

GEORGE KIRCZENOW, PUBLICATIONS  
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1. G. Kirczenow and P. Jena, Non-Local Pseudopotential Theory of Electron Transport in Liquid Metals, Phys. Rev. B 14, 2422-2426 (1976).
2. M.L.W. Thewalt, G. Kirczenow, R.R. Parsons and R. Barrie, Phonon Broadening of Bound Exciton Luminescence in Silicon, Can. J. Phys. 54, 1728-1740 (1976).
3. G. Kirczenow, Spin-Orbit Coupling and Electrical Conduction in Liquid Metals, Phys. Rev. B 16, 943-944 (1977).
4. G. Kirczenow, A New Model for Bound Multiexciton Complexes, Solid State Commun. 21, 713-715 (1977).
5. G. Kirczenow, A Shell Model of Bound Multiexciton Complexes in Silicon, Can. J. Phys. 55, 1787-1801 (1977).
6. G. Kirczenow and K.S. Singwi, Phase Separation of the Electron-Hole Drop in  $\langle 111 \rangle$ -Stressed Ge, Phys. Rev. Lett. 41, 326-330 (1978).
7. G. Kirczenow and K.S. Singwi, Ground State Properties of the Electron-Hole Liquid in Ge Under  $\langle 111 \rangle$  Uniaxial Stress, Phys. Rev. B 19, 2117-2123 (1979).
8. G. Kirczenow, R. Barrie and B. Bergersen, Screening of Donor Ions in Silicon, Phys. Rev. B 19, 2139-2148 (1979).
9. G. Kirczenow, R. Barrie and B. Bergersen, Basis Functions for Studying Intervalley Effects in Doped Silicon, Phys. Rev. B 19, 2134-2138 (1979).
10. G. Kirczenow and K.S. Singwi, Unusual Phase Diagrams of a Two-Component Coulomb Fermi Liquid, Phys. Rev. Lett. 42, 1004-1007 (1979).
11. M.L.W. Thewalt, J. Rostworowski and G. Kirczenow, Piezospectroscopic Studies of the Photoluminescence Spectra of Silicon Doped with Phosphorus, Boron and Lithium, Can. J. Phys. 57, 1898-1923 (1979).
12. G. Kirczenow and K.S. Singwi, A Study of the Phase Diagrams of the Two-Component Electron-Hole Liquid in Stressed Ge, Phys. Rev. B 20, 4171-4188 (1979).
13. G. Kirczenow, General Transport Theory and Lattice Thermal Conductivity, Annals of Physics 125, 1-34 (1980).
14. G. Kirczenow and K.S. Singwi, Properties of the One- and Two-Component Electron Hole Liquid in Stressed Si at  $T=0$ , Phys. Rev. B 21, 3597-3603 (1980).
15. G. Kirczenow, The Two-Component Electron-Hole Liquid in  $\langle 110 \rangle$ -Stressed Ge and Si: A Test Case for Theory and Experiment, Phys. Rev. B 23, 1902-1908 (1981).

16. G. Kirczenow, The Two-Component Electron-Hole Liquid in Ge and Si Crystals Under Tensile Stress, *Phys. Rev. B* 24, 4723-4728 (1981).
17. G. Kirczenow, Exchange-Correlation Energy and the Phase Separation of the Electron-Hole Liquid in Stressed Semiconductors, *Solid State Commun.* 40, 111-115 (1981).
18. G. Kirczenow, Scaling Between the Surface and Bulk Properties of Electron-Hole Liquids, *Journal of Physics C* 15, L289-294 (1982).
19. S.E. Millman and G. Kirczenow, Origin of Simple Staging in Graphite Intercalation Compounds, *Phys. Rev. B (Rapid Communications)* 26, 2310-2313 (1982).
20. S.E. Millman and G. Kirczenow, Arrangement of Ferric and Ferrous Ions at Low Temperatures in FeCl<sub>3</sub> Intercalated Graphite, *Solid State Commun.* 44, 1217-1219 (1982).
21. G. Kirczenow, Role of Surface Structure in the Phase Separation of the Binary Electron-Hole Liquid, *Phys. Rev. Lett.* 48, 1125-1127 (1982).
22. S.E. Millman, G. Kirczenow and D. Solenberger, Phase Diagrams for Alkali Metal Graphite Intercalation Compounds, *Journal of Physics C* 15, L1269-1276 (1982).
23. G. Kirczenow, Interference Phenomena in the Theory of Daumas Hérold Domain Walls, *Phys. Rev. Lett.* 49, 1853-1856 (1982).
24. S.E. Millman and G. Kirczenow, Mössbauer Analysis of the Acceptor Site for the Donated Electrons in FeCl<sub>3</sub>-Intercalated Graphite, *Phys. Rev. B* 28, 5019-5028 (1983).
25. S.E. Millman and G. Kirczenow, Study of the Phase Diagrams of Graphite Intercalation Compounds, *Phys. Rev. B* 28, 3482-3500 (1983).
26. K.M. Martini, S. Burdick, M. El-Batanouny and G. Kirczenow, Dynamics of Mismatched Overlayers, pp. 159-60, Vol. 3, Springer Series in Surface Science, edited by F. Nizzoli, K.H. Rieder and R.F. Willis (1984).
27. G. Kirczenow, Stage Order, Disorder and Phase Transitions in Intercalation Compounds, *Phys. Rev. Lett.* 52, 437-440 (1984).
28. K.M. Martini, S. Burdick, M. El-Batanouny and G. Kirczenow, Molecular-Dynamics Study of Collective Modes and Dislocation Ordering in Mismatched Overlayers, *Phys. Rev. B (Rapid Communications)* 30, 492-494 (1984).
29. K.K. Bardhan, G. Kirczenow and J.C. Irwin, High-Temperature Staging Phase Diagram of the Intercalation Compound Ag<sub>x</sub>TiS<sub>2</sub>. *J. Phys. C* 18, L131-L137 (1985).
30. G. Kirczenow, Domain Model of Stage Order and Disorder in Intercalation Compounds, *Phys. Rev. B* 31, 5376-5386 (1985).

