

Dr. Roland Winkler: List of Publications

December 12, 2014

Books

- [1] *Spin-Orbit Coupling Effects in Two-Dimensional Electron and Hole Systems*
R. Winkler, Springer Tracts in Modern Physics (Springer, Berlin, 2003), Vol. 191.
Full text available online at <http://link.springer.com>

Invited Articles

- [2] *Discrete Symmetries of Low-Dimensional Dirac Models: A Selective Review With a Focus on Condensed-Matter Realisations* **R. Winkler** and U. Zülicke, to appear as invited contribution to ANZIAM Journal (Special Issue on Nanotechnology), [arXiv:1206.0355](https://arxiv.org/abs/1206.0355) (2012), 13 pages.
- [3] *Maple 16 – Kreativ Arbeiten mit Formeln (Product Review)*
R. Winkler, *Physik Journal* **11**(7), 67 (2012), 1 page.
“*Physik Journal*” is the monthly magazine for the members of the German Physical Society
- [4] *Interessant ist der Rand*
R. Winkler and C. Ast, *Physik Journal* **10**(10), 22 (2011), 2 pages.
- [5] *Inelastic Light Scattering of Hole Spin Excitations in p-Modulation-Doped GaAs-AlGaAs Single Quantum Wells*
M. Hirmer, M. Hirmer, T. Korn, D. Schuh, W. Wegscheider, **R. Winkler**, and C. Schüller, *Proc. SPIE* **8100**, 81000N (2011), 8 pages.
- [6] *Spin-Orbit Interaction and Transport in GaAs Two-Dimensional Holes*
B. Habib, M. Shayegan, and **R. Winkler**; special issue “The Effects of Spin-Orbit Interaction on Charge Transport”, *Semicond. Sci. Technol.* **24**, 064002 (2009), 13 pages.
- [7] *Spin Orientation of Holes in Quantum Wells*
R. Winkler, D. Culcer, S. J. Papadakis, B. Habib, and M. Shayegan; special issue “Optical Orientation”, *Semicond. Sci. Technol.* **23**, 114017 (2008), 13 pages.
- [8] *Spin-Dependent Transport of Carriers in Semiconductors*
R. Winkler, in *Handbook of Magnetism and Advanced Magnetic Materials*, edited by H. Kronmüller and S. Parkin, (Wiley, Chichester, 2007), Vol. V, p. 2830, 14 pages.

- [9] *Magnetic Focusing of Charge Carriers From Spin-Split Bands: Semiclassics of a Zitterbewegung Effect*
U. Zülicke, J. Bolte, and **R. Winkler**, *New J. Phys.* **9**, 355 (2007), 14 pages.
- [10] *Maple 11 – mit neuen Physik-Werkzeugen (product review)*
R. Winkler, *Physik Journal* **6(6)**, 60 (2007), 3 pages.
- [11] *F. Wang: Physics with Maple (book review)*
R. Winkler, *Physik Journal* **5(9)**, 121 (2006), 1 page.
- [12] *Spin statt Ladung*
R. Winkler, *Physik Journal* **4(12)**, 17 (2005), 2 pages.
- [13] *Spintronik*
R. Winkler and M. Oestreich, *Physik Journal* **3(11)**, 39 (2004), 6 pages.
- [14] *Spin-Orbit Coupling in Two-Dimensional Electron and Hole Systems*
R. Winkler, S. J. Papadakis, E. P. De Poortere, and M. Shayegan, in *Advances in Solid State Physics*, edited by B. Kramer (Springer, Heidelberg, 2001), **Vol. 41**, p. 211, 13 pages.

