

## J. T. Chalker: Research Publications, January 2021

1. S. J. Garratt and J. T. Chalker  
Many-body delocalisation as symmetry breaking  
arXiv:2012.11580
2. A. Chan, A. De Luca, and J. T. Chalker  
Spectral Lyapunov exponents in chaotic and localized many-body quantum systems  
arXiv:2012.05295
3. S. J. Garratt and J. T. Chalker  
Many-body quantum chaos and the local pairing of Feynman histories  
arXiv:2008.01697
4. S. Sanyal, K. Damle, J. T. Chalker, and R. Moessner  
Emergent moments and random singlet physics in a Majorana spin liquid  
arXiv:2006.16987
5. A. C. Potter, J. T. Chalker, and V. Gurarie  
Quantum Hall network models as Floquet topological insulators  
Phys. Rev. Lett. **125**, 086601 (2020)
6. S. Roy, J. T. Chalker, I. V. Gornyi, and Y. Gefen  
Measurement-induced steering of quantum systems  
Phys. Rev. Research **2**, 033347 (2020)
7. S. J. Garratt and J. T. Chalker  
Goldstone modes in the emergent gauge fields of a frustrated magnet  
Phys. Rev. B **101**, 024413 (2020)
8. A. J. Friedman, A. Chan, A. De Luca, and J. T. Chalker  
Spectral statistics and many-body quantum chaos with conserved charge  
Phys. Rev. Lett. **123**, 210603 (2019)
9. S. Roy, D. E. Logan, and J. T. Chalker  
Percolation in Fock space as a proxy for many-body localisation  
Phys. Rev. B **99**, 104206 (2019)
10. S. Roy, D. E. Logan, and J. T. Chalker  
Exact solution of a percolation analogue for the many-body localisation transition  
Phys. Rev. B **99**, 220201 (2019)
11. X. Bai, J. A. M. Paddison, E. Kapit, S. M. Koohpayeh, J.-J. Wen, S. E. Dutton, A. T. Savici, A. I. Kolesnikov, G. E. Granroth, C. L. Broholm, J. T. Chalker, and M. Mourigal  
Magnetic excitations of the classical spin liquid  $\text{MgCr}_2\text{O}_4$   
Phys. Rev. Lett. **122**, 097201 (2019)
12. A. Chan, A. De Luca, and J. T. Chalker  
Eigenstate Correlations, Thermalization and the Butterfly Effect  
Phys. Rev. Lett. **122**, 220601 (2019)
13. D. T. Liu, J. T. Chalker, V. Khemani, and S. L. Sondhi  
Mott, Floquet, and the response of periodically driven Anderson insulators  
Phys. Rev. B **98**, 214202 (2018)
14. A. Chan, A. De Luca, and J. T. Chalker  
Spectral statistics in spatially extended chaotic quantum many-body systems  
Phys. Rev. Lett. **121**, 060601 (2018)
15. A. Chan, A. De Luca, and J. T. Chalker  
Solution of a minimal model for many-body quantum chaos  
Phys. Rev. X **8**, 041019 (2018)

16. P. Serna, J.T. Chalker, and P. Fendley Deconfinement transitions in a generalised XY model  
J. Phys. A: Math. Theor. **50** 424003 (2017)
17. G. B. Halasz and J. T. Chalker  
Coherent hole propagation in an exactly solvable gapless spin liquid  
Phys. Rev. B **94**, 235105 (2016)
18. D. T. Liu, F. J. Burnell, L. D. C. Jaubert, and J. T. Chalker  
Classical spin liquids in stacked triangular lattice Ising antiferromagnets  
Phys. Rev. B **94**, 224413 (2016)
19. A. Smith, J. Knolle, D.L. Kovrizhin, J.T. Chalker, and R. Moessner  
Majorana spectroscopy of 3D Kitaev spin-liquids  
Phys. Rev. B **93**, 235146 (2016)