31. S.E. Ulloa and G. Kirczenow, Nonlinear Theory of Domain Walls and the Anomalies of Intercalation Kinetics, *Phys. Rev. Lett.* 55, 218-221 (1985).
32. G. Kirczenow, Stage Order and the Dynamics of Intercalate Islands, *Synth. Met.* 12, 143-148 (1985).
33. K.M. Martini, S. Burdick, M. El-Batanouny and G. Kirczenow, Molecular Dynamics Investigation of Dislocation-Depinning Transitions in Mismatched Overlayers, pp. 347-350, Vol. 2, Springer Series in Surface Science, edited by M.A. van Hove and S.Y. Tong (1985).
34. G. Kirczenow, A Theoretical Study of Electrical Conduction in Finite Metals and Insulators, *Phys. Rev. B* 32, 7952-7963 (1985).
35. G. Kirczenow, Kinetics of Stage Ordering and Stage Transitions, *Phys. Rev. Lett.* 55, 2810-2813 (1985).
36. S.E. Ulloa and G. Kirczenow, Nonlinear Theory of Domain Walls and Domain Effective Interactions in Intercalation Compounds, *Phys. Rev. B* 33, 1360-1371 (1986).
37. K.K. Bardhan, G. Kirczenow, G. Jackle and J.C. Irwin, Study of the Staging Structures of the Intercalation Compounds  $\text{Ag}_x\text{TiS}_2$ , *Phys. Rev. B* 33, 4149-4159 (1986).
38. S.E. Ulloa and G. Kirczenow, Staging Domain Walls in Intercalation Compounds, *Comments on Condensed Matter Physics* 12, 181-198 (1986). (Invited review).
39. S.E. Ulloa and G. Kirczenow, Charge Profiles of the Staging Walls in Graphite Intercalation Compounds, *Solid State Commun.* 60, 31-34 (1986).
40. S.E. Ulloa and G. Kirczenow, Novel Electron Tunneling Behavior at Staging Dislocations and the Residual Resistance of Graphite Intercalation Compounds, *Phys. Rev. Lett.* 56, 2537-2540 (1986).
41. S.E. Ulloa and G. Kirczenow, Novel Surface States and the Quantum Hall Effect in an Anisotropic Three-Dimensional System, *Phys. Rev. Lett.* 57, 2991-2994 (1986).
42. S.E. Ulloa and G. Kirczenow, Electronic Structure of Staging Dislocations, Electron Scattering States and the Residual Resistance of Graphite Intercalation Compounds, *Phys. Rev. B* 35, 795-805 (1987).
43. W.M. Que and G. Kirczenow, Tunneling Magneto-Plasmons and Anderson Localization in Semiconductor Superlattices, *J. Phys. C* 20, L989-L994 (1987).
44. W.M. Que and G. Kirczenow, Magnetoplasmons in Tunneling Semiconductor Superlattices, *Phys. Rev. B* 36, 6596-6601 (1987).
45. W.M. Que and G. Kirczenow, Antiferromagnetic Superexchange and Superconductivity in Ceramic Oxides, *Solid State Commun.* 64, 1053-1056 (1987).

46. G. Kirczenow, The Kinetics of Staging and Stage Disorder, *Synthetic Metals* 23, 1-6 (1988).
47. G. Kirczenow, Dynamics of Pattern Formation in Layered Materials: Computer Simulations of Intercalation and De-intercalation, *Can. J. Phys.* 66, 39-61 (1988).
48. W.M. Que and G. Kirczenow, Theory of Plasmons in Lateral Multiwire Superlattices, *Phys. Rev. B (Rapid Communications)* 37, 7153-7156 (1988).
49. S.E. Ulloa and G. Kirczenow, Electronic States of Doped Semiconductor Superlattices in Magnetic and Electric Fields, *Phys. Rev. B* 37, 8337-45 (1988).
50. W.M. Que and G. Kirczenow, Intrinsic Multipeak Structure in Quasiparticle Tunneling Conductance of High  $T_c$  Superconductors, *Phys. Rev. B* 38, 4601-4 (1988).
51. W.M. Que and G. Kirczenow, Theory of Collective Excitations in a Two-Dimensional Array of Quantum Dots, *Phys. Rev. B. (Rapid Communications)* 38, 3614-7 (1988).
52. D. Labrie, M.L.W. Thewalt, I.J. Booth and G. Kirczenow, Detailed Ground and Excited State Spectroscopy of Indirect Free Excitons, *Physical Review Letters*, 61, 1882-4 (1988).
53. G. Kirczenow, Hall Effect and Ballistic Conduction in One-Dimensional Quantum Wires, *Phys. Rev. B (Rapid Commun.)*. 38, 10958-61 (1988).
54. G. Kirczenow, Theory of the Conductance of Ballistic Quantum Channels, *Solid State Commun.*, 68, 715-718 (1988).
55. G. Kirczenow Mechanism of the Quenching of the Hall Effect, *Phys. Rev. Letters* 62, 2993-2996 (1989).
56. G. Kirczenow, Comment on the Theories of the Quenching of the Hall Effect, *Phys. Rev. Letters* 62, 1920 (1989).
57. W. M. Que and G. Kirczenow, Novel Magnetooscillatory Behavior of Plasmons in Tunneling Semiconductor Superlattices, *Phys. Rev. Lett.* 62, 1687-1690 (1989).
58. G. Kirczenow, Resonant Conduction in Ballistic Quantum Channels, *Phys. Rev. B. (Rapid Commun.)* 39, 10452-10455 (1989).
59. X. Qin and G. Kirczenow, Scanning Tunneling Microscopy and the Electronic and Structural Properties of Intercalated Graphite Surfaces, *Phys. Rev. B. (Rapid Commun.)* 39, 6245-6249 (1989).
60. W.M. Que and G. Kirczenow, Quantum Theory of Plasmons in Lateral Multiwire Superlattices in the Presence of Subband Quantization: Intersubband Plasmons, *Phys. Rev. B* 39, 5998-6007 (1989).

