Ph. D. 2017.

Currently a postdoctoral researcher at **University of British Columbia**, working with Prof. Ian Affleck.

4. Dr. Hsiang-Hsuan Hung, Ph. D. 2011.

He did postdoctoral research at **UIUC** and **UT, Austin**, and is currently in industry.

POSTDOCTORAL RESEARCHERS SUPERVISED

- Dr. Wei-cheng Lee (08/2008-08/2010), Ph. D 2008 from UT Austin.
He is currently an Associate Professor at **Binghamton University, SUNY**.
- Dr. Zi Cai (09/2010-08/2012), Ph.D 2010 from Institute of Physics, Chinese Academy of Sciences. He has been an Assistant Professor at **Shanghai Jiaotong University** since Sept 2016.
- Dr. Da Wang (09/2012-08/2014), Ph. D. 2012 from Nanjing University. He has been an Associate Professor at **Nanjing University**, China since 2015.
- Dr. Jianda Wu (09/2014-08/2017), Ph. D 2014 from Rice University. He has been an Associate Professor at **T. D. Lee Insitute, Shanghai Jiaotong University**, China since 2018.
- Dr. Lunhui Hu (09/2018 -04/2020), Ph. D. 2018 from Zhejiang University. He is currently a postdoctoral researcher at Penn. State University.

10 CAREER SIGNIFICANT PUBLICATIONS

1. Shenglong Xu, Congjun Wu, “*Space-time crystal and space-time group*”, Phys. Rev. Lett. **120**, 096401 (2018).
The **link**: <https://doi.org/10.1103/PhysRevLett.120.096401>
2. Zhong-chao Wei, Congjun Wu, Yi Li, Shi-Wei Zhang, Tao Xiang, “*Majorana Positivity and the Fermion sign problem of Quantum Monte Carlo Simulations*”, Phys. Rev. Lett. **116**, 250601 (2016).
The **link**: <https://doi.org/10.1103/PhysRevLett.116.250601>
3. Shenglong Xu, Yi Li, Congjun Wu, “*Sign-Problem-Free Quantum Monte Carlo Study on Thermodynamic Properties and Magnetic Phase Transitions in Orbital-Active Itinerant Ferromagnets*”, Phys. Rev. X **5**, 021032, (2015).
The **link**: <https://doi.org/10.1103/PhysRevX.5.021032>
4. Yi Li, E. H. Lieb, Congjun Wu, “*Exact Results on Itinerant Ferromagnetism in Multi-orbital Systems on Square and Cubic Lattices*”, Phys. Rev. Lett. **112**, 217201 (2014).
The **link**: <https://doi.org/10.1103/PhysRevLett.112.217201>
5. Yi Li, Congjun Wu, “*High-Dimensional Topological Insulators with Quaternionic Analytic Landau Levels*”, Phys. Rev. Lett. **110**, 216802 (2013).
The **link**: <https://doi.org/10.1103/PhysRevLett.110.216802>
6. Congjun Wu, Doron Bergman, Leon Balents, and S. Das Sarma, “*Flat bands and Wigner crystallization in the honeycomb optical lattice*”, Phys. Rev. Lett. **99**, 70401 (2007).
Times Cited: 273. The **link**: <https://doi.org/10.1103/PhysRevLett.99.070401>
7. Congjun Wu, B. Andrei Bernevig, and Shou-Cheng Zhang, “*The helical liquid and the edge of quantum spin Hall systems*”, Phys. Rev. Lett. **96**, 106401(2006).
Times Cited 550. The **link**: <https://doi.org/10.1103/PhysRevLett.96.106401>

8. Congjun Wu, Jiangping Hu, and Shou-Cheng Zhang, “*Exact $SO(5)$ symmetry in spin 3/2 fermionic systems*”, Phys. Rev. Lett. **91**, 186402 (2003).
Times Cited 231. The **link**: <https://doi.org/10.1103/PhysRevLett.91.186402>
9. **Congjun Wu** and Shou-Cheng Zhang, “*Dynamic generation of spin-orbit coupling*”, Phys. Rev. Lett. **93**, 36403 (2004).
The **link**: <https://doi.org/10.1103/PhysRevLett.93.036403>
10. Congjun Wu, Ian Mondragon Shem, and Xiang-Fa Zhou, “*Unconventional Bose-Einstein condensations from spin-orbit coupling*”, Chin. Phys. Lett. **28**, 097102 (2011) (arXiv:0809.3532)
Times Cited 251. The **link**: <http://stacks.iop.org/0256-307X/28/i=9/a=097102>

