

PROF. DR. RONNY THOMALE

List of Publications (Nov 2018)

PUBLISHED PAPERS

111. P. Zhang, Z. Wang, X. Wu, K. Yaji, Y. Ishida, Y. Kohama, G. Dai, Y. Sue, C. Baille, K. Kuroda, T. Kondo, K. Okazaki, K. Kindo, X. Wang, C. Jin, J. Hu, R. Thomale, K. Sumida, S. Wu, K. Miyamoto, T. Okuda, H. Ding, G. Gu, T. Tamegai, T. Kawakami, M. Sato, and S. Shin, *Multiple topological states in iron-based superconductors*, published in Nature Physics (Sep 24th 2018).
110. G. Li, W. Hanke, E. M. Hankiewicz, F. Reis, J. Schäfer, R. Claessen, C. Wu, and R. Thomale *A new paradigm for the quantum spin Hall effect at high temperatures*, Phys. Rev. B **98**, 165146 (2018).
109. M. Greiter and R. Thomale, *Landau level quantization of Dirac electrons on the sphere*, Annals of Physics **394**, 33 (2018).
108. F. Dominguez, B. Scharf, G. Li, J. Schäfer, R. Claessen, W. Hanke, R. Thomale, and E. M. Hankiewicz, *Testing Topological Protection of Edge States in Hexagonal Quantum Spin Hall Candidate Materials*, Phys. Rev. B **98**, 161407 (2018).
107. M. Greiter, V. Schnells, and R. Thomale, *Method to identify parent Hamiltonians for trial states*, Phys. Rev. B **98**, 081113 (2018).
106. Y. Iqbal, T. Müller, H. O. Jeschke, R. Thomale, and J. Reuther, *Stability of the spiral spin liquid in $MnSc_2S_4$* , Phys. Rev. B **98**, 064427 (2018).
105. C. Le, X. Wu, S. Qin, Y. Li, R. Thomale, F.-C. Zhang, and J. Hu, *Dirac semimetal in β -CuI without surface Fermi arcs*, PNAS **115**, 8311 (2018).
104. T. Böhm, F. Kretzschmar, A. Baum, M. Rehm, D. Jost, R. Ahangharnejhad, R. Thomale, C. Platt, T. Maier, W. Hanke, B. Moritz, T. Devereaux, D. Scalapino, S. Maiti, P. Hirschfeld, P. Adelman, T. Wolf, H.-H. Wen, and R. Hackl, *Microscopic origin of Cooper pairing in the iron-based superconductor $Ba_{1-x}K_xFe_2As_2$* , NPJ Quantum Materials **3**, 48 (2018).
103. S. Imhof, C. Berger, F. Bayer, J. Brehm, L. W. Molenkamp, T. Kiessling, F. Schindler, C. H. Lee, M. Greiter, T. Neupert, and R. Thomale, *Topoelectrical circuit realization of topological corner modes*, Nature Physics **14**, 925 (2018).
102. X. Wu, H. O. Jeschke, D. Di Sante, F. von Rohr, R. J. Cava, and R. Thomale, *Origin*

of the pressure-dependent T_c valley in superconducting simple cubic phosphorus, Phys. Rev. Materials **2**, 034802 (2018).

101. Y. Iqbal, D. Poilblanc, R. Thomale, and F. Becca, *Persistence of the gapless spin liquid in the breathing kagome Heisenberg antiferromagnet*, Phys. Rev. B **97**, 115127 (2018).

100. C. H. Lee, S. Imhof, C. Berger, F. Bayer, J. Brehm, L. W. Molenkamp, T. Kiessling, and R. Thomale, *Topoelectrical circuits*, Communications Physics **1**, 39 (2018).

99. Y. Iqbal, T. Müller, K. Riedl, J. Reuther, S. Rachel, R. Valenti, M. Gingras, R. Thomale, and H. Jeschke, *Signatures of a gearwheel quantum spin liquid in a spin-1/2 pyrochlore molybdate Heisenberg antiferromagnet*, Phys. Rev. Materials **1**, 071201 (2017).

98. D. Di Sante, A. Hausoel, P. Barone, J. Tomczak, G. Sangiovanni, and R. Thomale, *Strongly correlated double Dirac fermions*, Phys. Rev. B **96**, 121106 (2017), Rapid Communication.

97. Y. Tymoshenko, Y. Onykiienko, T. Mueller, R. Thomale, S. Rachel, A. Cameron, P. Portnichenko, D. Efremov, V. Tsurkan, D. Abernathy, J. Ollivier, A. Schneidewind, A. Piovano, V. Felea, A. Loidl, and D. Inosov *Pseudo-Goldstone magnons in the frustrated $S = 3/2$ Heisenberg helimagnet $ZnCr_2Se_4$ with a pyrochlore magnetic sublattice*, Phys. Rev. X **7**, 041049 (2017).