61. W.M. Que and G. Kirczenow, High Tc Superconductivity in the Itinerant Ising Model: Spin Singlet Pairing *Z. Phys.* B73, 425-432 (1989).
62. G. Kirczenow, Theory of Electron Injection into One-Dimensional Conductors, *J. Phys. Condens. Matter* 1, 305-309 (1989).
63. E. Castaño and G. Kirczenow, Numerical Study of Ballistic Conduction Through a Constriction with a Barrier, *Solid State Communications* 70, 801-805 (1989).
64. G. Kirczenow, Bend Resistance and Junction Resonances in Narrow Quantum Conductors, *Solid State Commun.* 71, 469-472 (1989).
65. G. Kirczenow, Staging and Kinetics, Invited Review Article, pp. 59-100 in "Graphite Intercalation Compounds I - Structure and Dynamics", H. Zabel and S.A. Solin Editors, Springer Series in Materials Science, Vol. 14. (1990).
66. E. Castaño and G. Kirczenow, Theory of the Conductance of Parallel Ballistic Constrictions, *Phys. Rev.* B41, 5055-5060 (1990).
67. X. Qin and G. Kirczenow, A Theory of Scanning Tunneling Microscopy Images of Intercalated Graphite Surfaces, *Phys. Rev.* B41, 4976-4985 (1990).
68. E. Castaño and G. Kirczenow, Theory of Nonlinear Transport in Narrow Ballistic Constrictions, *Phys. Rev. B(Rapid Commun.)* 41, 3874-3877 (1990).
69. S.E. Ulloa, E. Castaño and G. Kirczenow, Ballistic Transport in a Novel One-Dimensional Superlattice, *Phys. Rev. B(Rapid Commun.)* 41, 12350-12353 (1990).
70. G. Kirczenow, Quantum Theory of Hall Anomalies and Bend Resistance in Narrow Ballistic Conductors at Low Magnetic Fields, *Solid State Commun.* 74, 1051-1055 (1990).
71. G. Kirczenow, Analytic Theory of Resonant Magneto-Transport in Ballistic Quantum Conductors, *Phys. Rev. B* 42, 5357-5360 (1990).
72. E. Castaño, G. Kirczenow and S.E. Ulloa, Nonlinear Transport in Ballistic Quantum Chains, *Phys. Rev. B (Rapid Commun.)* 42, 3753-3756 (1990).
73. S.E. Ulloa, E. Castaño and G. Kirczenow, Novel Mesoscopic Superlattice in a Ballistic Constriction, Proc. SPIE Conf. "Advances in Semiconductors and Superconductors", San Diego, Calif. 1990, SPIE Proceedings Series 1284, 57-62 (1990).
74. E. Castaño and G. Kirczenow, Theory of Ballistic Electron Transport Through Parallel Nano-Constrictions, Proc. SPIE Conf. "Advances in Semiconductors and Superconductors", San Diego, Calif. 1990, SPIE Proceedings Series 1284, 101-106 (1990).
75. G. Kirczenow and E. Castaño, Diffraction, Phase-Breaking and Hall Anomalies in Quantum Dots, *Phys. Rev. B (Rapid Communications)* 43, 7343-7346 (1991).

76. H. Shi and G. Kirczenow, Hall Effect and Bend Resistance in Ballistic Quantum Wires Constructed out of Quantum Dots, *J. Phys. Condensed Matter*, 3, 955-960 (1991).
77. W. Que, G. Kirczenow and E. Castaño, Non-Local Theory of Collective Excitations in Quantum Dot Arrays, *Physical Review B* 43, 14079-14090 (1991).
78. E. Castaño and G. Kirczenow, Case for Non-Adiabatic Quantized Conductance in Smooth Ballistic Constrictions, *Phys. Rev. B (Rapid Commun.)* 45, 1514-1517 (1992).
79. G. Kirczenow, Quantum Hall and Transmission Resonances of Quantum dot Arrays: A Possible Spectroscopy of Hofstadter Butterflies, *Surface Science* 263, 330-334(1992).
80. G. Kirczenow, Theory of Two-Dimensional Quantum Dot Arrays in Magnetic Fields: Electronic Structure and Lateral Quantum Transport, *Phys Rev. B* 46, 1439-1450 (1992).
81. S. E. Ulloa, A. MacKinnon, E. Castaño and G. Kirczenow, From Ballistic Transport to Localization, Invited Review, pp. 863 - 975 in Vol.I of the Handbook on Semiconductors, P T Landsberg, Editor (North Holland, Amsterdam, 1992)
82. B.L. Johnson and G. Kirczenow, Quantum Dot Arrays: A New Picture of the Quantum Hall Effect in Two-Dimensional Crystals, *Phys. Rev. Lett.* 69, 672-675 (1992).
83. B. L. Johnson, C. Barnes and G. Kirczenow, Theory of the Hall Effect in Two-Dimensional Quantum Dot Arrays, *Phys. Rev. B.* 46, 15302-15308 (1992).
84. Y. Sun and G. Kirczenow, Density Functional Theory of the Electronic Structure of Coulomb-Confined Quantum Wires, *Phys. Rev. B* 47, 4413-4419 (1993).
85. C. Barnes, B. L. Johnson and G. Kirczenow, Quantum Railroads: Introducing Directionality to Anderson Localization, *Phys. Rev. Letters* 70, 1159-1162 (1993).
86. R. Akis, C. Barnes, B.L. Johnson and G. Kirczenow, Computer Simulations and Edge State Analysis of the Hall Effect in Two-Dimensional Quantum Dot Arrays Connected to Phase Randomizing Reservoirs, *Phys. Rev. B* 47, 16382-16390 (1993).
87. D. L. Maslov, C. Barnes and G. Kirczenow, Ballistic Transport in a Disordered Environment: Why is Conductance Quantization Observable? *Phys. Rev. Letters* 70, 1984-1987 (1993).
88. B. L. Johnson and G. Kirczenow, Electrons in Quantum Dots: A Comparison of Interaction Energies, *Phys. Rev. B* 47, 10563-10566 (1993).
89. D. L. Maslov, C. Barnes and G. Kirczenow, Ballistic Conductor Connected to Disordered Reservoirs: Suppression of the Disorder Effects, *Phys. Rev. B* 48, 2543-2552 (1993)
90. G. Kirczenow, B. L. Johnson, C. Barnes and R. Akis, Novel Quantum Hall Phenomena in Arrays of Quantum Dots, *Journal of Nanostructured Materials* 3, 125-136 (1993).