Refereed Articles

- [15] *Determination of Fermi Contour and Spin Polarization of $\nu = 3/2$ Composite Fermions via Ballistic Commensurability Measurements*
D. Kamburov, M. A. Mueed, I. Jo, Y. Liu, M. Shayegan, L. N. Pfeiffer, K. W. West, K. W. Baldwin, J. J. D. Lee, and **R. Winkler**, *Phys. Rev. B* **90**, 235108 (2014), 11 pages.
- [16] *Noncollinear Paramagnetism of a GaAs Two-Dimensional Hole System*
L. A. Yeoh, A. Srinivasan, O. Klochan, **R. Winkler**, U. Zülicke, M. Y. Simmons, D. A. Ritchie, M. Pepper, and A. R. Hamilton, *Phys. Rev. Lett.* **113**, 236401 (2014), 5 pages.
- [17] *Hole-Spin Dynamics and Hole g -Factor Anisotropy in Coupled Quantum Well Systems*
C. Gradl, M. Kempf, D. Schuh, D. Bougeard, **R. Winkler**, C. Schüller, and T. Korn, *Phys. Rev. B* **90**, 165439 (2014), 7 pages.
- [18] *Magnetoelectric Effect in Bilayer Graphene Controlled by Valley-Isospin Density*
U. Zülicke and **R. Winkler**, *Phys. Rev. B* **90**, 125412 (2014), 5 pages.
- [19] *Signatures of Spin-Preserving Symmetries in Two-Dimensional Hole Gases*
T. Dollinger, M. Kammermeier, A. Scholz, P. Wenk, J. Schliemann, K. Richter, and **R. Winkler**, *Phys. Rev. B* **90**, 115306 (2014), 7 pages.
- [20] *Even-Denominator Fractional Quantum Hall Effect at a Landau Level Crossing*
Y. Liu, S. Hasdemir, D. Kamburov, A. L. Graninger, M. Shayegan, L. N. Pfeiffer, K. W. West, K. W. Baldwin, and **R. Winkler**, *Phys. Rev. B* **89**, 165313 (2014), 6 pages.

- [21] *Fractional Quantum Hall Effect at $\nu = 1/2$ in Hole Systems Confined to GaAs Quantum Wells*
Y. Liu, A. L. Graninger, S. Hasdemir, M. Shayegan, L. N. Pfeiffer, K. W. West, K. W. Baldwin, and **R. Winkler**, *Phys. Rev. Lett.* **112**, 046804 (2014), 5 pages.
- [22] *Fermi Contour Anisotropy of GaAs Electron-Flux Composite Fermions in Parallel Magnetic Fields*
D. Kamburov, M. A. Mued, M. Shayegan, L. N. Pfeiffer, K. W. West, K. W. Baldwin, J. J. D. Lee, and **R. Winkler**, *Phys. Rev. B* **89**, 085304 (2014), 5 pages.
- [23] *Spin-Orbit Splitting and Effective Masses in p-Type GaAs Two-Dimensional Hole Gases*
F. Nichele, A. N. Pal, **R. Winkler**, C. Gerl, W. Wegscheider, T. Ihn, and K. Ensslin, *Phys. Rev. B* **89**, 081306(R) (2014), 5 pages.
- [24] *Anisotropic Fermi Contour of (001) GaAs Electrons in Parallel Magnetic Fields*
D. Kamburov, M. A. Mued, M. Shayegan, L. N. Pfeiffer, K. W. West, K. W. Baldwin, J. J. D. Lee, and **R. Winkler**, *Phys. Rev. B* **88**, 125435 (2013), 5 pages.
- [25] *Suppression of Coulomb Exchange Energy in Quasi-Two-Dimensional Hole Systems*
T. Kernreiter, M. Governale, **R. Winkler**, and U. Zülicke, *Phys. Rev. B* **88**, 125309 (2013), 8 pages.
- [26] *Anomalous Spin Precession and Spin Hall Effect in Semiconductor Quantum Wells*
X. Bi, P. He, E. M. Hankiewicz, **R. Winkler**, G. Vignale, and D. Culcer, *Phys. Rev. B* **88**, 035316 (2013), 13 pages.
- [27] *Anisotropic Fermi Contour of (001) GaAs Holes in Parallel Magnetic Fields*
D. Kamburov, M. Shayegan, **R. Winkler**, L. N. Pfeiffer, K. W. West, and K. W. Baldwin, *Phys. Rev. B* **86**, 241302(R) (2012), 5 pages.
- [28] *Robust Level Coincidences in the Subband Structure of Quasi 2D Systems*
R. Winkler, L. Y. Wang, Y. H. Lin, and C. S. Chu, *Solid State Commun.* **152**, 2096 (2012), 4 pages.
- [29] *Electron Spin Orientation Under In-Plane Optical Excitation in GaAs Quantum Wells*
S. Pfalz, **R. Winkler**, N. Ubbelohde, D. Hägele, and M. Oestreich, *Phys. Rev. B* **86**, 165301 (2012), 9 pages.
- [30] *Ballistic Transport of (001) GaAs Two-Dimensional Holes Through a Strain-Induced Lateral Superlattice*
D. Kamburov, H. Shapourian, M. Shayegan, L. N. Pfeiffer, K. W. West, K. W. Baldwin, and **R. Winkler**, *Phys. Rev. B.* **85**, 121305(R) (2012), 4 pages.
- [31] *Reentrant $\nu = 1$ Quantum Hall State in a Two-Dimensional Hole System*
A. L. Graninger, D. Kamburov, M. Shayegan, L. N. Pfeiffer, K. W. West, K. W. Baldwin, and **R. Winkler**, *Phys. Rev. Lett.* **107**, 176810 (2011), 5 pages.
- [32] *Fingerprints of the Anisotropic Spin-Split Hole Dispersion in Resonant Inelastic Light Scattering in Two-Dimensional Hole Systems*