20. S. Thiem and J. T. Chalker  
Long-range Magnetic Order in Models for Rare Earth Quasicrystals  
Phys. Rev. B **92**, 224409 (2015)
21. A. Smith, J. Knolle, D. L. Kovrizhin, J. T. Chalker, and R. Moessner  
Neutron scattering signatures of the 3D hyper-honeycomb Kitaev quantum spin-liquid  
Phys. Rev. B **92**, 180408(R) (2015)
22. A. Nahum, P. Serna, J. T. Chalker, M. Ortuño, and A. M. Somoza  
Emergent SO(5) Symmetry at the Nel to Valence-Bond-Solid Transition  
Phys. Rev. Lett. **115**, 267203 (2015)
23. J. Knolle, D.L. Kovrizhin, J.T. Chalker, and R. Moessner  
Dynamics of Fractionalization in Quantum Spin Liquids  
Phys. Rev. B **92**, 115127 (2015)
24. A. Nahum, J. T. Chalker, P. Serna, M. Ortuño, and A. M. Somoza  
Deconfined Quantum Criticality, Scaling Violations, and Classical Loop Models  
Phys. Rev. X **5**, 041048 (2015)
25. F. J. Burnell and J. T. Chalker  
Frustration and Correlations in Stacked Triangular Lattice Ising Antiferromagnets  
Phys. Rev. B **92**, 220417 (2015)
26. E. Kapit, J. T. Chalker and S. H. Simon  
Passive correction of quantum logical errors in a driven, dissipative system: a blueprint for an analog quantum code fabric  
Phys. Rev. A **91**, 062324 (2015)
27. S. Thiem and J. T. Chalker  
Magnetism in Rare Earth Quasicrystals: RKKY Interactions and Ordering  
Europhysics Letters **110**, 17002 (2015)
28. G. Halasz, J. T. Chalker, and R. Moessner  
Doping a topological quantum spin liquid: slow holes in the Kitaev honeycomb model  
Phys. Rev. B **90**, 035145 (2014)
29. J. Knolle, D. L. Kovrizhin, J. T. Chalker, and R. Moessner  
Dynamics of a two-dimensional quantum spin liquid: signatures of emergent Majorana fermions and fluxes  
Phys. Rev. Lett. **112**, 207203 (2014)
30. Adam Nahum, J. T. Chalker, P. Serna, M. Ortuño, and A. M. Somoza  
Length Distributions in Loop Soups  
Phys. Rev. Lett. **111**, 100601 (2013)
31. Adam Nahum, J. T. Chalker, P. Serna, M. Ortuño, and A. M. Somoza  
Phase transitions in 3D loop models and the  $CP^{n-1}$   $\sigma$  model  
Phys. Rev. B **88**, 134411 (2013)

32. M. J. Rufino, D. L. Kovrizhin, and J. T. Chalker  
Solution of a model for the two-channel electronic Mach-Zehnder interferometer  
Phys. Rev. B **87**, 045120 (2013)
33. A. Nahum and J. T. Chalker  
Universal statistics of vortex lines  
Phys. Rev. E **85**, 031141 (2012)
34. D. L. Kovrizhin and J. T. Chalker  
Relaxation in driven integer quantum Hall edge states  
Phys. Rev. Lett. **109**, 106403 (2012)
35. A. J. Willans, J. T. Chalker, and R. Moessner  
Site dilution in Kitaev's honeycomb model  
Phys. Rev. B **84**, 115146 (2011)
36. Adam Nahum, J. T. Chalker, P. Serna, M. Ortuño, and A. M. Somoza  
3D loop models and the  $CP^{n-1}$  sigma model  
Phys. Rev. Lett. **107** 110601 (2011)
37. J. T. Chalker, M. Ortuño, and A. M. Somoza  
Spin quantum Hall effect and plateau transitions in multilayer network models  
Phys. Rev. B **83**, 115317 (2011)
38. D. L. Kovrizhin and J. T. Chalker  
Equilibration of integer quantum Hall edge states  
Phys. Rev. B **84**, 085105 (2011).