91. G. Kirczenow, Semiconductor Analog of the Large Persistent Currents Observed in Small Gold Rings, Superlattices and Microstructures 14, 237-241 (1993). [Note: Despite the date of the citation, this paper was actually written, submitted for publication and published in 1994].
92. C. Barnes, B. L. Johnson and G. Kirczenow, Introducing Directionality to Anderson Localization: The Transport Properties of Quantum Railroads, Canadian Journal of Physics 72, 559-567 (1994). *This paper was selected as the best paper in Condensed Matter Physics published in the Canadian Journal of Physics for the period November 1993 to October 1994.*
93. G. Kirczenow, A. S. Sachrajda, Y. Feng, R. P. Taylor, L. Henning, J. Wang, P. Zawadzki and P. T. Coleridge, Artificial Impurities in Quantum Wires: From Classical to Quantum Behavior, Phys. Rev. Letters 72, 2069-2072 (1994).
94. B. L. Johnson and G. Kirczenow, Can Distributed Currents be Measured? Physics Letters A193, 409-412 (1994).
95. Y. Sun and G. Kirczenow, Energy Level Locking in Quantum Conductors, Phys. Rev. Letters 72, 2450-2453 (1994).
96. G. Kirczenow, Scattering Models of Conduction Around an Antidot in a Magnetic Field, Phys. Rev. B50, 1649-1655 (1994).
97. G. Kirczenow, Quantum Transport in Ballistic Nano-Scale Corbino Disks, Journal of Physics Condensed Matter 6, L583-L588 (1994).
98. R. Akis, C. Barnes and G. Kirczenow, Generalized Hofstadter Picture For Lattices With More Than One Degree of Freedom Per Site, Phys. Rev. A50, 4930 - 4940 (1994).
99. A. S. Sachrajda, Y. Feng, R. P. Taylor, G. Kirczenow, L. Henning, J. Wang, P. Zawadzki and P. T. Coleridge, Magnetoconductance of a Nanoscale Anti-Dot, Phys. Rev. B50, 10856-10863 (1994).
100. R. Akis, C. Barnes and G. Kirczenow, Edge States, Band Structure and the Hall Effect in Two-Dimensional Lattice Structures: Quantum Dot Arrays and the Tight-Binding Model, Canadian Journal of Physics 73, 147-162 (1995).
101. B. L. Johnson, A. S. Sachrajda, G. Kirczenow, Y. Feng, R. P. Taylor, L. Henning, J. Wang, P. Zawadzki and P. T. Coleridge, Quantum Hall Effect and Inter-Edge State Tunneling Within a Barrier, Phys. Rev. B51, 7650-7654 (1995).
102. G. Kirczenow, Why Are Large Persistent Currents Observed in Small Gold Rings?, Journal of Physics, Condensed Matter 7, 2021- 2035 (1995).
103. Y. Sun and G. Kirczenow, Theory of Interacting Parallel Quantum Wires, Canadian Journal of Physics 73, 357-364 (1995). *This paper was selected as the best paper in Condensed Matter Physics published in the Canadian Journal of Physics in 1995.*

104. B. L. Johnson and G. Kirczenow, Electronic Correlations in the Excited States of the Hubbard Model on a Tetrahedron, *Physical Review* B51,13074-13078 (1995).
105. Y. Sun, G. Kirczenow, A. S. Sachrajda and Y. Feng, An Electrostatic Model of Split-Gate Quantum Wires, *Journal of Applied Physics* 77, 6361- 6369 (1995).
106. G. Kirczenow and B. L. Johnson, Composite Fermions, Edge Currents and the Fractional Quantum Hall Effect, *Physical Review* B51, 17579-17590 (1995).
107. G. Kirczenow and B. L. Johnson, Composite Fermion Theory, Edge Currents and the Fractional Quantum Hall Effect, *Surface Science* 361/362, 13-16 (1996).
108. B. L. Johnson and G. Kirczenow, A Model for the Optical Excitations of Molecules: Interactions and Electron-Pairing Effects, *Phys. Rev. A* 54, 241-249 (1996).
109. G. Kirczenow, Composite Fermion Edge States and Transport Through Nanostructures in the Fractional Quantum Hall Regime, *Phys. Rev.* B53,15767-15776(1996).
110. M. Geller, D. Loss and G. Kirczenow, Luttinger Liquids and Composite Fermions in Nanostructures: What is the Nature of the Edge States in the Fractional Quantum Hall Regime? *Superlattices and Microstructures* 21, 49-60 (1996).
111. M. Geller, D. Loss and G. Kirczenow, Mesoscopic Effects in the Fractional Quantum Hall Regime: Chiral Luttinger Liquid versus Fermi Liquid , *Physical Review Letters* 77, 5110-3 (1996).
112. B. L. Johnson and G. Kirczenow, Composite Fermions in the Quantum Hall Effect, invited review article, *Reports on Progress in Physics* 60, 889-939 (1997).
113. G. Kirczenow, B. L. Johnson, P. J. Kelly, C. Gould, A. S. Sachrajda, Y. Feng and A. Delage, Resonance Patterns of an Antidot Cluster: From Classical to Quantum Ballistics, *Phys. Rev.* B56,7503-7507 (1997).
114. A. S. Sachrajda, C. Gould, G. Kirczenow, B. L. Johnson, Y. Feng, P. J. Kelly and A. Delage, The Two Antidot System in The Ballistic Regime, *Physica* E1, 248 -253 (1997).
115. B. L. Johnson and G. Kirczenow, Systematic Study of Persistent Currents in Small Systems: Geometry and Interactions, *Canadian Journal of Physics* 76, 173-182 (1998).
116. G. Kirczenow and B. L. Johnson, Composite Fermion Approach to Edge State Transport, invited review article, pages 307-348 of "Composite Fermions, A Unified View of the Quantum Hall Regime" edited by O. Heinonen, published by World Scientific (1998).
117. E. G. Emberly and G. Kirczenow, Theory of Electrical Conduction Through a Molecule, in *Molecular Electronics: Science and Technology*, edited by A. Aviram and M. Ratner, *Annals of the New York Academy of Sciences* 852, 54-67 (1998).