- M. Hirmer, M. Hirmer, D. Schuh, W. Wegscheider, T. Korn, **R. Winkler** and C. Schüller, *Phys. Rev. Lett.* **107**, 216805 (2011), 5 pages.
- [33] *Effective Mass and Spin Susceptibility of Dilute Two-Dimensional Holes in GaAs*
Y. T. Chiu, M. Padmanabhan, T. Gokmen, J. Shabani, E. Tutuc, M. Shayegan, and **R. Winkler**, *Phys. Rev. B* **84**, 155459 (2011), 7 pages.
- [34] *Invariant Expansion for the Trigonal Band Structure of Graphene*
R. Winkler and U. Zülicke, *Phys. Rev. B* **82**, 245313 (2010), 9 pages.
- [35] *Time Reversal of Pseudo-Spin 1/2 Degrees of Freedom*
R. Winkler and U. Zülicke, *Phys. Lett. A* **374**, 4003 (2010), 4 pages.
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P. S. Eldridge, W. J. H. Leyland, P. G. Lagoudakis, R. T. Harley, R. T. Phillips, **R. Winkler**, M. Henini, and D. Taylor, *Phys. Rev. B* **82**, 045317 (2010), 6 pages.
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D. Culcer, E. M. Hankiewicz, G. Vignale, and **R. Winkler**, *Phys. Rev. B* **81**, 125332 (2010), 9 pages.
- [38] *Spin Angular Impulse due to Spin-Dependent Reflection Off a Barrier*
V. Teodorescu and **R. Winkler**, *Phys. Rev. B* **80**, 041311(R) (2009), 4 pages.
- [39] *External Gates and Transport in Biased Bilayer Graphene*
D. Culcer and **R. Winkler**, *Phys. Rev. B* **79**, 165422 (2009), 6 pages.
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D. Culcer, M. E. Lucassen, R. A. Duine, and **R. Winkler**, *Phys. Rev. B* **79**, 155208 (2009), 9 pages.
- [41] *Weak Momentum Scattering and the Conductivity of Graphene*
D. Culcer and **R. Winkler**, *Phys. Rev. B* **78**, 235417 (2008), 10 pages.
- [42] *Strain-Induced Fermi Contour Anisotropy of GaAs 2D Holes*
J. Shabani, M. Shayegan, and **R. Winkler**, *Phys. Rev. Lett.* **100**, 096803 (2008), 4 pages.
- [43] *Nanospintronics Meets Relativistic Quantum Physics: Ubiquity of Zitterbewegung Effects*
U. Zülicke, **R. Winkler**, and J. Bolte, *Physica E* **40**, 1434 (2008), 2 pages.
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D. Culcer and **R. Winkler**, *Phys. Rev. Lett.* **99**, 226601 (2007), 4 pages.
- [45] *Steady States of Spin Distributions in the Presence of Spin-Orbit Interactions*
D. Culcer and **R. Winkler**, *Phys. Rev. B* **76**, 245322 (2007), 10 pages.
- [46] *Spin Polarization Decay in Spin-1/2 and Spin-3/2 Systems*
D. Culcer and **R. Winkler**, *Phys. Rev. B* **76**, 195204 (2007), 6 pages.

