

Yan Wang

Département de Physique
Université de Sherbrooke
2500, boul. de l'Université
Sherbrooke (Québec) J1K 2R1
Canada

✉ : yan.wang.phys@gmail.com
🔗 : [ywangphy.github.io](https://github.com/ywangphy) 🌐 : github.com/ywangphy
in : [linkedin.com/in/yanwangphy](https://www.linkedin.com/in/yanwangphy)
📄 : scholar.google.com/citations?user=VqmLBIQAAAAJ&hl=en

Employment

- 10/2017–present Postdoc Fellow, Département de Physique and Institut Quantique, Université de Sherbrooke, Sherbrooke, Québec, Canada.
- 09/2014–08/2017 Postdoc Research Associate, Department of Physics and Astronomy, University of Tennessee, Knoxville, TN.
- 05/2014–09/2014 Research Assistant (OPS), Department of Physics, University of Florida, Gainesville, FL.
- 05/2009–05/2014 Graduate Research Assistant, Department of Physics, University of Florida, Gainesville, FL.
- 08/2008–04/2011 Graduate Teaching Assistant, Department of Physics, University of Florida, Gainesville, FL.

Education

- 08/2008–05/2014 Ph.D. in Physics, University of Florida, Gainesville, FL. (GPA 4.0/4.0)
Dissertation: “Theory of Gap Symmetry and Structure in Fe-based Superconductors” [[.pdf](#)]
Advisor: Peter J. Hirschfeld
- 09/2004–07/2008 B.S. in Physics, Fudan University, Shanghai, China. (GPA 3.66/4.0)

Research

Research Interests: Condensed Matter Physics, Superconductivity, Quantum Materials, Computational Quantum Materials.

Skills

Programming Languages: C, C++, Fortran, Matlab, Mathematica, L^AT_EX, Vi, Python, Shell script.

Density functional theory software: Quantum ESPRESSO, Wien2K, FPLO.

Publications

Peer-Reviewed Journal Articles

22. “Temperature-filling phase diagram of the two-dimensional Holstein model in the thermodynamic limit by self-consistent Migdal approximation,” P. M. Dee, K. Nakatsukasa, **Y. Wang**, and S. Johnston, *Phys. Rev. B* **99**, 024514 (2019). [[DOI](#)|[arXiv:1811.03676](#)]
21. “Doping evolution of charge and spin excitations in two-leg Hubbard ladders: Comparing DMRG and FLEX results,” A. Nocera, **Y. Wang**, N. D. Patel, G. Alvarez, T. A. Maier, E. Dagotto, and S. Johnston, *Phys. Rev. B* **97**, 195156 (2018). [[DOI](#)|[arXiv:1803.08597](#)]
20. “Lattice dynamics of ultrathin FeSe films on SrTiO₃,” S. Zhang, J. Guan, **Y. Wang**, T. Berlijn, S. Johnston, X. Jia, B. Liu, Q. Zhu, Q. An, S. Xue, Y. Cao, F. Yang, W. Wang, J. Zhang, E. W. Plummer, X. Zhu, and J. Guo, *Phys. Rev. B* **97**, 035408 (2018). [[DOI](#)|[arXiv:1801.01644](#)]
19. “Phonon linewidth due to electron-phonon interactions with strong forward scattering in FeSe thin films on oxide substrates,” **Y. Wang**, L. Rademaker, E. Dagotto, and S. Johnston, *Phys. Rev. B* **96**, 054515 (2017). [[DOI](#)|[arXiv:1703.02013](#)]
18. “Nonlocal correlations in the orbital selective Mott phase of a one-dimensional multiorbital Hubbard model,” S. Li, N. Kaushal, **Y. Wang**, Y. Tang, G. Alvarez, A. Nocera, T. Maier, E. Dagotto, and S. Johnston, *Phys. Rev. B* **94**, 235126 (2016). [[DOI](#)|[arXiv:1608.05297](#)]
17. “High T_c via Spin Fluctuations from Incipient Bands: Application to Monolayers and Intercalates of FeSe,” A. Linscheid, S. Maiti, **Y. Wang**, S. Johnston, and P. J. Hirschfeld, *Phys. Rev. Lett.* **117**, 077003 (2016). [[DOI](#)|[arXiv:1603.03739](#)]
16. “Momentum-resolved electronic structure of the high- T_c superconductor parent compound BaBiO₃,” N. C. Plumb, D. J. Gawryluk, **Y. Wang**, Z. Ristić, J. Park, B. Q. Lv, Z. Wang, C. E. Matt, N. Xu, T. Shang, K. Conder, J. Mesot, S. Johnston, M. Shi, and M. Radović, *Phys. Rev. Lett.* **117**, 037002 (2016). [[DOI](#)|[arXiv:1603.01745](#)]
15. “Orbital-selective Mott phases of a one-dimensional three-orbital Hubbard model studied using computational techniques,” G. Liu, N. Kaushal, S. Li, C. B. Bishop, **Y. Wang**, S. Johnston, G. Alvarez, A. Moreo, and E. Dagotto, *Phys. Rev. E* **93**, 063313 (2016). [[DOI](#)|[arXiv:1602.06478](#)]
14. “*Ab initio* Study of Cross-Interface Electron-Phonon Couplings in FeSe Thin Films on SrTiO₃ and BaTiO₃,” **Y. Wang**, A. Linscheid, T. Berlijn, and S. Johnston, *Phys. Rev. B* **93**, 134513 (2016). [[DOI](#)|[arXiv:1602.03288](#)]
13. “Aspects of electron-phonon interactions with strong forward scattering in FeSe Thin Films on SrTiO₃ substrates,” **Y. Wang**, K. Nakatsukasa, L. Rademaker, T. Berlijn, and S. Johnston, *Supercond. Sci. Technol.* **29**, 054009 (2016). [[http](#)|[arXiv:1602.00656](#)]
12. “Enhanced superconductivity due to forward scattering in FeSe thin films on SrTiO₃ substrates,” L. Rademaker, **Y. Wang**, T. Berlijn, and S. Johnston, *New J. Phys.* **18**, 022001 (2016). [[http](#)|[arXiv:1507.03967](#)]