118. L. G. C. Rego and G. Kirczenow, Quantized Thermal Conductance of Dielectric Quantum Wires, *Phys. Rev. Lett.* 81, 232-235 (1998). *This paper was featured in Physical Review Focus whose editors select one or two of the more interesting papers published in Physical Review Letters each week and post brief explanations of them at a level accessible to most physicists on the web.* See PR Focus 2, story 2, 9 July 1998 at <http://publish.aps.org/FOCUS/v2/st2.html>
119. G. Kirczenow, Composite Fermion Edge States, Fractional Charge and Current Noise, *Phys. Rev.* B58, 1457-1463 (1998).
120. E. G. Emberly and G. Kirczenow, Theoretical Study of Electrical Conduction Through a Molecule Connected to Metallic Nanocontacts, *Phys. Rev.* B58, 10911-10920 (1998).
121. E. G. Emberly and G. Kirczenow, State Orthogonalization by Building a Hilbert Space: A New Approach to Electronic Quantum Transport in Molecular Wires, *Phys. Rev. Lett.* 81, 5205-5208 (1998).
122. L. G. C. Rego and G. Kirczenow, Reply to the Comment of A. Greiner *et al.* on "Quantized Thermal Conductance of Dielectric Quantum Wires," *Phys. Rev. Lett.* 81, 5038 (1998).
123. L. G. C. Rego and G. Kirczenow, Fractional Exclusion Statistics and the Universal Quantum of Thermal Conductance: A Unifying Approach, *Phys. Rev.* B59, 13080-13086 (1999).
124. E. G. Emberly and G. Kirczenow, Electron Standing Wave Formation in Atomic Wires, *Phys. Rev.* B60, 6028-6033 (1999).
125. E. G. Emberly and G. Kirczenow, Antiresonances in Molecular Wires, *Journal of Physics Condensed Matter* 11, 6911-6926 (1999).
126. L. G. C. Rego and G. Kirczenow, Electrostatic Mechanism for Cooling Semiconductor Heterostructures, *Applied Physics Letters* 75, 2262-2264 (1999). *A news story about this article appeared in the Science and Technology section of the Economist; see the article "Getting Cooler" on p.103 of the October 9th-15th, 1999 issue. This paper was also featured in the American Institute of Physics Bulletin of Physics News, see Physics News Update Story #3, September 30, 1999, at <http://www.aip.org/enews/physnews/1999/split/pnu450-3.htm>*
127. B. L. Johnson and G. Kirczenow, Enhanced dynamical symmetries and quantum degeneracies in mesoscopic quantum dots: Role of the symmetries of closed classical orbits, *Europhys. Lett.*, 51, 367-373 (2000).
128. L. G. C. Rego and G. Kirczenow, A New Principle for Electronic Cooling of Mesoscopic Systems, *Physica E*6, 840-843 (2000).
129. B. L. Johnson and G. Kirczenow, Accidental degeneracies and fractal structure in the spectrum of quantum dots, *Physica E*6, 474-478(2000).