39. J. T. Chalker, T. S. Pickles, and P. Shukla  
Anderson localisation in tight-binding models with flat bands  
Phys. Rev. B **82**, 104209 (2010)
40. A. J. Willans, J. T. Chalker, and R. Moessner  
Disorder in a quantum spin liquid: flux binding and local moment formation  
Phys. Rev. Lett. **104**, 237203 (2010)
41. L. D. C. Jaubert, J.T. Chalker, Peter C.W. Holdsworth, and R. Moessner, Spin ice under pressure: symmetry enhancement and infinite order multicriticality  
Phys. Rev. Lett. **105** 087201 (2010)
42. P. H. Conlon, and J. T. Chalker  
Absent pinch points and emergent clusters: further neighbour interactions in the pyrochlore Heisenberg antiferromagnet  
Phys. Rev. B **81**, 224413 (2010)
43. D. L. Kovrizhin and J. T. Chalker  
Multiparticle interference in electronic Mach-Zehnder interferometers  
Phys. Rev. B **81**, 155318 (2010)
44. A. Andreanov, J.T. Chalker, T. E. Saunders, and D. Sherrington  
Spin glass transition in geometrically frustrated antiferromagnets with weak disorder  
Phys. Rev. B **81**, 014406 (2010)
45. S. Powell and J. T. Chalker  
Classical to quantum mapping for an unconventional phase transition in a three-dimensional classical dimer model  
Phys. Rev. B **80**, 134413 (2009)
46. P. H. Conlon, and J. T. Chalker  
Spin Dynamics in Pyrochlore Heisenberg Antiferromagnets  
Phys. Rev. Lett. **102**, 237206 (2009)

47. D. L. Kovrizhin and J. T. Chalker  
Exactly Solved Model for an Electronic Mach-Zehnder Interferometer  
Phys. Rev. B **80**, 161306(R) (2009)
48. J. T. Chalker and B. Shapiro  
Caustic formation in expanding condensates of cold atoms  
Phys. Rev. A **80**, 013603 (2009)
49. M. Ortuño, A. M. Somoza and J. T. Chalker  
Random Walks and Anderson Localisation in a Three-Dimensional Class C Network Model  
Phys. Rev. Lett. **102**, 070603 (2009)
50. V. Gurarie, G. Refael and J. T. Chalker  
Excitations of one dimensional Bose-Einstein condensates in a random potential  
Phys. Rev. Lett. **101**, 170407 (2008)
51. S. Powell and J. T. Chalker  
SU(2)-invariant critical theory for an unconventional phase transition in a three-dimensional classical dimer model  
Phys. Rev. Lett. **101**, 155702 (2008)
52. S. Powell and J. T. Chalker  
Classical-quantum mappings for geometrically frustrated systems: spin ice in a [100] field  
Phys. Rev. B **78**, 024422 (2008)
53. T. E. Saunders and J. T. Chalker  
Structural phase transitions in geometrically frustrated antiferromagnets  
Phys. Rev. B **77**, 214438 (2008)
54. L. D. C. Jaubert, J. T. Chalker, P. C.W. Holdsworth and R. Moessner  
A three dimensional Kasteleyn transition: spin ice in a [100] field  
Phys. Rev. Lett. **100**, 067207 (2008)
55. T. S. Pickles, T. E. Saunders and J. T. Chalker  
Critical phenomena in a highly constrained classical spin system: Neel ordering from the Coulomb phase  
Europhysics Letters **84**, 36002 (2008)
56. J. T. Chalker, Y. Gefen, and M. Y. Veillette  
Decoherence and interactions in an electronic Mach-Zehnder interferometer  
Phys. Rev. B **76**, 085320 (2007)
57. T. E. Saunders and J. T. Chalker  
Spin freezing in geometrically frustrated antiferromagnets with weak disorder  
Phys. Rev. Lett. **98**, 157201 (2007).
