Binghai Yan

Curriculum Vitae

July 2016

Address: Max Planck Institute for Chemical Physics of Solids
NoethnitzerStr. 40, 01187 Dresden, Germany
Phone: +49(0)351-4646-3325
Email: yan@cpfs.mpg.de
Web : http://www.cpfs.mpg.de/yan
See also: Google Scholar Citations

Education

2003 B.sc. in Physics Xi'an Jiaotong University, Xi'an, China
2008 PhD. in Physics Tsinghua University, Beijing China
Institute for Advanced Study (Prof. Binglin Gu and Prof. Wenhui Duan)

Employment

2008 - 2010	Humboldt postdoc	University of Bremen (Prof. Thomas Fraueihaim), Germany
2010 - 2011	Postdoc	Stanford University (Prof. Shou-Cheng Zhang), US
2011 - 2012	Humboldt postdoc	University of Bremen (Prof. Thomas Fraueihaim), Germany
2012 - present	Group leader (W2 Prof.)	MPI for Chemical Physics of Solids, Dresden, Germany MPI for Physics of Complex Systems (joint)

Scholarships and Awards

2008 Humboldt Fellowship by Humboldt Foundation in Germany
2013 ARCHES Prize by BMBF and Minerva Foundation, Germany
[Note: the German-Israeli Research Award, shared with Dr. Erez Berg at Weizmann Institute, see http:www.minerva.mpg.de/arches/earlier_awardees.html]

Organizing Workshops and Journal Issues

2012 The CECAM workshop - Topological Materials, University of Bremen, Bremen, Germany
Organizers: Binghai Yan, Claudia Felser, Zhong Fang, Werner Hanke, Thomas Frauenheim
http://www.cecam.org/workshop-766.html
2013 Focus Issue on Topological Insulators - From Materials Design to Reality in Phys. Status Solidi RRL
Guest Editors: Claudia Felser, Shoucheng Zhang, Binghai Yan
http://onlinelibrary.wiley.com/doi/10.1002/pssr.201350502/full
2016 Young Research Leaders Group Workshop: New Paradigms in Dirac-Weyl Nanoelectronics
Organizers: Mazhar Ali and Binghai Yan
https://www.spice.uni-mainz.de/dwn-workshop-2016/

Research Grants

2013 - 2015 DFG – Deutsche Forschungsgemeinschaft – ASPIMATT
Title: Advanced spintronic materials and transport phenomena
Role: PI.
2014 - 2019 ARCHES Prize, Minerva Stiftung and BMBF, Germany
Title: Topological superconducting materials
Role: PI.
2016 - 2018 German Israel Foundation (GIF Grant no. I-1364-303.7/2016)
Title: Computation and Visualization of Unexplored Topological Phases
Role: PI.

Invited Talks in Conferences

2013.06 The crossover between 2D and 3D in layered topological insulators
CECAM workshop: Novel 2D materials, Bremen, Germany
2013.07 Topological insulators
ASPIMATT summer school, MPI-CPfS, Dresden, Germany
2013.07 Heusler compounds, spin orbit coupling, topological insulators and new effects
Worshop Spin Orbit Entanglement, Dresden, Germany
2013.09 Heusler compounds, topological insulators and new effects
Worshop Electronic properties of spin-orbit driven oxides, Dresden, Germany
2015.06 Topological insulator and topological metal
Symposium on "New Concept Spintronics Devices", York, UK
2015.07 Topological Metals: from the Shockley states to topological states
Workshop of Advances in Nanoscience Applications, University of Cambridge, UK
2015.07 Topological insulators and topological metals
TRR80 Summer School, Chiemsee, Germany
2015.10 Topological Weyl Semimetals
Workshop Beyong CMOS, Castle Ringberg, Germany
2016.03 The type-II Weyl semimetal in MoTe2
Weizmann-Max Planck workshop, Weizmann Institute, Israel
2016.03 Topological surface Fermi arcs in Weyl Semi-Metal materials
DPG Spring Meeting, Regensburg, Germany
2016.04 Topological surface states and chiral magneto-transport in TaAs-type of Weyl semimetals
Workshop "The 2nd Floating Zone technique", IFW Dresden, Germany
2016.06 Giant intrinsic spin Hall effect in the Weyl Semimetals
Young Research Leaders Group Workshop, Mainz, Germany
2016.06 Discovery of a new type of topological Weyl semimetal in MoTe2
CECAM-Workshop "Tailor-made 2D-materials and functional devices", Bremen, Germany