130. E. G. Emberly and G. Kirczenow, Landauer Theory, Inelastic Scattering and Electron Transport in Molecular Wires, *Phys. Rev. B* 61, 5740-5750 (2000).
131. E. G. Emberly and G. Kirczenow, Principles for the Design and Operation of a Molecular Wire Transistor, *Journal of Applied Physics* 88, 5280-5282 (2000).
132. E. G. Emberly and G. Kirczenow, Multi-terminal Molecular Wire Systems: A Self-consistent Theory and Computer Simulations of Charging and Transport, *Phys. Rev. B* 62, 10451-10458 (2000).
133. G. Kirczenow, Ideal Spin Filters: A Theoretical Study of Electron Transmission Through Ordered and Disordered Interfaces Between Ferromagnetic Metals and Semiconductors, *Phys. Rev. B* 63, 054422 pp. 1-12 (2001).
134. E. G. Emberly and G. Kirczenow, Current-Driven Conformational Changes, Charging and Negative Differential Resistance in Molecular Wires, *Phys. Rev. B* 64, 125318 pp.1-5 (2001)
135. F. Mireles and G. Kirczenow, Ballistic Spin-Polarized Transport and Rashba Spin Precession in Semiconductor Nanowires, *Phys. Rev. B* 64, 024426 pp. 1-13 (2001).
136. E. G. Emberly and G. Kirczenow, Models of Electron Transport Through Organic Molecular Monolayers Self-Assembled on Nanoscale Metallic Contacts, *Phys. Rev. B* 64, 235412, pp. 1-8 (2001).
137. E. G. Emberly and G. Kirczenow, Comment on "First-Principles Calculation of Transport Properties of a Molecular Wire Device" *Phys. Rev. Lett.* 87, 269701 (2001).
138. E. G. Emberly and G. Kirczenow, Charging Effects, Forces and Conduction in Molecular Wire Systems, Proceedings of the Molecular Electronics 2000 Conference in Kailua-Kona, Hawaii, *Annals of the New York Academy of Sciences*, 960, 131-142 (2002).
139. F. Mireles and G. Kirczenow, From Classical to Quantum Spintronics: Theory of coherent spin injection and spin valve phenomena, *Europhysics Letters* 59, 107-113 (2002).
140. G. A. Narvaez and G. Kirczenow, Understanding Tunneling Experiments on Metallic Nanoparticles: Single-Particle vs. Many-Body Phenomena, *Physica Status Solidi (b)* 230, 457-461(2002), Proceedings of Pan American Advanced Study Institute on Physics and Technology at the Nanometer Scale, San Jose, Costa Rica, 2001.
141. G. A. Narvaez and G. Kirczenow, Electronic Structure and Tunneling Resonance Spectra of Nanoscopic Aluminum Islands, *Phys. Rev. B (Rapid Communications)* 65, 121403 pp. 1-4 (2002).
142. E. G. Emberly and G. Kirczenow, Molecular Spintronics: Spin-Dependent Electron Transport in Molecular Wires, invited paper in a special issue of *CHEMICAL PHYSICS* on "TRANSPORT IN MOLECULAR WIRES" *Chem. Phys.* 281, 311-324 (2002).

143. G. A. Narvaez and G. Kirczenow, Charge Fluctuations and the Tunneling Spectra of Non-Magnetic Metallic Nanoparticles, *Phys. Rev. B* 66 (Rapid Communications), 081404, pp. 1-4 (2002)
144. S. Nonoyama and G. Kirczenow, Quantum Railroads and Directed Localization at the Juncture of Quantum Hall Systems, *Phys. Rev. B* 66, 155334, pp.1-6 (2002).
145. F. Mireles and G. Kirczenow, Coherent Spin Valve Phenomena and Electrical Spin Injection in Ferromagnetic/Semiconductor/Ferromagnetic junctions, *Phys. Rev. B* 66, 214415, pp.1-13 (2002).
146. J. Buker and G. Kirczenow, Theoretical Study of Photon Emission from Molecular Wires, *Phys. Rev. B* 66, 245306, pp. 1-9 (2002).
147. S. Nonoyama and G. Kirczenow, Explanation of the Tunneling Phenomena Between the Edges of Two Lateral Quantum Hall Systems, *Physica E* 18, 120-121 (2003).
148. D. Karaiskaj, G. Kirczenow, M. L. W. Thewalt, R. Buczko and M. Cardona, "Origin of the Residual Acceptor Ground-State Splitting in Silicon, *Phys. Rev. Lett.* 90, 016404, pp. 1-4 (2003).
149. G. A. Narvaez and G. Kirczenow, "Fingerprinting the Electronic Wavefunctions of Ultra-Small Conductors," *Phys. Rev. B* 67, 195409, pp. 1-6 (2003).
150. E. G. Emberly and G. Kirczenow, "The Smallest Molecular Switch", *Phys. Rev. Lett.* 91, 188301 pp.1-4 (2003). For stories published by journalists about this work in the news media see "Researchers Announce World's Smallest Switch" in *Newsfactor Top Tech News* at <http://www.newsfactor.com/perl/story/20697.html> and "Molecular electronics flips out" in the 6 November 2003 *Nature Materials Nanozone News* at <http://info.nature.com/cgi-bin/24/DM/y/eMgM0BgeQ20DE0FQy0AE>
151. G. A. Narvaez and G. Kirczenow, "Electronic Excitations and the Tunneling Spectra of Metallic Nanograins" *Phys. Rev. B* 68, 245415 pp.1-8 (2003).
152. T. Blomquist and G. Kirczenow, "Reversal of the Charge Transfer between Host and Dopant Atoms in Semiconductor Nanocrystals" *Nano Letters* 4, 2251-2254 (2004).
153. T. Blomquist and G. Kirczenow, "Poisson-Schrodinger and *ab initio* Modeling of Doped Si Nanocrystals: Reversal of the Charge Transfer Between Host and Dopant Atoms" *Physical Review B* 71, 045301, pp.1-9 (2005).
154. H. Dalglish and G. Kirczenow, "Theoretical Study of Spin-dependent Electron Transport in Atomic Fe Nanocontacts" *Physical Review B* 72, 155429, pp.1-12 (2005).
155. H. Dalglish and G. Kirczenow, "Inverse Magnetoresistance of Molecular Junctions", *Physical Review B* 72, 184407, pp.1-5 (2005).