58. A. Mildenerger, F. Evers, A. D. Mirlin, and J. T. Chalker  
Density of quasiparticle states for a two-dimensional disordered system: Metallic, insulating, and critical behavior in the class D thermal quantum Hall effect  
Phys. Rev. B **75**, 245321 (2007)
59. M.Y. Veillette and J.T. Chalker  
Commensurate and incommensurate ground states of Cs<sub>2</sub>CuCl<sub>4</sub> in a magnetic field  
Phys. Rev. B **74**, 052402 (2006)
60. A. L. C. Pereira and J. T. Chalker  
Electrostatic theory for imaging experiments on local charges in quantum Hall systems  
Physica E **31**, 155 (2006)
61. J. W. Tomlinson, J.-S. Caux, and J. T. Chalker  
Transport between edge states in multilayer integer quantum Hall systems: exact treatment of Coulomb interactions and disorder  
Phys. Rev. B **72**, 235307 (2005)

62. M.Y. Veillette, J.T. Chalker, and R. Coldea  
Ground states of a frustrated spin-1/2 antiferromagnet:  $\text{Cs}_2\text{CuCl}_4$  in a magnetic field  
Phys. Rev. B, **71**, 214426 (2005)
63. J. W. Tomlinson, J.-S. Caux, and J. T. Chalker  
Electron interactions and transport between coupled quantum Hall edge states  
Phys. Rev. Lett. **94**, 086804 (2005)
64. P. M. Hogan and J. T. Chalker  
Path integrals, diffusion on  $\text{SU}(2)$  and the fully frustrated antiferromagnetic spin cluster  
J. Phys. A: Math. Gen. **37**, 11751 (2004)
65. V. Gurarie and J.T. Chalker  
Bosonic Excitations in Random Media  
Phys. Rev. B **68**, 134207 (2003)
66. V. Oганesyan, J. T. Chalker, and S. L. Sondhi  
Deconstructing the Liouvillian approach to the quantum Hall plateau transition  
Phys. Rev. B **68**, 045318 (2003)
67. D. K. K. Lee, S. Rapsch, and J. T. Chalker  
Dirty quantum Hall ferromagnets and quantum Hall spin glasses  
Phys. Rev. B **67**, 195322 (2003)
68. M. Bocquet and J. T. Chalker  
Network models for localization problems belonging to the chiral symmetry classes  
Phys. Rev. B **67**, 054204 (2003)
69. J. T. Chalker, D. G. Polyakov, F. Evers, A. D. Mirlin, and P. Wölfle  
Quantum Hall ferromagnets, cooperative transport anisotropy, and the random field Ising model  
Phys. Rev. B **66**, 161317 (2002)
70. V. Gurarie and J. T. Chalker  
Some generic aspects of bosonic excitations in disordered systems  
Phys. Rev. Lett. **89**, 136801 (2002)
71. F. Merz and J. T. Chalker  
Negative scaling dimensions and conformal invariance at the Nishimori point in the  $\pm J$  random-bond Ising model  
Phys. Rev. B **66**, 054413 (2002)
72. E. Beamond, J. L. Cardy, and J. T. Chalker  
Quantum and classical localisation, the spin quantum Hall effect and generalisations  
Phys. Rev. B **65**, 214301 (2002)
73. S. Rapsch, J. T. Chalker and D. K. K. Lee  
Spin textures, screening and excitations in dirty quantum Hall ferromagnets  
Phys. Rev. Lett. **88**, 036801 (2002)
74. F. Merz and J. T. Chalker  
The two-dimensional random-bond Ising model, free fermions and the network model  
Phys. Rev. B **65**, 054425 (2002)
75. J. T. Chalker, N. Read, V. Kagalovsky, B. Horovitz, Y. Avishai, and A. W. W. Ludwig  
Thermal metal in network models of a disordered two-dimensional superconductor  
Phys. Rev. B **65**, 012506 (2002)
76. S. E. Palmer and J. T. Chalker  
Quantum disorder in the two-dimensional pyrochlore Heisenberg antiferromagnet  
Phys. Rev. B **64**, 094412 (2001)
77. J. J. Betouras and J. T. Chalker  
The effects of interactions and disorder in the two-dimensional chiral metal  
Phys. Rev. B. **62**, 10931 (2000)

78. S. E. Palmer and J. T. Chalker  
Order induced by dipolar interactions in a geometrically frustrated antiferromagnet  
Phys. Rev. B. **62**, 488 (2000)
79. Z. Wang, M. P. A. Fisher, S. M. Girvin, and J. T. Chalker  
Short-range interactions and scaling near integer quantum Hall transitions  
Phys. Rev. B. **61**, 8326 (2000)
80. J. T. Chalker and Z. J. Wang  