Invited Talks in Institutes

2011.04 Theoretical prediction of topological insulators: the TlBiSe2 family and the CeOs4Sb12 family
University of Wuerzburg, Wuerzburg, Germany
2012.11 Topological insulator materials
Lorentz Center, Leiden University, Netherland
2013.04 Strong and weak topological insulators in the honeycomb lattice
EPFL, Lausanne, Switzerland
2014.02 Topological insulators from the perspective of chemistry
Weizmann Institute of Science, Israel
2014.06 Topological insulator materials with large energy-gap
University of Wuerzburg, Germany
2014.08 Topological insulator materials in the honeycomb lattice
University of Duisburg-Essen, Germany
2015.02 Quantum Anomalous Hall Effects on the Novel Honeycomb Material Stanene
University of Mainz, Germany
2015.03 Topological insulators and topological metals
IBM Almaden Research Center, US
2015.03 Topological insulating states with maximized energy gap
Stanford University, US
2016.01 Materials Design for topological quantum materials
Weizmann Institute of Science, Israel
2016.03 Materials Design for topological quantum materials
Stuttgart University, Stuttgart, Germany
2016.03 An introduction to topological Weyl semimetals
Max Planck Institute for microstructure physics, Halle, Germany
2016.07 Surface Fermi arcs and bulk chiral magneto-transport of the TaAs family Weyl semimetals
Karlsruhe Institute of Technology, Karlsruhe, Germany

List of Publications

Journal	Number
Nature Materials	1
Nature Physics	3
Nature Communications	3
Ann. Rev. Cond. Matter Phys.	1
Reports on Progress in Physics	1
Physical Review Letters	11
Physical Review B	26
Angewandte Chemie	2
Nano Letters	5

More bibliometrics information can be found in Google Scholar Citations:
`https://scholar.google.de/citations?user=504Jb_IAAAAJ&hl=en`

Five Selected Publications

1. ***Yan***, B. and S.-C. Zhang.
   Topological materials.
   Reports on Progress in Physics **75**(9) (2012), 096501(23pp).
2. ***Yan***, B., M. Jansen, and C. Felser.
   A large-energy-gap oxide topological insulator based on the superconductor BaBiO3.
   Nature Physics **9**(11) (2013), 709–711.
3. Shekhar, C., A. K. Nayak, Y. Sun, M. Schmidt, M. Nicklas, I. Leermakers, U. Zeitler, Y. Skourski, J. Wosnitza, Z. Liu, Y. Chen, W. Schnelle, H. Borrmann, Y. Grin, C. Felser, and B. ***Yan***.
   Extremely large magnetoresistance and ultrahigh mobility in the topological Weyl semimetal candidate NbP.
   Nature Physics **11** (2015), 645–649.
4. Yang, L. X., Z. K. Liu, Y. Sun, H. Peng, H. F. Yang, T. Zhang, B. Zhou, Y. Zhang, Y. F. Guo, M. Rahn, D. Prabhakaran, Z. Hussain, S.-K. Mo, C. Felser, B. ***Yan***, and Y. L. Chen.
   Weyl semimetal phase in the non-centrosymmetric compound TaAs.
   Nature Physics **11**(9) (2015), 728–732.
5. Arnold, F., C. Shekhar, S.-C. Wu, Y. Sun, R. D. dos Reis, N. Kumar, M. Naumann, M. O. Ajeesh, M. Schmidt, A. G. Grushin, J. H. Bardarson, M. Baenitz, D. Sokolov, H. Borrmann, M. Nicklas, C. Felser, E. Hassinger, and B. ***Yan***.
   Negative magnetoresistance without well-defined chirality in the Weyl semimetal TaP.
   Nature Communications **7** (2016), 11615 (7pp).

Peer Reviewed Articles

1. ***Yan***, B., Y. Yang, and Y. Wang.
   Comment on "simulation of the optical absorption spectra of gold nanorods as a function of their aspect ratio and the effect of the medium dielectric constant".
   The Journal of Physical Chemistry B **107**(34) (2003), 9159–9159.
2. ***Yan***, B., G. Zhou, W. Duan, J. Wu, and B.-L. Gu.
   Uniaxial-stress effects on electronic properties of silicon carbide nanowires.
   Applied physics letters **89**(2) (2006), 23104–23104.
3. ***Yan***, B., G. Zhou, J. Wu, W. Duan, and B.-L. Gu.
   Bonding modes and electronic properties of single-crystalline silicon nanotubes.
   Physical Review B **73**(15) (2006), 155432 (6pp).
4. Shan, G., J. Wan, B. ***Yan***, Q. Fan, and W. Huang.
   Theoretical study on energy levels and photophysical properties of pn block oligomers.
   Journal of optoelectronics and advanced materials **9**(5) (2007), 1373–1376.
5. ***Yan***, B., G. Zhou, X. C. Zeng, J. Wu, B.-L. Gu, and W. Duan.