- [47] *Anisotropic Low-Temperature Piezoresistance in (311)A GaAs Two-Dimensional Holes*
B. Habib, J. Shabani, E. P. De Poortere, M. Shayegan and **R. Winkler**, *Appl. Phys. Lett.* **91**, 12107 (2007), 3 pages.
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R. Winkler, U. Zülicke, and J. Bolte, *Phys. Rev. B* **75**, 205314 (2007), 10 pages.
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B. Habib, J. Shabani, E. P. De Poortere, M. Shayegan, and **R. Winkler**, *Phys. Rev. B* **75**, 153304 (2007), 4 pages.
- [50] *Transport Evidence of the Lowest Landau-Level Spin-Index Anticrossing in (110) GaAs Two-Dimensional Holes*
F. Fischer, **R. Winkler**, D. Schuh, M. Bichler, and M. Grayson, *Phys. Rev. B* **75**, 073303 (2007), 4 pages.
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D. Culcer, C. Lechner, and **R. Winkler**, *Phys. Rev. Lett.* **97**, 106601 (2006), 4 pages.
- [52] *Giant Anisotropy of Zeeman Splitting of Quantum Confined Acceptors in Si/Ge*
K.-M. Haendel, **R. Winkler**, U. Denker, O. G. Schmidt, and R. J. Haug, *Phys. Rev. Lett.* **96**, 086403 (2006), 4 pages.
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J. Könemann, **R. Winkler**, D. K. Maude, and R. J. Haug, *Phys. Status Solidi B* **243**, 3678 (2006), 4 pages.
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S. Pfalz, **R. Winkler**, T. Nowitzki, D. Reuter, A. D. Wieck, D. Hägele, and M. Oestreich, *Phys. Rev. B* **71**, 165305 (2005), 11 pages.
- [57] *Design Considerations for Semiconductor Spin Lasers*
M. Oestreich, J. Rudolph, **R. Winkler**, and D. Hägele, *Superlatt. Microstruct.* **37**, 306 (2005), 7 pages.
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B. Habib, E. Tutuc, S. Melinte, M. Shayegan, D. Wasserman, S. A. Lyon, and **R. Winkler**, *Phys. Rev. B* **69**, 113311 (2004), 4 pages.
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B. Habib, E. Tutuc, S. Melinte, M. Shayegan, D. Wasserman, S. A. Lyon, and **R. Winkler**, *Appl. Phys. Lett.* **85**, 3151 (2004), 3 pages.
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J. Kainz, U. Rössler, and **R. Winkler**, *Phys. Rev. B* **70**, 195322 (2004), 9 pages.
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E. Tutuc, S. Melinte, E. P. De Poortere, M. Shayegan, and **R. Winkler**, *Phys. Rev. B* **67**, 241309(R) (2003), 4 pages.
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M. Zitzlsperger, R. Onderka, M. Suhrke, U. Rössler, D. Weiss, W. Wegscheider, M. Bichler, **R. Winkler**, Y. Hirayama, and K. Muraki, *Europhys. Lett.* **61**, 382 (2003), 7 pages.
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S. Keppeler and **R. Winkler**, *Phys. Rev. Lett.* **88**, 046401 (2002), 4 pages.
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M. Schultz, U. Merkt, A. Sonntag, U. Rössler, **R. Winkler**, T. Colin, P. Helgesen, T.
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R. Winkler and A. I. Nesvizhskii, *Phys. Rev. B* **53**, 9984 (1996), 9 pages.
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F. C. Michl, **R. Winkler**, and U. Rössler, *Solid State Commun.* **99**, 13 (1996), 6 pages.
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C. Wetzel, **R. Winkler**, M. Drechsler, B. K. Meyer, U. Rössler, J. Scriba, J. P.
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R. Winkler, U. Kunze, and U. Rössler, *Surf. Sci.* **263**, 222 (1992), 5 pages.

Submitted Articles

- [90] *Electromagnetic Coupling of Spins and Pseudospins in Bilayer Graphene*
R. Winkler and U. Zülicke, [arXiv:1411.1720](https://arxiv.org/abs/1411.1720) (2014), 14 pages.

Other Publications

- [91] *Rashba Conduction Band Spin-Splitting for Asymmetric Quantum Well Potentials*
P. S. Eldridge, W. J. H. Leyland, J. D. Mar, P. G. Lagoudakis, R. Winkler, O. Z. Karimov, M. Henini, D. Taylor, R. T. Phillips, and R. T. Harley, *J. Supercond. Nov. Magn.* **23**, 157 (2010), 2 pages.
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 S. J. Papadakis, E. P. De Poortere, M. Shayegan, and **R. Winkler**, *Physica E* **9**, 31 (2001), 9 pages
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