Spectrum of the Fokker-Planck operator representing diffusion in a random velocity field  
Phys. Rev. E. **61**, 196 (2000)
81. B. Mehlige and J. T. Chalker  
Statistical properties of eigenvectors in non-Hermitian Gaussian random matrix ensembles  
J. Math. Phys. **41**, 3233 (2000)
82. V. Kagalovsky, B. Horovitz, Y. Avishai, and J. T. Chalker  
Quantum Hall plateau transitions in disordered superconductors  
Phys. Rev. Lett. **82**, 3516 (1999)
83. J. T. Chalker and S. L. Sondhi  
The transverse magnetoresistance of the two-dimensional chiral metal  
Phys. Rev. B. **59**, 4999 (1999)
84. B. Mehlige and J. T. Chalker  
Eigenvector correlations in non-Hermitian random matrix ensembles  
Annalen der Physik **7**, 427 (1998)
85. J. T. Chalker and B. Mehlige  
Eigenvector statistics in non-Hermitian random matrix ensembles  
Phys. Rev. Lett. **81**, 3367 (1998)
86. R. Moessner and J. T. Chalker  
Low-temperature properties of classical, geometrically frustrated antiferromagnets  
Phys. Rev. B. **58**, 12049 (1998)
87. R. Moessner and J. T. Chalker  
Properties of a classical spin liquid: the Heisenberg pyrochlore antiferromagnet  
Phys. Rev. Lett. **80**, 2929 (1998)
88. J. T. Chalker and Z. J. Wang  
Diffusion in a random velocity field: Spectral properties of a non-Hermitian Fokker-Planck operator  
Phys. Rev. Lett. **79**, 1797 (1997)
89. J. T. Chalker, V. E. Kravtsov and I. V. Lerner  
Spectral rigidity and eigenfunction correlations at the Anderson transition  
JETP Lett. **64**, 386 (1996)
90. J. T. Chalker, I. V. Lerner and R. A. Smith  
Fictitious level dynamics: a novel approach to spectral statistics in disordered conductors  
J. Math. Phys. **37**, 5061 (1996)
91. C-M Ho and J. T. Chalker  
Models for the integer quantum Hall effect: the network model, the Dirac Hamiltonian, and a tight-binding model  
Phys. Rev. B **54**, 8708 (1996)
92. R. Moessner and J. T. Chalker  
Exact results for interacting electrons in high Landau levels  
Phys. Rev. B **54**, 5006 (1996)

93. N A Bruce and J T Chalker  
Multiple scattering in the presence of absorption - a theoretical treatment of quasi-one-dimensional systems  
J. Phys. A **29**, 3761 (1996)
94. J T Chalker, I V Lerner and R A Smith  
Random walks through the ensemble - linking spectral statistics with wavefunction correlations in disordered metals  
Phys. Rev. Lett. **77**, 554 (1996)
95. J T Chalker and A Dohmen  
Three-dimensional conductors in a strong magnetic field: surface states and quantum Hall plateaus  
Phys. Rev. Lett. **75**, 4496 (1995)
96. D K K Lee, J T Chalker and D Y K Ko  
Localisation in a random magnetic field: the semiclassical limit  
Phys. Rev. B **50**, 5272 (1994)
97. N R Cooper and J T Chalker  
Theory of spin-split cyclotron resonance in the extreme quantum limit  
Phys. Rev. Lett. **72**, 2057 (1994)
98. A M S Macedo and J T Chalker  
Exact results for the level density and two-point correlation function of the transmission matrix eigenvalues in quasi-one-dimensional conductors  
Phys. Rev. B **49**, 4695 (1994)
99. D K K Lee and J T Chalker  
A unified model for two localisation problems: electron states in spin-degenerate Landau levels, and in a random magnetic field  
Phys. Rev. Lett. **72**, 1510 (1994)
100. J T Chalker and A M S Macedo  
A complete characterisation of universal fluctuations in quasi-one-dimensional mesoscopic conductors  
Phys. Rev. Lett. **71**, 3693 (1993)
101. N Cooper and J T Chalker  
Coulomb interactions and the integer quantum Hall effect: screening and transport  
Phys. Rev. B **48**, 4530 (1993)
102. J T Chalker and M Bernhardt  
Scattering theory, transfer matrices and Anderson localisation  
Phys. Rev. Lett. **70**, 982 (1993)
103. J T Chalker, G J Daniell, S N Evangelou and I H Nahm  
Eigenfunction fluctuations and correlations at a mobility edge in a two-dimensional system with spin-orbit scattering  
