

# Publications of Kun Yang

## Refereed Publications in Research Journals

1. *Possible Spin Liquid States on the Triangular and Kagomé Lattices*, Kun Yang, L. K. Warman and S. M. Girvin, *Phys. Rev. Lett.* **70**, 2641 (1993).
2. *Quantum Ferromagnetism and Phase Transitions in Double-Layer Quantum Hall Systems*, Kun Yang, K. Moon, L. Zheng, A. H. MacDonald, S. M. Girvin, D. Yoshioka and Shou-Cheng Zhang, *Phys. Rev. Lett.* **72**, 732 (1994).
3. *Spontaneous Inter-layer Coherence in Double-Layer Quantum Hall Systems: Charged Vortices and Kosterlitz-Thouless Phase Transitions*, K. Moon, H. Mori, Kun Yang, S. M. Girvin, A. H. MacDonald, L. Zheng, D. Yoshioka and Shou-Cheng Zhang, *Phys. Rev. B* **51**, 5138 (1995).
4. *Charged Pseudospin Textures in Double-Layer Quantum Hall Systems with Spontaneous Interlayer Coherence*, Kun Yang and A. H. MacDonald, *Phys. Rev. B* **51**, 17247 (Rapid Communication) (1995).
5. *Random Bonds and Topological Stability in Gapped Quantum Spin Chains*, R. A. Hyman, Kun Yang, R. N. Bhatt, and S. M. Girvin, *Phys. Rev. Lett.* **76**, 839 (1996).
6. *Floating of Extended States and Localization Transition in a Weak Magnetic Field*, Kun Yang and R. N. Bhatt, *Phys. Rev. Lett.* **76**, 1316 (1996).
7. *Many-Skyrmion Wave Functions and Skyrmion Statistics in Quantum Hall Ferromagnets*, Kun Yang and S. L. Sondhi, *Phys. Rev. B.* **54**, 2331 (Rapid Communication) (1996).
8. *Spontaneous Inter-layer Coherence in Double-Layer Quantum Hall Systems: Symmetry Breaking Interactions, In-Plane Fields and Phase Solitons*, Kun Yang, K. Moon, L. Belkhir, H. Mori, S. M. Girvin, A. H. MacDonald, L. Zheng, and D. Yoshioka, *Phys. Rev. B.* **54**, 11644 (1996).
9. *Landau Level Mixing and Levitation of Extended States in Two Dimensions*, F. D. M. Haldane and Kun Yang, *Phys. Rev. Lett.* **78**, 298 (1997).
10. *Current Carrying States in a Random Magnetic Field*, Kun Yang and R. N. Bhatt, *Phys. Rev. B* **55**, 1922 (Rapid Communication) (1997).
11. *An Impurity Driven Phase Transition in the Antiferromagnetic Spin-1 Chain*, R. A. Hyman and Kun Yang, *Phys. Rev. Lett.* **78**, 1783 (1997).
12. *Response of a  $d_{x^2-y^2}$  Superconductor to a Zeeman Magnetic Field*, Kun Yang and S. L. Sondhi, *Phys. Rev. B* **57**, 8566 (1998).