SCIENTIFIC DUTIES

- Serve in the Editorial Board for “*Chinese Physics Letters*” since 2015.
- Proposal Reviewer for U. S. National Science Foundation, Division of Materials Research and Division of Physics; U. S. Army Research Office; U.S. Air Force Office of Scientific Research; Research Grants Council of Hong Kong; the Foundation for Fundamental Research on Matter, the physics research council in the Netherlands.
- Referee for *Nature*; *Nature Physics*, *Physical Review Letters*, *Physical Review A*, and *Physical Review B*; *Nuclear Physics B*; *Physics Letters A*; *Europhysics Letters*.

PHYSICS COLLOQUIA (16)

1. Department of Physics, **Fudan University**, “*Unification of orbital active honeycomb material*”, Oct. 24, 2021.
2. University Colloquium, **Hunan University**, online talk, “*Electron sociology - an Introduction to Condensed Matter Physics*”, Nov. 12, 2020.
3. Online talk organized by **Editorial Board of Frontiers of Physics**, “*Unification of orbital active honeycomb material*”, Aug. 5, 2020.
4. T. D. Lee Institute, **Shanghai Jiaotong University**, “*Interaction and Correlation Aspects of Ferromagnetism*”, July 7, 2020.
5. Department of Physics, **University of California, San Diego**, “*Symmetry and Correlation Aspect of Quantum Dynamics*”, April 18, 2019.
6. Department of Physics, **Simon Fraser University**, “*Novel orbital physics – Unconventional BEC and Curie-Weiss Metal states in optical lattices*”, Nov. 17, 2017.
7. Department of Physics, **University of British Columbia**, “*Novel orbital physics – Unconventional BEC and Curie-Weiss Metal states in optical lattices*”, Nov. 16, 2017.
8. Department of Physics, **University of California, San Diego**, “*Novel orbital physics – Unconventional BEC and Curie-Weiss Metal states in optical lattices*”, Nov. 9, 2017.
9. Center for Nonlinear Studies, **Los Alamos National Lab**, Condensed Matter Science Colloquium, “*Novel orbital phases in optical lattices – unconventional BEC and itinerant ferromagnetism*”, Dec. 14, 2016.
10. Department of Physics, **Huazhong University of Science & Technology**, Physics Colloquia, “*New progress on itinerant ferromagnetism and the Curie-Weiss Metal State*”, Jun 23, 2016.
11. Department of Physics, **University of Texas at Dallas**, Physics Colloquia, “*Unconventional orbital phases with cold atoms*”, Sept, 2015.
12. Department of Physics, **Tulan University**, Physics Colloquia, “*Exact results on itinerant ferromagnetism*”, Oct 22, 2014.
13. Department of Physics, **University of Houston**, Physics Colloquia, “*Unconventional metamagnetism and orbital ordering in transition metal oxides*”, March 27, 2012.
14. Institut für Laserphysik, **University of Hamburg**, Germany, Unconventional Bose-Einstein condensation beyond the no-node paradigm”, Jan. 31, 2012.

15. Department of Physics, **Washington State University**, Physics Colloquia, “*Orbital Phases of cold atoms: unconventional BEC, ferromagnetism, and unconventional Cooper pairing*”, Nov. 17, 2009.
16. Department of Physics, **Washington University in St. Louis**, Physics Colloquia, “*Unconventional magnetism and dynamic generation of spin-orbit coupling*”, Jan. 17, 2007.

INVITED CONFERENCE TALKS (38)