J. Phys: Condens. Matter **5**, 485 (1993)
104. A M S Macedo and J T Chalker  
Effects of spin-orbit interactions in disordered conductors: a random matrix approach  
Phys. Rev. B **46**, 14 985 (1992)
105. J T Chalker and J F G Eastmond  
Ground-state disorder in the spin- $\frac{1}{2}$  kagomé Heisenberg antiferromagnet  
Phys. Rev. B **46**, 14 201 (1992)
106. J T Chalker, E F Shender and P C W Holdsworth  
Hidden order in a frustrated system  
Phys. Rev. Lett. **68**, 855 (1992)
107. J T Chalker  
Scaling and eigenfunction correlations near a mobility edge  
Physica **A 167**, 253 (1990)

108. J T Chalker and S Y C Siak  
Anderson localisation on a Cayley tree: a new model with a simple solution  
J. Phys: Condensed Matter **2**, 2671 (1990)
109. D B Carpenter and J T Chalker  
The phase diagram of a generalised XY model  
J. Phys: Condensed Matter **1**, 4907 (1989)
110. P Carra, J T Chalker and K A Benedict  
Electron motion in a random potential and a strong magnetic field: scattering and quantum interference in high Landau levels  
Annals of Physics **194**, 1 (1989)
111. J T Chalker and I H Nahm  
The breakdown of weak localisation theory in disordered conductors with magnetic or spin-orbit scattering  
J. Phys: Condens. Matter **1**, 3615 (1989)
112. J T Chalker and G J Daniell  
Scaling, diffusion and the integer quantized Hall effect  
Phys. Rev. Lett. **61**, 593 (1988)
113. J T Chalker and P D Coddington  
Percolation, quantum tunnelling and the integer quantum Hall effect  
J. Phys. C **21**, 2665 (1988)
114. J T Chalker  
Scaling and eigenfunction correlations at a mobility edge in two dimensions  
J. Phys. C **21**, L119 (1988)
115. C R Askew, D B Carpenter, J T Chalker, A J G Hey, M Moore, D A Nicole and D J Pritchard  
Monte Carlo simulation on Transputer arrays  
Parallel Computing **6**, 247 (1988)
116. J T Chalker, P Carra and K A Benedict  
Weak localisation and the integer quantum Hall effect  
Europhysics Lett. **5**, 163 (1988)
117. J T Chalker  
Anderson localisation in quantum Hall systems  
J. Phys. C **20**, L493 (1987)
118. C R Askew, D B Carpenter, J T Chalker, A J G Hey, D A Nicole and D J Pritchard  
Simulations of statistical mechanical systems on Transputer arrays  
Computer Physics Communications **42**, 21 (1986)
119. K A Benedict and J T Chalker  
An exactly solvable model of the disordered two-dimensional electron gas in a strong magnetic field  
J. Phys. C **19**, 3587 (1986)
120. K A Benedict and J T Chalker  
Properties of the disordered two-dimensional electron gas in a strong magnetic field  
J. Phys. C **18**, 3981 (1985)
121. P Carra and J T Chalker  
Random magnetic fields in the n-vector model: the large-n limit  
J. Phys. C **18**, 1919 (1985)
122. J T Chalker  
The quantum Hall effect: a sum rule  
Surface Science **142**, 182 (1984)



123. T J Sluckin and J T Chalker  
Re-entrant wetting transitions in molecular fluid mixtures  
J. Physique Lett. **45**, L863 (1984)
124. J T Chalker  
On the lower critical dimensionality of the Ising model in a random field  
J. Phys. C **16**, 6615 (1983)
125. J T Chalker  
The Hall effect in a two-dimensional electron gas  
J. Phys. C **16**, 4297 (1983)
126. J T Chalker  
A duality relation between an interface in a pinning potential and a modified Coulomb gas  
J. Phys. A **15**, 2899 (1982)
127. J T Chalker  
The pinning of an interface by a planar defect  
J. Phys. A **15**, L481 (1982)
128. J T Chalker  
The pinning of a domain wall by weakened bonds  
J. Phys. A **14**, 2431 (1981)
129. J T Chalker  
The upper critical dimensionality of a class of structural phase transitions  
Phys. Lett. A **80**, 40 (1980)
130. J T Chalker and G A Gehring  
Crossover behaviour of the uniaxial dipolar ferromagnet  
J. Phys. C **12**, 5545 (1979)