13. *Generation of Large Moments in a Spin-1 Chain with Random Antiferromagnetic Couplings*, Kun Yang and R. N. Bhatt, *Phys. Rev. Lett.* **80**, 4562 (1998).
14. *Hall Drag in Correlated Double Layer Quantum Hall Systems*, Kun Yang, *Phys. Rev. B* **58**, 4246 (Rapid Communication) (1998).
15. *Quantum Hall - Insulator Transitions in Lattice Models with Strong Disorder*, Kun Yang and R. N. Bhatt, *Phys. Rev. B* **59**, 8144 (1999).
16. *Charge Density Wave Ordering in Half-Filled High Landau Levels*, E. H. Rezayi, F. D. M. Haldane, and Kun Yang, *Phys. Rev. Lett.* **83**, 1219 (1999).
17. *Spin Mapping, Phase Diagram, and Collective Modes in Double Layer Quantum Hall Systems at  $\nu = 2$* , Kun Yang, *Phys. Rev. B* **60**, 15578 (1999).
18. *Comment on "Density Matrix Renormalization Group Study of the Haldane Phase in Random One-Dimensional Antiferromagnets"*, Kun Yang and R. A. Hyman, *Phys. Rev. Lett.* **84**, 2044 (2000).
19. *Josephson Effect in Fulde-Ferrell-Larkin-Ovchinnikov Superconductors*, Kun Yang and D. F. Agterberg, *Phys. Rev. Lett.* **84**, 4970 (2000).
20. *Study of Universality at Integer Quantum Hall Transitions*, Kun Yang, D. Shahar, R. N. Bhatt, D. C. Tsui and M. Shayegan, *J. Phys. Condens. Matter* **12**, 5343 (2000).
21. *Low Energy Collective Modes, Ginsburg-Landau Theory, and Pseudogap Behavior in Superconductors with Long-Range Pairing Interactions*, Kun Yang and S. L. Sondhi, *Phys. Rev. B* **62**, 11778 (2000).
22. *Spontaneous Breakdown of Translational Symmetry in Quantum Hall Systems: Crystalline Order in High Landau Levels*, F. D. M. Haldane, E. H. Rezayi, and Kun Yang, *Phys. Rev. Lett.* **85**, 5396 (2000).
23. *Sliding Phases via Magnetic Fields*, S. L. Sondhi and Kun Yang, *Phys. Rev. B* **63**, 054430 (2001).
24. *Nondissipative Drag Conductance as a Topological Quantum Number*, Kun Yang and A. H. MacDonald, *Phys. Rev. B* **63**, 073301 (2001).
25. *Inhomogeneous Superconducting State in Quasi-One-Dimensional Systems*, Kun Yang, *Phys. Rev. B* **63**, 140511 (Rapid Communication) (2001).
26. *Wigner Crystals in the Lowest Landau Level at Low Filling Factors*, Kun Yang, F. D. M. Haldane, and E. H. Rezayi, *Phys. Rev. B* **64**, 081301 (Rapid Commun.) (2001).
27. *Dipolar Excitons, Spontaneous Phase Coherence, and Superfluid-Insulator Transition in Bi-layer Quantum Hall Systems at  $\nu = 1$* , Kun Yang, *Phys. Rev. Lett.* **87**, 056802 (2001).

28. *Effects of Impurities on Fulde-Ferrell-Larkin-Ovchinnikov Superconductors*, D. F. Agterberg and Kun Yang, *J. Phys. Condens. Matter* **13**, 9259 (2001).
29. *Reconstruction of Fractional Quantum Hall Edges*, Xin Wan, Kun Yang, and E. H. Rezayi, *Phys. Rev. Lett.* **88**, 056802 (2002).
30. *Thermodynamics of Strongly Disordered Spin Ladders*, Eddy Yusuf and Kun Yang, *Phys. Rev. B* **65**, 224428 (2002).
31. *Modified Spin-Wave Study of Random Antiferromagnetic-Ferromagnetic Spin Chains*, Xin Wan, Kun Yang, and R. N. Bhatt, *Phys. Rev. B* **66**, 014429 (2002).
32. *Disorder Induced Cluster Formation near First Order Phase Transitions in Electronic Systems: Importance of Long-range Coulomb Interaction*, Kun Yang, *Phys. Rev. B* **67**, 092201 (2003).
33. *Large Moment Formation and Thermodynamic Properties of Disordered Spin Ladders with Site Dilution*, Eddy Yusuf and Kun Yang, *Phys. Rev. B* **67**, 144409 (2003).
34. *Rigorous Proof of Pseudospin Ferromagnetism in Two-Component Bosonic Systems with Component-Independent Interactions*, Kun Yang and You-Quan Li, *Int. J. Mod. Phys. B* **17**, 1027 (2003).
35. *Bond Randomness Induced Neel Order in Weakly Coupled Antiferromagnetic Spin Chains*, A. Joshi and Kun Yang, *Phys. Rev. B* **67**, 174403 (2003).
36. *Disorder Driven Collapse of the Mobility Gap and Transition to an Insulator in Fractional Quantum Hall Effect*, D. N. Sheng, Xin Wan, E. H. Rezayi, Kun Yang, R. N. Bhatt, and F. D. M. Haldane, *Phys. Rev. Lett.* **90**, 256802 (2003).
37. *Field Theoretical Description of Quantum Hall Edge Reconstruction*, Kun Yang, *Phys. Rev. Lett.* **91**, 036802 (2003).
38. *Random Antiferromagnetic Spin-1/2 Chains with Competing Interactions*, Eddy Yusuf and Kun Yang, *Phys. Rev. B* **68**, 024425 (2003).
39. *Edge Reconstruction in the Fractional Quantum Hall Regime*, Xin Wan, E. H. Rezayi, and Kun Yang, *Phys. Rev. B* **68**, 125307 (2003).
40. *Spin Waves in Antiferromagnetic Spin Chains with Long Range Interactions*, Eddy Yusuf, Anuvrat Joshi, and Kun Yang, *Phys. Rev. B* **69**, 144412 (2004).
41. *Ferromagnetic Transition in One-Dimensional Itinerant Electron Systems*, Kun Yang, *Phys. Rev. Lett.* **93**, 066401 (2004).
42. *Numerical Study of Spin Quantum Hall Transitions in Superconductors with Broken Time-Reversal Symmetry*, Qinghong Cui, Xin Wan, and Kun Yang, *Phys. Rev. B* **70**, 094506 (2004).