17. **Workshop for Topological Quantum Materials and Information**, “Symmetry constraints on Josephson diode”, Shanghai Tech University, Dec 14, 2022 (scheduled).
18. **Kavli Institute Workshop on Magnetism, Superconductivity, Topology**, “Frustrated superconductivity and superfluidity”, Songsan Lake, Dongguan, 11/05/2022
19. Youth Forum of Quantum Magnetism, Frustrated orbital exchange and orbital ice, online participation, 10/10/2022.
20. **Low temperature physics conference of China**, “Quateritting (charge 4e) instability”, participation online, 07/07/2022.
21. **Workshop on SU(N) physics in condensed matter and cold atoms**, “*Exploring Sp(N) and SU(N) symmetries*”, participation online, Osaka University, 05/09/2022
22. **Workshop for Topological Quantum Materials and Information**, “Time-Reversal Symmetry Breaking Pairing in Iron-Chalcogenide Superconductors”, ShanghaiTech University, Nov. 25, 2021.
23. **International Workshop: New Frontiers in Extremely Strongly Interacting Quantum Matter: Transport dynamics, quantum hydrodynamics and Topological matter**, “Space-time Group and Dynamic Crystal”, T. D. Lee Institute, Shanghai Jiaotong University, July 19, 2021.
24. **Physical Review workshop on Quantum Materials for Modern Magnetism & Spintronics**, “*Unification of orbital active honeycomb material*”, USTC, Hefei, July 14, 2021.
25. **Low Temperature Physics Conference of China**, “*Mott Physics of SU(N) Hubbard models*” Jinhua, June 04, 2021.
26. **Zhejiang Conference for strong correlation physics**, “Non-perturbative studies on strong-correlation physics”, Nov. 28, 2020.
27. **Emergent phenomena in ultracold atoms: topology, interaction, and dynamics** at Kavli Institute for Theoretical Science, Beijing, “*Symmetry and Correlation Aspect of Quantum Dynamics*”, June 13 2019, invited talk.
28. **Memorial workshop for Shoucheng Zhang** at Tsinghua University, “Quarternionic analyticity and high dimensional topological matter”, June 10 2019, invited talk.
29. **Memorial workshop for Shoucheng Zhang** at Stanford University, “Application of the symmetry principle in condensed matter physics”, May 4, 2019, invited talk.
30. **Workshop for Topological Quantum Information** at Shanghai Tech University, “Orbital-active honeycomb material”, Shanghai, Nov 19-20, invited talk.
31. **12th International Conference on Materials and Mechanisms of Superconductivity and High Temperature Superconductors**, “Spin-3/2 topological superconductivity beyond triplet pairing”, Beijing, Aug 19-24, 2018, invited talk.
32. **AFOSR Program Review**, “*Quantum dynamics: Spact-time Crystal and Bethe String states*”, Arlington, Jun 18-22.
33. **2018 International Conference on Emergent Phenomena in Quantum Materials**, “*Progress on Itinerant Electrons: Cruie-Weiss metal and Spin-orbit ordering*”, New York University in Shanghai, May 30 - Jun 1.
34. “**Quantum material workshop**”, Fudan University, “*Quantum dynamics: Spact-time Crystal and Bethe String states*”, Shanghai, April 20 -22, 2018.
35. “**Sign 2017, International workshop in the sign problem in QCD and beyond**”, “Fermion