11. “Effects of Lifshitz Transition on Charge Transport in Magnetic Phases of Fe-Based Superconductors,” **Y. Wang**, M. N. Gastiasoro, B. M. Andersen, M. Tomić, H. O. Jeschke, R. Valentí, I. Paul, and P. J. Hirschfeld, *Phys. Rev. Lett.* **114**, 097003 (2015). [[DOI](#)|[arXiv:1408.1933](#)]
10. “Glide-Plane Symmetry and Superconducting Gap Structure of Iron-Based Superconductors,” **Y. Wang**, T. Berlijn, P. J. Hirschfeld, D. J. Scalapino, and T. A. Maier, *Phys. Rev. Lett.* **114**, 107002 (2015). [[DOI](#)|[arXiv:1411.0070](#)]
9. “Disorder-induced topological change of the superconducting gap structure in iron pnictides,” Y. Mizukami, M. Konczykowski, Y. Kawamoto, S. Kurata, S. Kasahara, K. Hashimoto, V. Mishra, A. Kreisel, **Y. Wang**, P. J. Hirschfeld, Y. Matsuda, and T. Shibauchi, *Nat. Commun.* **5**, 5657 (2014). [[DOI](#)|[arXiv:1405.6951](#)]
8. “Emergent Defect States as a Source of Resistivity Anisotropy in the Nematic Phase of Iron Pnictides,” M. N. Gastiasoro, I. Paul, **Y. Wang**, P. J. Hirschfeld, and B. M. Andersen, *Phys. Rev. Lett.* **113**, 127001 (2014). [[DOI](#)|[arXiv:1407.0117](#)]
7. “Superconducting gap in LiFeAs from three-dimensional spin-fluctuation pairing calculations,” **Y. Wang**, A. Kreisel, V. B. Zabolotnyy, S. V. Borisenko, B. Büchner, T. A. Maier, P. J. Hirschfeld, and D. J. Scalapino, *Phys. Rev. B* **88**, 174516 (2013). [[DOI](#)|[arXiv:1310.3517](#)]
6. “Spin fluctuations and superconductivity in $K_x\text{Fe}_{2-y}\text{Se}_2$,” A. Kreisel, **Y. Wang**, T. A. Maier, P. J. Hirschfeld, and D. J. Scalapino, *Phys. Rev. B* **88**, 094522 (2013). [[DOI](#)|[arXiv:1308.5683](#)]
5. “Using controlled disorder to distinguish s_{\pm} and s_{++} gap structure in Fe-based superconductors,” **Y. Wang**, A. Kreisel, P. J. Hirschfeld, and V. Mishra, *Phys. Rev. B* **87**, 094504 (2013). [[DOI](#)|[arXiv:1210.7474](#)]
4. “Effects of Disordered Ru Substitution in BaFe_2As_2 : Possible Realization of Superdiffusion in Real Materials,” L. Wang, T. Berlijn, **Y. Wang**, C.-H. Lin, P. J. Hirschfeld, and W. Ku, *Phys. Rev. Lett.* **110**, 037001 (2013). [[DOI](#)|[arXiv:1209.3001](#)]
3. “Specific heat to H_{c2} : Evidence for nodes or deep minima in the superconducting gap of underdoped and overdoped $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$,” J. S. Kim, B. D. Faeth, **Y. Wang**, P. J. Hirschfeld, G. R. Stewart, K. Gofryk, F. Ronning, A. S. Sefat, K. Y. Choi, and K. H. Kim, *Phys. Rev. B* **86**, 014513 (2012). [[DOI](#)|[arXiv:1206.5354](#)]
2. “Theory of quasiparticle vortex bound states in iron-based superconductors: Application to scanning tunneling spectroscopy of LiFeAs,” **Y. Wang**, P. J. Hirschfeld, and I. Vekhter, *Phys. Rev. B* **85**, 020506 (2012). [[DOI](#)|[arXiv:1111.0126](#)]
1. “Volovik effect in a highly anisotropic multiband superconductor: Experiment and theory,” **Y. Wang**, J. S. Kim, G. R. Stewart, P. J. Hirschfeld, S. Graser, S. Kasahara, T. Terashima, Y. Matsuda, T. Shibauchi, and I. Vekhter, *Phys. Rev. B* **84**, 184524 (2011). [[DOI](#)|[arXiv:1109.0554](#)]