43. *Vortex Lattice Structure of Fulde-Ferrell-Larkin-Ovchinnikov Superconductors*, Kun Yang and A. H. MacDonald, *Phys. Rev. B* **70**, 094512 (2004).
44. *Electron Spectral Functions of Reconstructed Quantum Hall Edges*, A. Melikidze and Kun Yang, *Phys. Rev. B* **70**, 161312 (Rapid Communication) (2004).
45. *Fluctuation-Driven First-Order Transition in Pauli-limited d-wave Superconductors*, Denis Dalidovich and Kun Yang, *Phys. Rev. Lett.* **93**, 247002 (2004).
46. *Dynamics of Weakly Coupled Random Antiferromagnetic Quantum Spin Chains*, Eddy Yusuf and Kun Yang, *Phys. Rev. B* **72**, 020403 (Rapid Communication) (2005).
47. *Mobility Gap in Fractional Quantum Hall Liquids: Effects of Disorder and Layer Thickness*, Xin Wan, D.N. Sheng, E.H. Rezayi, Kun Yang, R.N. Bhatt, and F.D.M. Haldane, *Phys. Rev. B* **72**, 075325 (2005).
48. *Realization and Detection of Fulde-Ferrell-Larkin-Ovchinnikov Superfluid Phases in Trapped Atomic Fermion Systems*, Kun Yang, *Phys. Rev. Lett.* **95**, 218903 (2005) (Comment).
49. *Quantum Criticality of a Fermi Gas with a Spherical Dispersion Minimum*, Kun Yang and Subir Sachdev, *Phys. Rev. Lett.* **96**, 187001 (2006).
50. *Fermi Surfaces and Luttinger's Theorem in Paired Fermion Systems*, Subir Sachdev and Kun Yang, *Phys. Rev. B* **73**, 174504 (2006).
51. *Conductance Characteristics between a Normal Metal and a Two-dimensional Fulde-Ferrell-Larkin-Ovchinnikov Superconductor: the Fulde-Ferrell State*, Qinghong Cui, Chia-Ren Hu, J.Y.T. Wei, and Kun Yang, *Phys. Rev. B* **73**, 214514 (2006).
52. *Collective Modes and Skyrmion Excitations in Graphene  $SU(4)$  Quantum Hall Ferromagnets*, Kun Yang, S. Das Sarma, and A. H. MacDonald, *Phys. Rev. B* **74**, 075423 (2006).
53. *Edge Excitations and Non-Abelian Statistics in the Moore-Read State: A Numerical Study in the Presence of Coulomb Interaction and Edge Confinement*, Xin Wan, Kun Yang, and E. H. Rezayi, *Phys. Rev. Lett.* **97**, 256804 (2006).
54. *Infinite Randomness Fixed Points for Chains of Non-Abelian Quasiparticles*, N. E. Bonesteel and Kun Yang, *Phys. Rev. Lett.* **99**, 140405 (2007).
55. *Quantum Hall Transition near a Feshbach Resonance in Fast Rotating Fermi Gases*, Kun Yang and Hui Zhai, *Phys. Rev. Lett.* **100**, 030404 (2008).
56. *Superfluid-Insulator Transition and Fermion Pairing in Bose-Fermi Mixtures*, Kun Yang, *Phys. Rev. B* **77**, 085115 (2008).
57. *Supersymmetry and Goldstino-like Mode in Bose-Fermi Mixtures*, Yue Yu and Kun Yang, *Phys. Rev. Lett.* **100**, 090404 (2008).