- positivity and sign problem”, University of Washington, Seattle, March 2017.
36. **The 2nd Condensed Matter Conference**, Chinese Physics Society, the symposium on many-body physics, “Quantum dynamics of the XXZ spin chain in a longitudinal magnetic field”, Nanjing, July 2016.
 37. **The first Condensed Matter Conference**, Chinese Physics Society, ”Topological and strongly correlation physics in the p_x, p_y orbital bands in the honeycomb lattice – from solid states to optical lattices”, Beijing, July 17, 2015.
 38. **Topological and Strongly Correlated Phases in Cold Atoms**, ”Topological and strongly correlation physics in the p_x, p_y orbital bands in the honeycomb lattice – from solid states to optical lattices”, Princeton Center for Theoretical Sciences, April 30, 2015.
 39. **The Topology and Mathematical Physics conference**, ”Quaternion analyticity and 3D SU(2) Landau levels”, Center of Mathematical Sciences and Applications, Harvard University, Sept 17, 2014.
 40. **The Quantum Gas Conference**, “Novel Sp(2N)/SU(2N) quantum magnetism and Mott physics – large spin is different”, Center of Advanced Study, Tsinghua University, Aug 26, 2014.
 41. **The Chengdu Condensed Matter Conference** ”Topological and strongly correlated physics in the p_x/p_y -orbital bands of the honeycomb lattice-from solid states to optical lattices”, Chengdu, China, July 14, 2014.
 42. **The 6th International Symposium on Cold Atom Physics**, “Quaternionic states of matter from synthetic gauge fields”, Taiyuan, China, Jun 16, 2014.
 43. **The 7th Cross-Strait and International Conference on Quantum Manipulation**, title TBA, Institute of Physics, Chinese Academy of Sciences, Beijing, June 28- 30, 2013.
 44. **International workshop on Orbital Physics in Cold Atom Systems**, “Novel states of matter of ultra-cold atoms in high bands in optical lattices”, Institute of Physics, Chinese Academy of Sciences, Beijing, Jan.5-6, 2013.
 45. **2012 Energy, Materials and Nanotechnology (EMN) Meeting**, the parallel session of topological insulators, “*Isotropic Landau Levels of Relativistic and Non-Relativistic Fermions in 3D Flat Space*”, April 16-20, Orlando, Florida, 2012.
 46. **The 26th International Conference on Low Temperature Physics**, the parallel session of quantum gases, “*Hidden symmetries and exotic quantum magnetism of large-spin alkali and alkaline-earth fermions*”, Aug 12, Beijing, 2011.
 47. **Physics Driven by Spin-orbital Coupling in Transition Metal Compounds**, “*New developments of p-orbital physics – unconventional BEC and fermionic insulators*”, Institute of Physics, Chinese Academy of Sciences, Jun 20-22, Beijing, China, 2011.
 48. **Future and Prospect of Topological Insulator**, “*Topological orbital states with cold atoms*”, Institute of Physics, Chinese Academy of Sciences, July 5 to July 10, Beijing and Weihai, China, 2010.
 49. **Exotic Insulating Phases of Matter**, The Johns Hopkins University, “*Topological orbital states with cold atoms*”, Jan. 14-16, 2010.
 50. **Canadian Institute for Advanced Research, Cold Atoms Meeting**, Halifax, Canada “*Novel orbital physics with fermions in optical lattices*, August 12-16, 2009.
 51. **American Physical Society March Meeting 2009**, Pittsburgh, PA, “*Novel orbital physics with fermions in optical lattices*, Mar. 20, 2009.
 52. **New Directions in Low-Dimensional Electron Systems (Conference)**, Kavli Institute for Theoretical Physics, University of California, Santa Barbara, Feb 23, 2009.
 53. **The 39th Winter Colloquium on the PHYSICS OF QUANTUM ELECTRONICS**, “*Novel orbital physics with fermions in optical lattices*. Jan. 8, 2009.
 54. **Academic conference for the 80-year anniversary of Institute of Physics, Chinese Academy of Sciences**, Beijing, ”*Novel Orbital Physics with Cold Atoms in Optical Lattices*”, Jun. 20,

2008.

55. Department of Physics, University of Maryland, **Condensed Matter Theory Center Symposium**, “*Pomeranchuk instability and dynamic generation of spin-orbit coupling*”, Nov. 8, 2006.

INVITED CONDENSED MATTER SEMINAR TALKS (87)

