KUAN-WEN CHEN

Department of Physics, University of Michigan
E-mail: kdhen@umich.edu
Google Scholar Page: https://scholar.google.com/citations?user=zomQ9CQAAAAJ&hl=en

EDUCATION AND EXPERIENCE

University of Michigan *Sep. 18 2019- Present*
Postdoc in Physics Principle Investigator: Prof. Lu Li

Florida State University, Tallahassee, FL *2013-2019 August*
Ph.D. in Physics Advisors: Prof. Ryan Baumbach and Prof. Luis Balicas

Academia Sinica, Taipei, Taiwan *2012-2013*
Research Assistant Advisor: Prof. Chii-Dong Chen

Mandatory Military Service in Army of R.O.C. *2011-2012*
Second Lieutenant

National Taiwan University, Taipei, Taiwan *2009-2011*
M.Sc. in Physics Advisor: Prof. Chii-Dong Chen

National Taiwan University, Taipei, Taiwan *2005-2009*
B.Sc. in Physics Undergraduate Research Advisor: Prof. Ting-Kuo, Lee

TECHNICAL STRENGTHS

Measurement	Torque magnetometry using capacitive and piezoresistive cantilever, Quantum design PPMS and MPMS, 18T-Superconducting, 35T-resistive, 45T-hybrid magnets, Piston cylinder pressure cell
Crystal growth	Flux, Chemical vapor transport, Bridgman and Czochralski method
Device fabrication	E-beam lithography and photolithography
Softwares	DFT calculations by WIEN2k, LabView, Origin, Matlab

INVITED TALKS

- "*Uncovering the bulk Fermi surfaces of the topological semimetals via de Hass-van Alphen effect*", Workshop on Spin-Orbit Coupled Topological States, Korea 2018
- "*Uncovering the bulk Fermi surfaces of the topological semimetals via de Hass-van Alphen effect*", Los Alamos National Laboratory 2018
- "*Uncovering the bulk Fermi surfaces of the topological semimetals via de Hass-van Alphen effect*", Academia Sinica, Taiwan 2018

CONFERENCE PRESENTATION

- "*Study of the Dirac/Weyl candidates (Ce,Nd)Sb(Se,Te)*", APS March Meeting, Boston 2019
- "*Bulk Fermi surfaces of the Dirac type-II semimetallic candidates*", 25th WIEN2k workshop, Boston 2018
- "*Quantum oscillations in the type-II Dirac semimetals: MAl3 (M=V, Nb and Ta)*", APS March Meeting, Los Angeles 2018
- "*Probing the electronic state in the strong topological metals Zr_2Te_2P, Hf_2Te_2P and Zr_2Te_2As and their structural analogue Ti_2Te_2P*", New Orleans 2017
- "*Tuning the topological electronic state in Au_2Pb using applied pressure*", PPHMF conference, Tallahassee 2016
- "*Tuning superconductivity in $Nb_2Pd_{0.81}S_5$ using applied pressure and uniaxial strain*", APS March Meeting, San Antonio 2015

REFEREE EXPERIENCE

Physical Reveiw B (Rapid Communication) (2019)
Physical Reveiw X (2018)

JOURNAL PUBLICATIONS

References

[1] **K. -W. Chen***, X. Lian, Y. Lai, N. Aryal, Y.-C. Chiu, W. Lan, D. Graf, E. Manousakis, R. E. Baumbach, and L. Balicas*, "*Bulk Fermi Surfaces of the Dirac Type-II Semimetallic Candidates MAl_3 (Where M = V, Nb, and Ta)*", Phys. Rev. Lett. **120**, 206401 (2018)

[2] **K. -W. Chen***, N. Aryal, J. Dai, D. Graf, S. Zhang, S. Das, P. Le Fvre, F. Bertran, R. Yukawa, K. Horiba, H. Kumigashira, E. Frantzeskakis, F. Fortuna, L. Balicas, AF Santander-Syro, E. Manousakis, R. E. Baumbach*, "*Converting topological insulators into topological metals within the tetradymite family*", Phys. Rev. B **97**, 165112 (2018)

[3] **K. -W. Chen**, Y. Lai, Y.-C. Chiu, S. Steven, T. Besara, D. Graf, T. Siegrist, T. E. Albrecht-Schmitt, L. Balicas, and R. E. Baumbach, "*Possible devil's staircase in the Kondo lattice CeSbSe*", Phys. Rev. B **96**, 014421 (2017)

[4] **K. -W. Chen**, S. Das, D. Rhodes, S. Memaran, T. Besara, T. Siegrist, E. Manousakis, L. Balicas, R. E. Baumbach*"*Uncovering the behavior of Hf_2Te_2P and the candidate Dirac metal Zr_2Te_2P*", Journal of Physics: Condensed Matter **28**, 14LT01 (2016)