156. J. Buker and G. Kirczenow, "Two-Probe Theory of Scanning Tunneling Microscopy of Single Molecules: Zn(II)-Etioporphyrin on Alumina", *Physical Review B* 72, 205338, pp.1-11 (2005).
157. G. Kirczenow, P. G. Piva and R. A. Wolkow, "Linear Chains of Styrene and Methyl-Styrene Molecules and their Heterojunctions on Silicon: Theory and Experiment" *Physical Review B* 72, 245306, pp.1-17 (2005).
158. T. Blomquist and G. Kirczenow, "Controlling the Charge of a Specific Surface Atom by the Addition of a Non-Site Specific Single Impurity in a Si Nanocrystal" *Nano Letters* 6, 61-65 (2006).
159. T. Blomquist and G. Kirczenow, "Origin of the Hole Gas at the Si(111):Cl surface: Role of Surface Electronic Structure, Impurities and Defects," *Physical Review B* 73, 195303, pp.1-10 (2006).
160. H. Dalglish and G. Kirczenow, "A New Approach to the Realization and Control of Negative Differential Resistance in Single-Molecule Nanoelectronic Devices: Designer Transition Metal-Thiol Interface States", *Nano Letters* 6, 1274-1278 (2006).
161. H. Dalglish and G. Kirczenow, "Interface States, Negative Differential Resistance and Rectification in Molecular Junctions with Transition Metal Contacts" *Physical Review B* 73, 245431, pp.1-13 (2006).
162. H. Dalglish and G. Kirczenow, "Spin-Current Rectification in Molecular Wires" *Physical Review B* 73, 235436, pp.1-7 (2006).
163. G. Kirczenow, "Ballistic Electron Spectroscopy of Individual Buried Molecules" *Phys. Rev. B* 75, 045428, pp.1-8 (2007).
164. D. M. Cardamone and G. Kirczenow, "Single-Molecule Device Prototypes for Protein-Based Nanoelectronics: Negative Differential Resistance and Current Rectification in Oligopeptides" *Phys. Rev. B* 77, 165403, pp.1-8 (2008).
165. D. M. Cardamone and G. Kirczenow, "Electron Transport through Protein Fragments" *AIP Conf. Proc.* 995, 135-144 (2008).
166. P. G. Piva, R. A. Wolkow and G. Kirczenow, "Non-Local Conductance Modulation by Molecules: Scanning Tunneling Microscopy of Substituted Styrene Heterostructures on H-Terminated Si(100)" *Phys. Rev. Lett.* 101, 106801, pp.1-4 (2008).
167. J. Buker and G. Kirczenow, "Understanding the Electroluminescence Emitted by Single Molecules in Scanning Tunneling Microscopy Experiments" *Phys. Rev. B* 78, 125107 pp.1-15 (2008).

168. G. Kirczenow, P. G. Piva and R. A. Wolkow, "Modulation of Electrical Conduction Through Individual Molecules on Silicon by the Electrostatic Fields of Nearby Polar Molecules: Theory and Experiment" *Phys. Rev. B* 80, 035309 (2009) [21 pages]
169. S. Ihnatsenka, I. V. Zozoulenko, and G. Kirczenow, "Electron-electron Interactions in Antidot-Based Aharonov-Bohm Interferometers" *Phys. Rev. B* 80, 115303 (2009) [11 pages].
170. S. Ihnatsenka, I. V. Zozoulenko, and G. Kirczenow, "Band-Gap Engineering and Ballistic Transport in Corrugated Graphene Nanoribbons" *Phys. Rev. B* 80, 155415 (2009) [6 pages]
171. S. Ihnatsenka and G. Kirczenow, "Conductance Quantization in Strongly Disordered Graphene Ribbons", *Phys. Rev. B* 80, 201407(R) (2009) [4 pages]
172. D. M. Cardamone and G. Kirczenow, "Electrochemically Gated Oligopeptide Nanowires Bridging Gold Electrodes: Novel Bio-Nanoelectronic Switches Operating in Aqueous Electrolytic Environments", *Nano Letters* 10, 1158 (2010) [6 pages].
173. G. Kirczenow, "Molecular Nanowires and Their Properties as Electrical Conductors" invited book chapter. Chapter 4 in *The Oxford Handbook of Nanoscience and Technology, Volume I: Basic Aspects*, edited by A. V. Narlikar and Y. Y. Fu, Oxford University Press, U.K. (2010), [54 pages].
174. F. Demir and G. Kirczenow, "Identification of the Molecule-Metal Bonding Geometries of Molecular Nanowires" *J. Chem. Phys.* 134, 121103 (2011) (Communication) [4 pages].
175. S. Ihnatsenka and G. Kirczenow, "Nonlinear Conductance Quantization in Graphene Ribbons" *Phys. Rev. B* 83, 245431 (2011) [6 pages].
176. S. Ihnatsenka and G. Kirczenow, "Dirac Point Resonances Due to Atoms and Molecules Adsorbed on Graphene and Transport Gaps and Conductance Quantization in Graphene Nanoribbons with Covalently Bonded Adsorbates" *Phys. Rev. B* 83, 245442 (2011) [19 pages].
177. F. Rostamzadeh Renani and G. Kirczenow, "Ligand-Based Transport Resonances of Single-Molecule-Magnet Spin Filters: Suppression of Coulomb Blockade and Determination of Easy-Axis Orientation" *Phys. Rev. B* 84, 180408(R) (2011) [5 pages].
178. G. Kirczenow and S. Ihnatsenka, "Exploring Quantum Transport in Graphene Ribbons With Lattice Defects and Adsorbates" invited book chapter in the book "Graphene Nanoelectronics: Metrology, Synthesis, Properties and Applications" edited by H. Raza (Springer, Heidelberg, Dordrecht, London, New York, 2012) [40 pages].
179. F. Demir and G. Kirczenow, "Identification of the Atomic Scale Structures of the Gold-Thiol Interfaces of Molecular Nanowires by Inelastic Tunneling Spectroscopy", *J. Chem. Phys.* 136, 014703 (2012) [12 pages].

