Curriculum Vitae of Chun-xu Zhang

Personal data and Profile

E-mail

Present position

Post-doc, Department of Physics, Wuerzburg University, Germany.

Experience

07/2021-01/2024	Post-doc in Wuerzburg University, Germany. Advisor: Prof. E. M. Hankiewicz Research tasks: 1. Dissipation processes in topological insulators and quantum Hall systems, due to electron-photon interactions. 2. Neutron scattering spectra and chiral anomaly spin chains and spin Ladder systems. 3. Spin Hall effects and non-local effects in transportation.
10/2018-06/2021	Post-doc in Ariel University, Israel. Advisor: Prof. M. A. Zubkov Research tasks: 1. Wigner-transformed Green functions in lattice field theory. 2. Interaction effects on Hall conductivity. 3.Electronic properties of multi-layer graphene systems.
09/2014-08/2017	PhD in condensed matter physics at Institute of Physics, CAS. Thesis: "Optical spectroscopic studies of doped $CaFeO_3$ sytems" Advisor: Prof. X. G. Qiu Research tasks: 1. Optical spectroscopic measurement of metal oxides and analysis. 2. Improving the low-temperature spectroscopic measuring system. 3. Study of the mechanism of phase transitions through spectroscopies.
2010-2013	Serve in the army
09/2006-08/2009	Master in particle physics at National University of Defense Technology Thesis: "Unparticle effects on double-beta decays" Advisor: Prof. M. Q. Huang
09/2002-08/2006	Undergraduate student in University of Science and Technology, Beijing majoring in mathematics.

Skills

Solid knowledge of mathematics and analytical methods.
Extensive knowledge of mechanics, fluid dynamics, thermodynamics and quantum physics.
Familiarity with graphene and transition metal oxides.
Proficiency of numerical methods such as solving integral equations and exact diagnalization
Programming languages including Matlab, BASIC, C++ and Python.
Proficient mastery of Solidworks and infra-red spectroscopies.

Publication List

(* marks three major papers)

1. Zhang Feng, Zhang Chun-Xu, and Huang Ming-Qiu. Neutrino masses in the left-right symmetry model with a family symmetry. Acta Phys. Sin., 2010, 59(5): 3130-3135. (in Chinese) [IF=0.6]

2. Chun-Xu Zhang, Ming-Qiu Huang, and Ming Zhong. Unparticle effects on neutrinoless and neutrino double beta decay. Phys. Rev. D 78, 096006 (2008) [IF=4.6]

3. Chun-Xu Zhang, Guo-Zhu Liu, and Ming-Qiu Huang. Dynamical fermion mass generation and exciton spectra in graphene. Phys. Rev. B 83, 115438 (2011) [IF=3.8]

4. C. X. Zhang, H. L. Xia, H. Liu, Y. M. Dai, B. Xu, R. Yang, Z. Y. Qiu, Q. T. Sui, Y. W. Long, S. Meng, and X. G. Qiu. Infrared spectroscopic study on lattice dynamics in $CaFeO_3$. Phys. Rev. B 95, 064104 (2017) [IF=3.8]

5*. C. X. Zhang, and X. G. Qiu. Optical signatures of parity anomaly in a gapped graphene-like system. J. Phys.: Condens. Matter 29, 205701 (2017) [IF=2.6]

6. C. X. Zhang, H. L. Xia, Y. M. Dai, Z. Y. Qiu, Q. T. Sui, Y. W. Long, and X. G. Qiu. Infrared spectroscopic study of $CaFe_{0.7}Co_{0.3}O_3$. Phys. Rev. B 96, 075154 (2017) [IF=3.8]

7. C. X. Zhang, and M.A. Zubkov. Hall Conductivity as the Topological Invariant in Phase Space in the Presence of Interactions and Non-uniform Magnetic Field. JETP. lett. 110, 487 (2019). Pisma Zh.Eksp.Teor.Fiz. 110, 480 (2019). [IF=1.4]

8. C. X. Zhang, and M.A. Zubkov. Influence of interactions on the anomalous quantum Hall effect. (arXiv:1902.06545). J. Phys. A: Math. Theor. 53, 195002 (2020). [IF=2.1]

9. C. X. Zhang, and M.A. Zubkov. A Note on Bloch theorem. Phys. Rev. D 100, 116021 (2019). [IF=4.8]

10. I. V. Fialkovsky, M. Suleymanov, Xi Wu, C. X. Zhang, M. A. Zubkov. Hall conductivity as topological invariant in phase space. (arXiv:1910.04730) Physica Scripta 95, 064003 (2020). (Conference article for the proceedings of ICNFP2019).

11. C. X. Zhang, M. A. Zubkov. Feynman Rules in terms of the Wigner transformed Green functions. (arXiv:1911.11074) Phys. Lett. B 802, 135197 (2020). [IF=4.2]

12. C. Banerjee, I. V. Fialkovsky, M. Lewkowicz, C. X. Zhang, M. A. Zubkov. Wigner-Weyl calculus in Keldysh technique. arXiv:2009.10704.

13*. C. X. Zhang, M. A. Zubkov. Influence of interactions on Integer Quantum Hall Effect. (arXiv:2011.04030) Annals of Physics 444, 196016 (2022).

14. Xi Wu, C. X. Zhang, M.A.Zubkov. Multilayer Haldane model. arXiv:2101.01068. Solid State Communications 353, 114863 (2022)

15. C. Northe, C.X. Zhang, R. Wawrzyczak, J. Gooth, S. Galeski, E. M. Hankiewicz. Conformal anomaly in magnetic response of strongly interacting one-dimensional spin systems. arXiv:2210.07972.

16. M. Selch, M. Suleymanov, C. X. Zhang, M. A. Zubkov. Hall conductivity as the topological invariant in magnetic Brillouin zone in the presence of interactions. arXiv:2303.16327. Phys. Rev. B 107, 245105 (2023)

17*. C. X. Zhang, M. Ulybyshev, C. Northe, E. M. Hankiewicz. Dissipative Callan-Harvey mechanism in 2+1 D Dirac system: The fate of edge states along a domain wall. arXiv:2305.00575. Phys. Rev. B 108, 235118 (2023)