Honors & Awards

Dissertation Fellowship from College of Liberal Arts and Sciences (CLAS), 2014.

UF Graduate Student Council Travel Grants, 2014. UF CLAS Graduate Student Travel Funds, 2012.

[Charles F. Hooper Jr. Memorial Award](#) for distinction in research and teaching, 2012.

Certificate of Outstanding Achievement from University of Florida International Center, 2010.

Undergraduate Research Fellowship, Title of Chun-Tsung Scholar from the [Chun-Tsung Endowment](#), 2007.

People's Scholarship, 1st Class Prize, from Fudan University, 2007.

Invited Seminar Presentations

“*Ab initio* Study of Cross-Interface Electron-Phonon Couplings in FeSe Thin Films on SrTiO₃ and BaTiO₃,” Oak Ridge National Laboratory (ORNL), Materials Science and Technology Division, April 8, 2016.

“Aspects of Cross-Interface Coupling Between FeSe Monolayers and Oxide Substrates,” Oak Ridge National Laboratory (ORNL), Center for Nanophase Materials Sciences (CNMS) User Meeting, August 10, 2016.

Conference Presentations

“Field dependence of the zero energy density of states of an anisotropic s_{\pm} superconductor,” APS March Meeting, Dallas, March 2011.

“Volovik effect in a highly anisotropic multiband superconductor: experiment and theory,” Multiband and Multiorbital Effects in Novel Materials, ICAM-I2CAM Summer School, Cargèse, August 2011.

“Theory of quasiparticle vortex bound states in Fe-based superconductors: application to LiFeAs,” APS March Meeting, Boston, March 2012.

“Using controlled disorder to distinguish s_{\pm} and s_{++} gap structure in Fe-based superconductors,” APS March Meeting, Baltimore, March 2013.

“Symmetry of gap functions and pairing instabilities in multiband superconductors: 3D effects” (poster), Workshop Computational exploration of atomistic structures and interrelation with physical properties and Tutorial hands-on-FPLO, Dresden, November 2013.

“Superconducting gap in LiFeAs from three-dimensional spin-fluctuation pairing calculations,” APS March Meeting, Denver, March 2014.

“Superconducting gap in LiFeAs from three-dimensional spin-fluctuation pairing calcula-

tions,” Spring Meeting of the German Physical Society (DPG), Dresden, April 2014.

“Glide plane symmetry and gap structure in the iron-based superconductors,” APS March Meeting, San Antonio, March 2015.

“Electron-Phonon Couplings of the Interfacial Mode in FeSe Thin Films on SrTiO₃ and BaTiO₃,” APS March Meeting, Baltimore, March 2016.

“Study of spin-fluctuation mediated pairing in the Fe-based superconducting ladder BaFe₂S₃,” APS March Meeting, New Orleans, March 2017.

“Phonon linewidth due to electron-phonon interactions with strong forward scattering in FeSe thin films on oxide substrates,” APS March Meeting, Los Angeles, March 2018.

Professional Service

Reviewer for *Physical Review Letter*, *Physical Review B*, *New Journal of Physics*, *Journal of Physics: Condensed Matter*, *Physica Status Solidi B*, and other journals.

Member, American Physical Society (APS), 2011–present.

Miscellaneous

Hobbies and interests: contrastive linguistics (Chinese & English), recreational math.

Languages: English (full professional proficiency), Chinese (native proficiency).

Last updated: February 28, 2019