Quantum confinement of crystalline silicon nanotubes with nonuniform wall thickness: Implication to modulation doping.
Applied Physics Letters **91** (2007), 103107.

6. Tomatsu, K., M. Yamada, K. Nakatsuji, F. Komori, B. ***Yan***, C. Wang, G. Zhou, and W. Duan.
Scattering potentials at Si-Ge and Sn-Ge impurity dimers on Ge (001) studied by scanning tunneling microscopy and ab initio calculations.
Physical Review B **78**(8) (2008), 081401(R) (4pp).
7. Wang, C., G. Zhou, J. Li, B. ***Yan***, and W. Duan.
Hydrogen-induced metallization of zinc oxide (2 1 1 0) surface and nanowires: the effect of curvature.
Physical Review B **77**(24) (2008), 245303 (7pp).
8. ***Yan***, B., C. Park, J. Ihm, G. Zhou, W. Duan, and N. Park.
Electron Emission Originated from Free-Electron-like States of Alkali-Doped Boron- Nitride Nanotubes.
Journal of the American Chemical Society **130**(50) (2008), 17012–17015.
9. Tomatsu, K., K. Nakatsuji, M. Yamada, F. Komori, B. ***Yan***, C. Yam, T. Frauenheim, Y. Xu, and W. Duan.
Local vibrational excitation through extended electronic states at a germanium surface.
Physical Review Letters **103**(26) (2009), 266102.
10. Tomatsu, K., B. ***Yan***, M. Yamada, K. Nakatsuji, G. Zhou, W. Duan, and F. Komori.
Flip motion of heterogeneous buckled dimers on Ge (0 0 1) by electron injection from STM tip.
Surface Science **603**(5) (2009), 781–787.
11. ***Yan***, B., K. Tomatsu, B. Huang, A. L. da Rosa, G. Zhou, B.-L. Gu, W. Duan, F. Komori, and T. Frauenheim.
Structural and electronic properties of Ge-Si, Sn-Si, and Pb-Si dimers on Si (001) from density-functional calculations.
Physical Review B **79**(23) (2009), 235437 (6pp).
12. ***Yan***, B., C. Yam, A. L. da Rosa, and T. Frauenheim.
Comment on "Valence Surface Electronic States on Ge (001)".
Physical Review Letters **103**(18) (2009), 189701.
13. Zou, X., G. Zhou, J. Li, B. ***Yan***, J. Wu, B.-L. Gu, and W. Duan.
Preparing spin-polarized scanning tunneling microscope probes on capped carbon nanotubes by Fe doping: A first-principles study.
Applied Physics Letters **94**(19) (2009), 193106.
14. Chen, Y. L., Z. K. Liu, J. G. Analytis, J. Chu, H. J. Zhang, B. ***Yan***, S.-K. Mo, R. G. Moore, D. H. Lu, I. R. Fisher, S. C. Zhang, Z. Hussain, and Z. X. Shen.
Single Dirac Cone Topological Surface State and Unusual Thermoelectric Property of Compounds from a New Topological Insulator Family.
Physical Review Letters **105**(26) (2010), 266401.
15. Liu, C.-X., H. Zhang, B. ***Yan***, X.-L. Qi, T. Frauenheim, X. Dai, Z. Fang, and S.-C. Zhang.
Oscillatory crossover from two-dimensional to three-dimensional topological insulators.
Physical review B **81**(4) (2010), 041307(R)(4pp).
16. ***Yan***, B., T. Frauenheim, and A. Gali.
Gate-Controlled Donor Activation in Silicon Nanowires.
Nano Lett. **10**(9) (2010), 3791–3795.
17. ***Yan***, B., C.-X. Liu, H.-J. Zhang, C.-Y. Yam, X.-L. Qi, T. Frauenheim, and S.-C. Zhang.
Theoretical prediction of topological insulators in thallium-based III-V-VI2 ternary chalcogenides.
EPL (Europhysics Letters) **90** (2010), 37002.
18. ***Yan***, B., H.-J. Zhang, C.-X. Liu, X.-L. Qi, T. Frauenheim, and S.-C. Zhang.
Theoretical prediction of topological insulator in ternary rare earth chalcogenides.

Physical Review B **82**(16) (2010), 161108 (R) (4pp).

