

PUBLICATION LIST K. Levin

Areas Of Past Research:

Magnetism and Alloys
Superfluid helium – 3
Magnetic Superconductors
Heavy Fermion Metals

Coexistent BCS CDW Superconductors
Spin Glasses
Disorder And Localization

Current Interests:

1. Connections between High Tc Superconductors and Magic Angle Graphene

2. BCS – BEC In Fermi Gases and Solids

3. Non – equilibrium Dynamics in Ultracold Superfluids

4. Conserving Theories Of Transport In Highly Correlated Super – conductors/fluids

5. Topological Superconductors, Superfluids

224. "When superconductivity crosses over: From BCS to BEC", Qijin Chen, Zhiqiang Wang, Shuolong Yang, and K. Levin" (A review, preprint, 2022)

223. "Heat bath approach to anomalous thermal transport: effects of inelastic scattering", Zhiqiang Wang, Rufus Boyack and K. Levin (ArXiv 2112.13148) in proof stage

222. "Dynamic preparation of an atomic condensate in a Hofstadter band", Han Fu, Andreas Glatz, Fnu Setiawan, Kai-Xuan Yao, Zhandong Zhang, Cheng Chin and K. Levin (ArXiv 2107.11547) in proof stage

221. "Unified approach to electrical and thermal transport in high-Tc superconductors", Rufus Boyack, Zhiqiang Wang, Qijin Chen and K. Levin Phys. Rev. B 104, 064508 (2021)

220 "Quantum Geometric Contributions to the BKT Transition: Beyond Mean Field Theory", Zhiqiang Wang, Gaurav Chaudhary, Qijin Chen and K. Levin, Phys. Rev. B 102, 184504 (2020).

219. "Jet Substructure in Fireworks Emission from Non-Uniform Bose Einstein

condensates" Han Fu, Zhendong Zhang, Kai-Xuan Yao, Lei Feing, Jooheon Yoo, Logan Clark, Cheng Chin and K Levin, Phys. Rev. Lett 125, 183003 (2020).

218. "Strong Pairing in two dimensions: Pseudogaps, Domes and other implications" Xiaoyu Wang, Qijin Chen and K. Levin New Journal of Physics, 22, 063050 (2020).

217. "Full Proximity Treatment of Topological Superconductors in Josephson Junction architectures" F. Setiawan, Chien-Te Wu and K. Levin Phys. Rev. B 99, 174511 (2019).

216 Combined effects of pairing fluctuations and a pseudogap in the cuprate Hall effect, Rufus Boyack, Xiaoyu Wang, Qijin Chen and K. Levin Phys. Rev. B 99, 134504 (2019)

215. Density Waves and Jet Emission Asymmetry in Bose Fireworks, Han Fu, Lei Feng, Brandon Anderson, Logan Clark, Jiazhong Hu, Jeffery Andrade, Cheng Chin and K. Levin PRL 121, 243001 (2018). [See also New Scientist Dec 31, <https://www.newscientist.com/article/2188853-ultracold-atoms-can-make-strange-and-beautiful-quantum-fireworks/>].

214. Quantum Phase Transitions in Proximitized Josephson Junctions
Chien-Te Wu, F. Setiawan, Brandon Anderson, WeiHan Hsiao and K. Levin Phys. Rev. B 98,064504 (2018)

213. Observation of Density Dependent Gauge fields in a Bose-Einstein condensate, Logan Clark, Brandon Anderson, Lei Feng, K. Levin and Cheng Chin Phys. Rev. Lett. 121, 030402 (2018).

212. Cuprate Diamagnetism in the presence of a pseudogap: Beyond the standard fluctuation formalism, Rufus Boyack, Qijin Chen, A. A. Varlamov and K. Levin
Phys. Rev. B 97, 064503 (2018)

211. Collective mode contributions to the Meissner effect: Fulde Ferrell and pair-density-wave superfluids.
Rufus Boyack, Chien-Te Wu, Brandon M. Anderson and K. Levin
Phys. Rev. B. 95, 214501 (2017)

210. Direct Lattice Shaking of Bose Condensates: Finite Momentum Superfluids
Brandon Anderson, Logan Clark, Jennifer Crawford, A. Glatz, I. Aranson, P. Scherpelz, Lei Feng, Cheng Chin and K. Levin
Phys. Rev. Lett. 118, 220401 (2017)

209. Majorana Zero Modes in Spintronics devices,
Chien-Te Wu, Brandon Anderson, Wei-Han Hsiao and K. Levin
Phys. Rev. B 95, 014519 (2016)
208. Two-dimensional spin-imbalanced Fermi gases at non-zero temperature:
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207. Gauge invariant theories of linear response for strongly correlated superconductors
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205. Quasi-condensation in two-dimensional Fermi gases, Chien-Te Wu, Brandon M.
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204. Topological effects on transition temperatures and response functions in three-di-
mensional Fermi superfluids, Brandon Anderson, Chien-Te Wu, Rufus Boyack and K.
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203. Signatures of Pairing and spin-orbit coupling in correlation functions of Fermi gases,
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201. Generic Equilibration dynamics of planar defects in trapped atomic superfluids, Pe-
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199. Unified Treatment of Fermi pockets and arcs scenarios for the cuprates: Sum rule
consistent response functions of the pseudogap Peter Scherpelz, Adam Rancon, Yan He
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196. Bosonic thermoelectric transport and breakdown of universality, A. Rancon, Cheng Chin and K. Levin New Journal of Physics 16, 113072 (2014)
195. Establishing Conservation Laws in Pair Correlated Many body theories: T matrix Approaches, Yan He and K. Levin,
194. Quantum Oscillations in non-Fermi liquids: Implications for high-temperature superconductors, P. Scherpelz, Yan He and K. Levin PRB 88, 220507(R) (2013)
193. Quench Dynamics in Bose condensates in the Presence of a Bath: Theory and Experiment, Adam Rancon, Chen-Lung Hung, Cheng Chin and K. Levin Phys. Rev. A 88, 031601R (2013)
- 192 The Compressibility in Strongly Correlated Superconductors and Superfluids: From BCS to BEC Hao Guo, Yan He, Chih-Chun Chien and K. Levin PRA 88, 043644 (2013).
- 191 Theory of Fluctuating Charge Ordering in the Pseudogap Phase of the Cuprates Via A Preformed Pair Approach, Yan He, Peter Scherpelz and K. Levin Phys. Rev. B 88, 064516 (2013)
190. Fundamental Constraints on Linear Response Theories of Fermi Superfluids Above and Below T_c , Hao Guo, Chih-Chun Chien, Yan He and K. Levin Int. J. Mod. Phys. B 27, 1330010 (2013).
189. "Comment on Density and Spin Response of a Strongly Interacting Fermi Gas in the Attractive and Quasi-Repulsive Regime" Chih-Chun Chien, Hao Guo and K. Levin Phys. Rev. Lett. 109, 118901 (2012).
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