96. C. H. Lee, M. Claassen, and R. Thomale, *Band structure engineering of ideal fractional Chern insulators*, Phys. Rev. B **96**, 165150 (2017).

95. D. Di Sante, P. Das, C. Bigi, Z. Ergönenc, N. Görtler, J. Krieger, T. Schmitt, M. Ali, G. Rossi, R. Thomale, C. Franchini, S. Picozzi, J. Fujii, V. Strocov, G. Sangiovanni, I. Vobornik, R. Cava, and G. Panaccione, *Three-dimensional Electronic Structure of type-II Weyl Semimetal WTe_2* , Phys. Rev. Lett. **119**, 026403 (2017).

94. M. Sekania, S. Plugge, M. Greiter, R. Thomale, and P. Schmitteckert, *Braiding errors in interacting Majorana quantum wires*, Phys. Rev. B **96**, 094307 (2017).

93. M. Laubach, J. Reuther, R. Thomale, and S. Rachel, *Three-band Hubbard model for Na_2IrO_3 : Topological insulator, zigzag antiferromagnet, and Kitaev-Heisenberg material*, Phys. Rev. B **96**, 121110 (2017), Rapid Communication, Editor's suggestion.

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91. T. Müller, R. Thomale, B. Trauzettel, E. Bocquillon, O. Kashuba, *Dynamical transport*

measurement of the Luttinger parameter in helical edge states of 2D topological insulators, Phys. Rev. B **95**, 245114 (2017).

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89. P. Schmitteckert, R. Thomale, R. Kortyar, and F. Evers, *Incommensurate quantum-size oscillations in acene-based molecular wires - effects of quantum fluctuations*, J. Chem Phys. **146**, 092320 (2017).

88. M. Laubach, C. Platt, R. Thomale, T. Neupert, and S. Rachel, *Density wave instabilities and surface state evolution in interacting Weyl semimetals*, Phys. Rev. B **94**, 241102 (2016), Rapid Communication.

87. Y. Iqbal, P. Ghosh, R. Narayanan, B. Kumar, J. Reuther, and R. Thomale, *Intertwined nematic orders in a frustrated ferromagnet*, Phys. Rev. B **94**, 224403 (2016).

86. P. Sessi, D. Di Sante, A. Szczerbakow, F. Glott, S. Wilfert, H. Schmidt, T. Bathon, P. Dziawa, M. Greiter, T. Neupert, G. Sangiovanni, T. Story, R. Thomale, and M. Bode, *Robust spin-polarized midgap states at step edges of topological crystalline insulators*, Science **354**, 1269 (2016).

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84. C. Platt, G. Li, M. Fink, W. Hanke, and R. Thomale, *Evolution of superconducting gap anisotropy in hole-doped 122 iron pnictides*, Physica status solidi B, Special Issue on Iron-Based Superconductors, 1-7 (2016).

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80. C. H. Lee, D. P. Arovas, and R. Thomale, *Band flatness optimization through complex*

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78. M. Laubach, D. Joshi, J. Reuther, R. Thomale, M. Vojta, and S. Rachel, *Quantum disordered insulating phase in the frustrated cubic-lattice Hubbard model*, Phys. Rev. B **93**, 041106 (2016), Rapid Communication.

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58. J. Reuther, R. Thomale, and S. Rachel, *Spiral order in the honeycomb iridate Li_2IrO_3* , Phys. Rev. B **90**, 100405 (2014), Rapid Communication, Editor's suggestion.

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1. R. Thomale, D. Schuricht, and M. Greiter, *Exact two-holon wave functions in the Kuramoto–Yokoyama model*, Phys. Rev. B **74**, 024423 (2006).

CONFERENCE PROCEEDINGS

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MONOGRAPHS

2. R. Thomale, *Fractional Excitations in low-dimensional spin systems*, Dissertation, Shaker Edition Aachen, ISBN 3832278540 (2008).
1. R. Thomale, *Holon excitations in the Kuramoto–Yokoyama model*, Diplomarbeit, Universität Karlsruhe (2005).

POPULAR ARTICLES

3. R. Thomale, *Die unbekannt Dimension*, in Physikjournal, Ausgabe 04/2018
2. R. Thomale, *Ihrer Zeit vorausgeeilt - der Nobelpreis 2016*, in Physikjournal, Ausgabe 12/2016
1. R. Thomale, *Gibt es einen Supraleiter bei Zimmertemperatur?*, in Lexikon der offenen Fragen, Metzler Verlag (Laakmann/Kaube Eds.), ISBN 9783476026200