[5] **K. -W. Chen**, D. Graf, T. Besara, A. Gallagher, N. Kikugawa, L. Balicas, T. Siegrist, A. Shekhter, and R. Baumbach* "*Temperature-pressure phase diagram of cubic Laves phase Au_2Pb*", Phys. Rev. B **93**, 045118 (2016)

[6] Y.-C. Chiu, **K.-W. Chen**, R. Schonemann, V. L. Quito, S. Sur, Q. Zhou, D. Graf, E. Kampert, T. Frster, K. Yang, G. T. McCandless, Julia Y. Chan, R. E. Baumbach, M. D. Johannes, and L. Balicas* "*Origin of the butterfly magnetoresistance in a Dirac nodal-line system*",Phys. Rev. B **100**, 125112(2019)

[7] K. Huang, **K. -W. Chen**, A. Gallagher, Y. Lai, L. Nelson, D. Graf, and R. E. Baumbach* "*Instability of the f-electron state in $URu_2Si_{2?x}P_x$ probed using high magnetic fields*",Phys. Rev. B **99**, 235146 (2019)

[8] K. Wei, **K. -W. Chen**, J. Neu, Y. Lai, G. Chappell, G. Nolas, D. Graf, Y. Xin, L. Balicas, R. E. Baumbach, and T. Siegrist* "*Fermi surface of the Flat-Band Intermetallics APd_3 (A=Pb, Sn)*",Phys. Rev. Materials **3**, 041201 (2019)

[9] K. Wei, J. Neu, Y. Lai, **K. -W. Chen**, Dean Hobbis, G. Nolas, D. Graf, T. Siegrist, and R. E. Baumbach* " *Enhanced Thermoelectric Performance of Kagome Heavy-Fermion Compounds $YbTM_2Zn_{20}$ (TM = Co, Rh, Ir) at Low Temperatures*", Science Advances, 5, eaaw6183(2019)

[10] A Gallagher, **K. -W. Chen**, C. M. Moir, S. K. Cary, F. Kametani, N. Kikugawa, D. Graf, T. E. Albrecht-Schmitt, S. C. Riggs, A. Shekhter, R. E. Baumbach*"*Unfolding the physics of URu_2Si_2 through silicon to phosphorus substitution*", Nature Communications **7**, 10712 (2016)

[11] A. Gallagher, **K. -W. Chen**, S. K. Cary, F. Kametani, D. Graf, T. E. Albrecht-Schmitt, A. Shekhter, R. E. Baumbach* "*Thermodynamic and electrical transport investigation of $URu_2Si_{2-x}P_x$*" , Journal of Physics: Condensed Matter **29**, 024004 (2016)

[12] M. R. Wartenbe, **K. -W. Chen**, A. Gallagher, N. Harrison, Ross D. Mcdonald, G. S. Boebinger, Ryan E. Baumbach*, "*Role of band filling in tuning the high-field phases of URu_2Si_2*", Phys. Rev. B **96**, 085141 (2017)

[13] W. Zheng, R. Schonemann, N. Aryal, Q. Zhou, D. Rhodes, Y.-C. Chiu, **K. -W. Chen**, E. Kampert, T. Frster, T. J. Martin, G. T. McCandless, J. Y. Chan, E. Manousakis, and L. Balicas, "*Detailed study of the Fermi surfaces of the type-II Dirac semimetallic candidates XTe_2 (X = Pd, Pt)*", Phys. Rev. B **97**, 235154 (2018)

[14] S. Zhang, N. Aryal, K. Huang, **K. -W. Chen**, Y. Lai, D. Graf, T. Besara, T. Siegrist, E. Manousakis, R. E. Baumbach*, "*Electronic structure and magnetism in the layered triangular lattice compound $CeAuAl_4Ge_2$*", Phys. Rev. Materials **1**, 044404 (2017)

[15] M. Silver, S. Cary, A. Garza, R. E. Baumbach, A. Arico, G. Galmin, **K. -W. Chen**, J. A. Johnson, J. C. Wang, R. J. Clark, A. Chemey, T. M. Eaton, M. L. Marsh, K. Seidler, S. S. Galley, L. Van De Burgt, A. L. Gray, D. E. Hobart, K. Hanson, S. M. Van Cleve, F. Gendron, J. Autschbach, G. E. Scuseria, L. Maron, M. Speldrich, P. Kogerler, C. Celis-Barros, D. P.-Hernandez, R. Arratia-Perez, M. Ruf, T. E. Albrecht-Schmitt* "*Electronic Structure and Properties of Berkelium Iodates*", JACS **139**, 13361 (2017)

[16] S. Ran, I. Jeon, N. Pouse, A. J. Breindel, N. Kanchanavatee, K. Huang, A. Gallagher, **K. -W. Chen**, D. Graf, R. E. Baumbach, J. Singleton, M. B. Maple*, "*Phase diagram of $URu_{2-x}Fe_xSi_2$ in high magnetic fields*", PNAS **114**, 9826 (2017)