56. Department of Physics, **Tianjin University**, Space-time group and dynamic crystal, participation online, Dec 02, 2022.
57. Department of Physics, **Renmin Univ**, “Locality and itineracy from Hubbard models”, participation online, May 17, 2022.
58. Department of Physics, **Peking University**, “Time-reversal symmetry breaking pairing in iron-chalcogenide superconductors”, Nov 24, 2021.
59. ICQD Monthly Seminar Series, **USTC**, “Unconventional Magnetism and Spontaneous Spin-orbit Ordering”, Nov. 19, 2021.
60. Department of Physics, **Rice University**, “Time-reversal symmetry breaking pairing in iron-chalcogenide superconductors”, Feb 3, 2021.
61. Beijing International Center for Mathematical Research, **Peking University**, “Quaternions, Harmonic Oscillator, and High dimensional Topological States”, Oct. 16, 2020.
62. Department of Physics, **Shanghai-Tech University**, “*Interaction and Correlation Aspects of Ferromagnetism*”, July 7, 2020.
63. Department of Physics, **University of California, San Diego**, “*Unification of orbital-active honeycomb materials*”, Nov. 27, 2019.
64. Department of Physics, **University of Chicago**, “*Symmetry and Correlation Aspect of Quantum Dynamics*”, May 28, 2019.
65. Department of Physics, **University of California, Berkeley**, “*Orbital-active Honeycomb Materials*”, April 30, 2019.
66. Westlake University, Hangzhou, China, “*Quantum Dynamics – Space-time group and Bethe String states*”, Nov. 23, 2018.
67. Department of Physics, **University of Buffalo, SUNY**, “*Quantum Dynamics – Space-time group and Bethe String states*”, Sept 18, 2018.
68. **Institute of Physics**, Chinese Academy of Sciences, “*Topological superconductivity with spin- $\frac{3}{2}$ half-Heusler semi-metal beyond triplet pairing*”, Sept. 7, 2018.
69. **Wuhan Institute of Physics and Mathematics**, Chinese Academy of Sciences, “*Quantum Dynamics – Space-time group and Bethe String states*”, Sept. 7, 2018.
70. **Chern Institute of Mathematics**, Nankai University, “*Quantum Dynamics – Space-time group and Bethe String states*”, Aug 12, 2018.
71. **Department of Physics**, Tsinghua University, “*Large gap 2D topological insulator*”, Aug 15, 2018.
72. **Center for Advanced Studies**, Tsinghua University, “*Quantum Dynamics -Space-time crystal and Bethe String states*”, Aug 9, 2018.
73. Center for Quantum Materials, **Peking University**, “*Quantum Dynamics - Space-time Crystal and Bethe String States*”, Aug 2, 2018.
74. Department of Physics, **Shanghai University of Technology**, “*Quantum Dynamics - Space-time Crystal and Bethe String States*”, July 17, 2018.
75. Department of Physics, **Huazhong University of Science & Technology**, “*Quantum Dynamics -Space-time crystal and Bethe String states*”, July 3, 2018.
76. Department of Physics, **Zhejiang University**, “*New development of itinerant electrons: Curie-Weiss metal and spin-orbit ordering*”, June 7, 2018.
77. Department of Physics, Shanghai Jiaotong University, “*Topological superconductivity with spin- $\frac{3}{2}$ half-Heusler semi-metal beyond triplet pairing*”, June 4, 2018.

78. Center for Quantum Materials, **Peking University**, “*Topological superconductivity with spin- $\frac{3}{2}$ half-Heusler semi-metal beyond triplet pairing*”, Dec 21, 2017.
79. Department of Physics, **East China Normal University**, “*Novel orbital physics – unconventional BEC and Curie-Weiss Metal states in optical lattices*”, Dec 15, 2017.
80. Department of Physics, **Fudan University**, “*Enhance topological gap in 2D materials to the scale of atomic spin-orbit coupling*”, Dec 14, 2017.
81. Department of Physics, **Fudan University**, “*Unconventional magnetism and spontaneous spin-orbit ordering*”, July 2017.
82. Department of Physics, **Beijing Normal University**, “*Unconventional magnetism and spontaneous spin-orbit ordering*”, July, 2017.
83. “**Majorana flatband, magnetic domains, and Septet superconductivity**”, Majorana workshop, Shanghai Jiaotong University, Jun 2017.
84. Department of Physics, **Johns Hopkins University**, “*Unconventional magnetism and spontaneous spin-orbit ordering*”, March 29, 2017.
85. Condensed Matter Theory Center, **University of Maryland**, “*Orbital phases in optical lattices and solids: unconventional BEC and large gap topological states*”, March 28, 2017.
86. Department of Physics, **University of California, San Diego**, “*Unconventional magnetism and spontaneous spin-orbit ordering*”, Jan, 2017.
87. Department of Physics, **Purdue University**, “*Unconventional orbital phases with cold atoms*”, March 03, 2016.
88. Department of Physics, **University of British Columbia**, “*Novel Sp(2N)/SU(2N) quantum magnetism and Mott physics - large spins are different*”, Nov 16, 2015.
89. Department of Physics, **University of Washington**, “*Topological and strong correlation physics in the p_x/p_y -orbital bands of the honeycomb lattice from solid states to optical lattices*” April 1, 2015.
90. **INT workshop, University of Washington**, “*Novel Sp(2N)/SU(2N) quantum magnetism and Mott physics - large spins are different*”, March 25, 2015.
91. **Institute of theoretical atomic, molecular and optical physics, Harvard**, “*Topological and strongly correlation physics in the p_x, p_y orbital bands in the honeycomb lattice – from solid states to optical lattices*” Nov 21, 2014.
92. Department of physics, **MIT**, “*Topological and strongly correlation physics in the p_x, p_y orbital bands in the honeycomb lattice – from solid states to optical lattices*”, Nov 19, 2014.
93. Department of Physics, **Penn. State University**, “*Topological and strongly correlation physics in the p_x/p_y orbital bands in the honeycomb lattice – from solid states to optical lattices*”, Nov. 4, 2014, scheduled.
94. Department of Physics, **Boston College**, “*Novel Sp(2N)/SU(2N) quantum magnetism and Mott physics – large spin is different*”, Oct. 15, 2014.
95. Department of Physics, **Harvard University**, “*Quaternionic analytic Landau level in 3D*”, Oct 17, 2013.
96. Workshop for celebration Prof. Shou-cheng Zhang’s 50 birthday, “*Quaternionic BEC and Landau levels*”, March 23-25, 2013.
97. KITP workshop “*Frustrated Magnetism and quantum spin liquids*” “*Power-law Correlated 2D SU(6) Quantum Paramagnets*”, Sept. 18, 2012.
98. Workshop on “*Topological insulators and superconductors*”, “*Unconventional magnetism in transition metal oxides*”, July, 2012.
99. Department of Physics, **UCSD**, “*Quantum Monte-Carlo simulation of novel 2D quantum magnetism with power-law correlations*”, Nov 21, 2012.
100. Department of Physics, **The Florida State University**, “*Isotropic Landau Levels of Relativistic and Non-Relativistic Fermions in 3D Flat Space*”, September 14, 2012.