58. *Fractional quantum Hall effect at  $\nu = 5/2$ : Ground states, non-Abelian quasiholes, and edge modes in a microscopic model*, Xin Wan, Zi-Xiang Hu, E. H. Rezayi, and Kun Yang, *Phys. Rev. B* **77**, 165316 (2008) (Editor's Suggestion).
59. *Block Entanglement Entropy of Ground States with Long-Range Magnetic Order*, Wenxin Ding, N. E. Bonesteel, and Kun Yang, *Phys. Rev. A* **77**, 052109 (2008).
60. *Halperin  $(m, m', n)$  bilayer quantum Hall states on thin cylinders*, Alexander Seidel and Kun Yang, *Phys. Rev. Lett.* **101**, 036804 (2008).
61. *Fulde-Ferrell-Larkin-Ovchinnikov state in disordered s-wave superconductors*, Qinghong Cui and Kun Yang, *Phys. Rev. B* **78**, 054501 (2008).
62. *Magnetization and Spin Excitations of Non-Abelian Quantum Hall States*, Kun Yang and E. H. Rezayi, *Phys. Rev. Lett.* **101**, 216808 (2008).
63. *Ground state and edge excitations of a quantum Hall liquid at filling factor  $2/3$* , Zi-Xiang Hu, Hua Chen, Kun Yang, E. H. Rezayi, and Xin Wan, *Phys. Rev. B* **78**, 235315 (2008).
64. *Thermopower as a Possible Probe of Non-Abelian Quasiparticle Statistics in Fractional Quantum Hall Liquids*, Kun Yang and B. I. Halperin, *Phys. Rev. B* **79**, 115317 (2009) (Editor's Suggestion).
65. *Spin polarization of the  $\nu = 5/2$  quantum Hall state*, A. E. Feiguin, E. Rezayi, Kun Yang, C. Nayak, and S. Das Sarma, *Phys. Rev. B* **79**, 115322 (2009).
66. *Entanglement Entropy and Mutual Information in Bose-Einstein Condensates*, Wenxin Ding and Kun Yang, *Phys. Rev. A* **80**, 012329 (2009).
67. *The enigma of the  $\nu = 0$  quantum Hall effect in graphene*, S. Das Sarma and Kun Yang, *Solid State Commun.* **149**, 1502 (2009).
68. *Non-Fermi Liquid Behavior in Neutral Bilayer Graphene*, Yafis Barlas and Kun Yang, *Phys. Rev. B* **80**, 161408 (Rapid Communication) (2009) (Editor's Suggestion).
69. *Quasiparticle tunneling in the Moore-Read fractional quantum Hall State*, Hua Chen, Zi-Xiang Hu, Kun Yang, E. H. Rezayi, and Xin Wan, *Phys. Rev. B* **80**, in press (2009).
70. *Many-body instability of Coulomb interacting bilayer graphene: RG approach*, O. Vafek and Kun Yang, *Phys. Rev. B* **80**, in press (Rapid Communication) (2009).

### Refereed Conference Proceedings

71. *Effects of Randomness in Gapped Antiferromagnetic Quantum Spin Chains*, Kun Yang, R. A. Hyman, R. N. Bhatt and S. M. Girvin, *J. Appl. Phys.* **79**, 5096 (1996).
72. *Non-Heisenberg Couplings and Ferromagnetic Instability in a Random Antiferromagnetic Spin-1 Chain*, R. N. Bhatt and Kun Yang, *J. Appl. Phys.* **83**, 7231 (1998).

73. *Generation of Ferromagnetic Bonds in Disordered Antiferromagnetic Spin-1 Chains with Biquadratic Couplings*, Kun Yang and R. N. Bhatt, *Physica B* **259**, 1048 (1999).
74. *Zeeman and Orbital Effects of an in-Plane Magnetic Field in Cuprate Superconductors*, Kun Yang and S. L. Sondhi, *J. Appl. Phys.* **87**, 5549 (2000).
75. *Spin Waves in Random Spin Chains*, Xin Wan, Kun Yang, C. Zhou and R. N. Bhatt, *J. Appl. Phys.* **93**, 7390 (2003).
76. *Effects of Quantum Hall Edge Reconstruction on Momentum-Resolved Tunneling*, A. Melikidze and Kun Yang, *Int. J. Mod. Phys. B* **18**, 3521 (2004).
77. *Conductance Characteristics between a Normal Metal and a 2D Fulde-Ferrell-Larkin-Ovchinnikov Superconductor*, Qinghong Cui, Chia-Ren Hu, J.Y.T. Wei, and Kun Yang, *AIP Conference Proceedings* **850**, 731 (2006).
78. *Braiding and Entanglement in Non-Abelian Quantum Hall States*, G. Zikos, Kun Yang, N. E. Bonesteel, L. Hormozi, and S. H. Simon, *Int. J. Mod. Phys. B* **23**, 2727 (2009).

**Invited Reviews and Book Contributions** (not refereed unless noted otherwise)

79. *Realization, Characterization and Detection of FFLO and other Exotic Pairing States in Condensed Matter and Cold Atom Systems*, Kun Yang, invited contribution to: *Pairing in Fermionic Systems: Basic Concepts and Modern Applications* (Mark Alford, John Clark and Armen Sedrakian, eds; Series on Advances in Quantum Many-Body Theory - Vol. 8), World Scientific (2006), page 253-268 (also available as eprint: cond-mat/0603190).
80. *Spontaneous Symmetry Breaking and Quantum Hall Effect in Graphene*, Kun Yang, *Solid State Communications* **143**, 27-32 (2007).
81. *Recent Developments in Graphene Quantum Hall Effect*, Y. Barlas, A. H. MacDonald, and Kun Yang, in preparation. Invited review to appear in *Nanotechnology*.