[17] R. Schoenemann, N. Aryal, Q. Zhou, Y. -C. Chiu, **K. -W. Chen**, T. J. Martin, G. T. McCandless, J. Y. Chan, E. Manousakis, L. Balicas*, "*Fermi surface of the Weyl type-II metallic candidate WP_2* ", Phys. Rev. B **96**, 121108 (2017)

[18] Y. Lai, S. M. Saunders, D. Graf, A. Gallagher, **K. -W. Chen**, F. Kametani, T. Besara, T. Siegrist, A. Shekhter, and R. E. Baumbach*, "*Correlated electron state in $CeCu_2Si_2$ controlled through Si to P substitution*", Phys. Rev. Materials **1**, 034801 (2017)

[19] Y. Jiang, Z. L. Dun, H. D. Zhou, Z. Lu, **K.-W. Chen**, S. Moon, T. Besara, T. M. Siegrist, R. E. Baumbach, D. Smirnov, and Z. Jiang "*Landau-level spectroscopy of massive Dirac fermions in single-crystalline $ZrTe_5$ thin flakes*", Phys. Rev. B **96**, 041101(R) (2017)

[20] R. Rawl, M. Lee, E. S. Choi, G. Li, **K. -W. Chen**, R. E. Baumbach, C. R. dela Cruz, J. Ma, and H. D. Zhou* "*Magnetic properties of the triangular lattice magnets $A_4B'B_2O_{12}$ (A = Ba, Sr, La; B' = Co, Ni, Mn; B = W, Re)*", Phys. Rev. B **95**, 174438 (2017)

[21] K. R. Shirer, M. Lawson, T. Kissikov, B. T. Bush, A. Gallagher, **K. -W. Chen**, R. E. Baumbach, and N. J. Curro* "*NMR investigation of antiferromagnetism and coherence in* $URu_2Si_{2-x}P_x$", Phys. Rev. B **95**, 041107(R) (2017)

[22] A. Gallagher, W. L. Nelson, **K. -W. Chen**, T. Besara, T. Siegrist, R. E. Baumbach*"*Single Crystal Growth of* URu_2Si_2 *by the Modified Bridgman Technique*", Crystals **6**, 128 (2016)

[23] Z. L. Dun, J. Trinh, K. Li, M. Lee, **K. -W. Chen**, R. Baumbach, Y. F. Hu, Y. X. Wang, E. S. Choi, B.S. Shastry, A.P. Ramirez, and H.D. Zhou*, "*Magnetic Ground States of the Rare-Earth Tripod Kagome Lattice* $Mg_2RE_3Sb_3O_{14}$ *(RE = Gd, Dy, Er)*", Phys. Rev. Lett. **116**, 157201 (2016)

[24] T. Besara, D. A. Rhodes, **K. -W. Chen**, S. Das, Q. R. Zhang, J. Sun, B. Zeng, Y. Xin, L. Balicas, R. E. Baumbach, E. Manousakis, D. J. Singh, and T. Siegrist* "*Coexistence of Weyl physics and planar defects in the semimetals TaP and TaAs*", Phys. Rev. B **93**, 245152 (2016)

[25] M. Silver, S. Cary, J. Johnson, R. E. Baumbach, A. Arico, M. Luckey, M. Urban, J. Wang, M. Polinski, A. Chemey, G. Liu, **K. -W. Chen**, S. M. Van Cleve, M. L. Marsh, T. M. Eaton, L. J van de Burgt, A. Gray, D. E. Hobart, K. Hanson, L. Maron, F. Gendron, J. Autschbach, M. Speldrich, P. Kogerler, P. Yang, J. Braley, T. E Albrecht-Schmitt* "*Characterization of berkelium (III) dipicolinate and borate compounds in solution and the solid state*", Science **353**, aaf3762 (2016)

[26] J.-Y. Wang, S. Liou, Y.-C. Chang, T. -H. Lee, **K. -W. Chen**, M. -C. Lin, C. -S. Wu, W. Kuo, ChiiDong Chen* "*Reduction of modal length using Josephson junction array confined cavity*", Applied Physics Letters **102**, 142603 (2013)

[27] S. -S. Yeh, **K. -W. Chen**, T. -H. Chung, D. -Y. Wu, M. -C. Lin, J. -Y. Wang, I-Lin Ho, C. -S. Wu, W. Kuo, ChiiDong Chen* "*A method for determining the specific capacitance value of mesoscopic Josephson junctions*", Applied Physics Letters **101**, 232602 (2012)

[28] **K. -W. Chen**, C. -K. Wang, C. -L. Lu, Y. -Y. Chen* "*Variations on a theme by a singing wineglass*", Europhysics Letters **70**, 334 (2005)