180. S. Ihnatsenka and G. Kirczenow, "Conductance Quantization in Graphene Nanoconstrictions with Mesoscopically Smooth but Atomically Stepped Boundaries", Phys. Rev. B 85, 121407(R) (2012) [5 pages].
181. F. Rostamzadeh Renani and G. Kirczenow, "Tight Binding Model of Mn<sub>12</sub> Single Molecule Magnets: Electronic and Magnetic Structure and Transport Properties" Phys. Rev. B 85, 245415 (2012) [16 pages].
182. A. Saffarzadeh and G. Kirczenow, "Scanning Tunneling Spectroscopy and Dirac Point Resonances due to a Single Co Adatom on Gated Graphene," Phys. Rev. B 85, 245429 (2012) [11 pages].
183. S. Ihnatsenka and G. Kirczenow, "Effect of electron-electron interactions on the electronic structure and conductance of graphene nanoconstrictions", Phys. Rev. B 86, 075448 (2012) [7 pages]
184. F. Demir and G. Kirczenow, "Inelastic Tunneling Spectroscopy of Gold-Thiol and Gold-Thiolate Interfaces in Molecular Junctions: The Role of Hydrogen", J. Chem. Phys. 137, 094703 (2012) [10 pages]
185. S. Majumder, B. Kardasz, G. Kirczenow, A. SpringThorpe and K. L. Kavanagh, "Lateral Spin Injection and Detection through Electrodeposited Fe/GaAs Contacts" Semiconductor Science and Technology 28, 035003 (2013) [8 pages]
186. F. Rostamzadeh Renani and G. Kirczenow, "Switching of a Quantum Dot Spin Valve by Single Molecule Magnets" Phys. Rev. B 87, 121403(R) (2013) [5 pages].
187. A. Saffarzadeh and G. Kirczenow, "Voltage-Controlled Spin Injection with an Endohedral Fullerene Co@C<sub>60</sub> dimer" Appl. Phys. Lett. 102, 173101 (2013) [5 pages].
188. S. Ihnatsenka and G. Kirczenow, "Effect of Edge Reconstruction and Electron-Electron Interactions on Quantum Transport in Graphene Nanoribbons" Phys. Rev. B 88, 125430 (2013) [8 pages]
189. A. Saffarzadeh, F. Demir and G. Kirczenow, "Mechanism of the enhanced conductance of a molecular junction under tensile stress" Phys. Rev. B 89, 045431 (2014) [6 pages].
190. A. Saffarzadeh and G. Kirczenow, "Coulomb Bound States and Resonances due to Groups of Ca Dimers Adsorbed on Suspended Graphene" Phys. Rev. B 90, 155404 (2014). [8 pages].
191. F. Rostamzadeh Renani and G. Kirczenow, "Cotunneling Spectroscopy and the Properties of Excited-State Spin Manifolds of Mn<sub>12</sub> Single Molecule Magnets" Phys. Rev. B 90, 165118 (2014). [7 pages].
192. G. Kirczenow, "Valley currents and non-local resistances of graphene nanostructures with broken inversion symmetry from the perspective of scattering theory" Phys. Rev. B 92, 125425 (2015) [7 pages]

193. Y. Li, F. Demir, S. Kaneko, S. Fujii, T. Nishino, A. Saffarzadeh, G. Kirczenow, and M. Kiguchi, "Electrical conduction and structure of copper atomic junctions in the presence of water molecules" *Phys. Chem. Chem. Phys.* 17, pp 32436-32442 (2015)
194. G. Kirczenow, "Rashba-Dirac cones at the tungsten surface: Insights from a tight-binding model and thin film subband structure" *Phys. Rev. B* 94, 205414 (2016) [7 pages].
195. A. Aiba, F. Demir, S. Kaneko, S. Fujii, T. Nishino, K. Tsukagoshi, A. Saffarzadeh, G. Kirczenow, M. Kiguchi, "Controlling the thermoelectric effect by mechanical manipulation of the electron's quantum phase in atomic junctions, *Scientific Reports*, 7, 7949 (2017). [10 pages + 11 pages SI] |
196. M. Azari and G. Kirczenow, "Gate-tunable valley currents, non-local resistances and valley accumulation in bilayer graphene nanostructures", *Phys. Rev. B* 95, 195424 (2017)[10 pages]
197. A. Saffarzadeh and G. Kirczenow, "Malleability at the extreme nanoscale: Slow and fast quakes of few-body systems" *Phys.Rev.B* 96, 195403 (2017) [5 pages].
198. M. Azari and G. Kirczenow, "Valley filters, accumulators and switches induced in graphene quantum dots by lines of adsorbed hydrogen atoms", *Phys. Rev. B* 97, 245404 (2018)[6 pages]
199. A. Saffarzadeh, F. Demir, G. Kirczenow, "Thermoelectric voltage switching in gold atomic wire junctions," *Phys. Rev. B* 98, 115436 (2018) [9 pages].
200. G. Kirczenow, "Perfect and imperfect conductance quantization and transport resonances of two dimensional topological insulator quantum dots with normal conducting leads and contacts, *Phys. Rev. B* 98, 165430 (2018) [9 pages].
201. M. Azari and G. Kirczenow, "Valley polarization reversal and spin ferromagnetism and antiferromagnetism in quantum dots of the topological insulator monolayer bismuthene on SiC, " *Phys. Rev. B* 100, 165417 (2019). [10 pages]
202. K. Dean, F. Demir and G. Kirczenow, "Systematic study of low energy geometries of copper nano-junctions exposed to water and to species that can result from dissociation of water" *Journal of Physics: Condensed Matter* 32, 355201 (2020) [8 pages].
203. A. Saffarzadeh and G. Kirczenow, "Mechanisms of jump to contact and conductance plateau formation in copper atomic junctions in vacuum and aqueous environments," *Physical Review Materials* 4, 056004 (2020). [8 pages]
204. A. Saffarzadeh and G. Kirczenow, "Nearly perfect spin filtering in curved two-dimensional topological insulators" *Phys. Rev. B* 102, 235420 (2020) [9 pages].

**Patent:**

"Spintronic devices and method for injecting spin polarized electrical currents into semiconductors," US Patent. Patent # 6,355,953. Issued March 12, 2002. Filed: October 5, 2000. Inventor: G. Kirczenow. Assignee: Simon Fraser University.