101. Department of Physics, **University of British Columbia**, Canada, “*Isotropic Landau Levels of Relativistic and Non-Relativistic Fermions in 3D Flat Space*”, March 20, 2012.
102. Department of Physics, **University of California, Irvine**, “*Unconventional metamagnetism and orbital ordering in transition metal oxides*”, Feb 8, 2012.
103. Department of Physics, **Tsinghua University**, “*Unconventional Bose-Einstein condensation beyond the no-node paradigm*”, Aug 23, 2011.
104. Department of Physics, **University of Science and Technology of China**, “*Unconventional metamagnetic transition and orbital ordering in transition metal oxides*”, July 29, 2010.
105. Key Lab of Quantum Information **University of Science and Technology of China**, “*Unconventional Bose-Einstein condensations beyond the no-node paradigm*”, July 25, 2010.
106. Center for quantum information, **Tsinghua University**, “*Unconventional Bose-Einstein condensation beyond the no-node paradigm*”, July 19, 2011.
107. Department of Physics, **Wuhan University**, “*Unconventional metamagnetism and orbital ordering in transition metal oxides*”, July 5, 2011.
108. Department of Physics, **Wuhan University**, “*Novel p-orbital physics in optical lattices - unconventional BECs, exotic band and Mott insulators of fermions*”, July 4, 2011.
109. Center of Advanced Study, **Tsinghua University**, “*Novel orbital physics in the p-band*”, Jun. 28, 2011.
110. **Aspen physics workshop** “*Few and many-body physics of cold quantum gases near resonances*”, Jun 16, 2011, “*Hidden symplectic symmetry in large spin ultra-cold fermion systems*”.
111. Department of Physics, **University of Texas, Austin**. March 3, 2011, “*Unconventional metamagnetic transition in the t_{2g} orbital system of $Sr_3Ru_2O_7$* ”.
112. Department of Physics, **Rice University**, “*Novel orbital physics with cold atoms – Unconventional BEC, Ferromagnetism, and f-wave Cooper pairing states*”, Nov. 2, 2010.
113. **Institute of Physics, Chinese Academy of Sciences**, “*Unconventional metamagnetic transition in the t_{2g} orbital system of $Sr_3Ru_2O_7$* ”, Aug 17, 2010.
114. **Quantum simulation workshop**, Key Lab of Quantum Information University of Science and Technology of China, “*Unconventional metamagnetic transition in the t_{2g} orbital system of $Sr_3Ru_2O_7$* ”, July 30, 2010.
115. **Quantum simulation workshop**, Key Lab of Quantum Information University of Science and Technology of China, “*Hidden symmetries and quantum phases in large spin cold atom systems*”, July 29, 2010.
116. **Quantum simulation workshop**, Key Lab of Quantum Information University of Science and Technology of China, “*Novel orbital physics in cold atom optical lattices*”, July 26, 2010.
117. Department of Physics, **University of California, Santa Cruz**, “*Unconventional metamagnetic transition in the t_{2g} orbital system of $Sr_3Ru_2O_7$* ”, May 21, 2010.
118. Kavli Institute for Theoretical Physics, **University of California, Santa Barbara**, “*Novel orbital physics with cold atoms – Unconventional BEC, Cooper pairing, and frustration*”, Jul. 29, 2009.
119. Department of Physics, **University of California, San Diego**, condensed matter seminar, “*Novel Orbital Physics with Cold atoms in Optical lattices*”, May 27, 2009.
120. Department of Physics, **California Institute of Technology**, condensed matter seminar, “*Novel Orbital Physics with Cold atoms in Optical lattices*”, Nov 21, 2008.
121. Department of Physics, **University of California, Riverside**, condensed matter seminar, “*Novel Orbital Physics with Cold atoms in optical lattices*”, Oct. 29, 2008.
122. Department of Physics, **University of California, Los Angeles**, condensed matter seminar, “*Novel Orbital Physics with Cold atoms in Optical lattices*”, Oct 22, 2008.
123. Department of Physics, **Stanford University**, condensed matter seminar, “*Novel orbital Physics with Cold atoms in Optical Lattices*”, Oct. 16, 2008.
124. Department of Physics, **University of Michigan**, condensed matter seminar, “*Orbital Physics*”

- with *Cold atom optical lattices*”, Sept. 16, 2008.
125. Department of Physics, **University of California, Davis**, condensed matter seminar, “*Novel Orbital Physics with Cold Atoms in Optical Lattices*”, April 17, 2008.
 126. Department of Physics, **University of Toronto**, condensed matter seminar, “*Novel features of orbital physics of cold bosons and fermions in optical lattices*”, Nov. 19, 2007.
 127. Department of Physics, **University of California, Irvine**, condensed matter seminar, “*Novel features of orbital physics of cold bosons and fermions in optical lattices*”, Nov. 14, 2007.
 128. Microsoft station-Q, **University of California, Santa Barbara**, “*Novel features of orbital physics of cold bosons and fermions in optical lattices*”, Oct. 23, 2007.
 129. Kavli Institute for Theoretical Physics, **University of California, Santa Barbara**, “*Unconventional magnetism: electron liquid crystal states and dynamic generation of spin-orbit coupling*”, May 16, 2007.
 130. Institute of Physics, **Chinese Academy of Sciences**, Beijing, Condensed Matter Seminar, “*Unconventional magnetism: electron liquid crystal states and dynamic generation of spin-orbit coupling*”, Mar. 11, 2007.
 131. Center of Advanced Studies, **Tsinghua University**, Beijing, Condensed Matter Seminar, “*Unconventional magnetism: electron liquid crystal states and dynamic generation of spin-orbit coupling*”, Mar. 7, 2007.
 132. Department of Physics, **University of Hong Kong**, Condensed Matter Seminar, “*Unconventional magnetism and dynamic generation of spin-orbit coupling*”, Feb. 28, 2007.
 133. Department of Physics, **University of Michigan**, Condensed Matter Seminar, “*Unconventional magnetism and dynamic generation of spin-orbit coupling*”, Feb. 20, 2007.
 134. Department of Physics, **University of Illinois at Urbana-Champaign**, Condensed Matter Seminar, “*Unconventional magnetism: electron liquid crystal states and dynamic generation of spin-orbit coupling*”, Feb. 15, 2007.
 135. Department of Physics, **University of Maryland**, Joint Quantum Institute seminar, “*Exploring new states of matter in the p-orbital bands of optical lattices*”, Feb. 05, 2007.
 136. Kavli Institute for Theoretical Physics, **University of California, Santa Barbara**, “*Exploring new states of matter in the p-orbital bands of optical lattices*”, Feb. 01, 2007.
 137. Department of Physics, **Pennsylvania State University**, Condensed Matter Seminar, “*Unconventional magnetism and dynamic generation of spin-orbit coupling*”, Jan. 24, 2007.
 138. Department of Physics, **University of California, San Diego**, Condensed Matter Seminar, “*Pomeranchuk instability and dynamic generation of spin-orbit coupling*”, Nov. 15, 2006.
 139. Department of Physics, **Ohio State University**, Cold Atom Physics Seminar, “*Quantum phases of spin-3/2 fermions*”, May 09, 2006.
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