19. Zhang, H.-J., S. Chadov, L. M*ü*chler, B. ***Yan***, X.-L. Qi, J. K*ü*bler, S.-C. Zhang, and C. Felser.
Topological Insulators in Ternary Compounds with a Honeycomb Lattice.
Physical Review Letters **106**(15) (2011), 156402.
20. M*ü*chler, L., F. Casper, B. ***Yan***, S. Chadov, and C. Felser.
Topological insulators and thermoelectric materials.
physica status solidi (RRL) - Rapid Research Letters **7** (2012), 91–100.
21. M*ü*chler, L., H. Zhang, S. Chadov, B. ***Yan***, F. Casper, J. K*ü*bler, S.-C. Zhang, and C. Felser.
Topological Insulators from a Chemist's Perspective.
Angewandte Chemie International Edition **51**(29) (2012), 7221–7225.
22. ***Yan***, B., L. Lukas M*ü*chler, and C. Ferlser.
Prediction of weak topological insulators in layered semiconductors.
Physical Review Letters **109** (2012), 116406.
23. ***Yan***, B., L. M*ü*chler, X.-L. Qi, S.-C. Zhang, and C. Felser.
Topological insulators in filled skutterudites.
Physical Review B **85**(16) (2012), 165125 (5pp).
24. ***Yan***, B., R. Rurali, and A. Gali.
Ab Initio Study of Phosphorus Donors Acting as Quantum Bits in Silicon Nanowires.
Nano Letters **12**(7) (July 2012), 3460–3465.
25. Deak, P., B. Aradi, A. Gagliardi, H. A. Huy, G. Penazzi, B. ***Yan***, T. Wehling, and T. Frauenheim.
The possibility of a field effect transistor based on Dirac-particles in semiconducting anatase-TiO2 nanowires.
Nano Letters (2013), 1073–1079.
26. Koleini, M., T. Frauenheim, and B. ***Yan***.
Gas Doping on the Topological Insulator B i 2 S e 3 Surface.
Physical Review Letters **110**(1) (2013), 016403.
27. Kou, L., B. ***Yan***, F. Hu, S.-C. Wu, T. O. Wehling, C. Felser, C. Chen, and T. Frauenheim.
Graphene-based topological insulator with an intrinsic bulk band gap above room temperature.
Nano Letters **13**(12) (2013), 6251–6255.
28. K*ü*bler, J., B. ***Yan***, and C. Felser.
Non-vanishing Berry phase in chiral insulators.
EPL (Europhysics Letters) **104**(3) (2013), 30001.
29. Pan, Y., A. Nikitin, T. Bay, Y. Huang, C. Paulsen, B. ***Yan***, and A. de Visser.
Superconductivity and magnetic order in the noncentrosymmetric half-Heusler compound ErPdBi.
EPL (Europhysics Letters) **104**(2) (2013), 27001 (6pp).
30. Paul, A. K., M. Jansen, B. ***Yan***, C. Felser, M. Reehuis, and P. M. Abdala.
Synthesis, Crystal Structure, and Physical Properties of Sr2FeOsO6.
Inorganic chemistry **52**(11) (2013), 6713–6719.
31. Paul, A. K., M. Reehuis, V. Ksenofontov, B. ***Yan***, A. Hoser, D. M. T*ö*bbens, P. M. Abdala, P. Adler, M. Jansen, and C. Felser.
Lattice Instability and Competing Spin Structures in the Double Perovskite Insulator Sr2FeOsO 6.
Physical Review Letters **111**(16) (2013), 167205.
32. ViolBarbosa, C., C. Shekhar, B. ***Yan***, S. Ouardi, E. Ikenaga, G. Fecher, and C. Felser.
Direct observation of band bending in the topological insulator Bi 2 Se 3.
Physical Review B **88**(19) (2013), 195128 (4pp).
33. Wang, Z. and B. ***Yan***.
Topological Hamiltonian as an Exact Tool for Topological Invariants.
Journal of Physics: Condensed Matter **25** (2013), 155601 (8pp).
34. Xu, Y., B. ***Yan***, H.-J. Zhang, J. Wang, G. Xu, P. Tang, W. Duan, and S.-C. Zhang.

Large-gap quantum spin Hall insulators in tin films.
Physical Review Letters **111** (2013), 136804.

35. ***Yan***, B., C. Felser, and S.-C. Zhang.
Topological Insulators–From Materials Design to Reality.
physica status solidi (RRL)-Rapid Research Letters **7**(1-2) (2013), 13–14.
36. ***Yan***, B., M. Jansen, and C. Felser.
A large-energy-gap oxide topological insulator based on the superconductor BaBiO3.
Nature Physics **9**(11) (2013), 709–711.
37. ***Yan***, B., D. Zhang, and C. Felser.
Topological surface states of Bi2Se3 coexisting with Se vacancies.
physica status solidi (RRL)-Rapid Research Letters **7**(1-2) (2013), 148–150.
38. Zhang, D., B. ***Yan***, S.-C. Wu, J. K*ü*bler, G. Kreiner, S. S. Parkin, and C. Felser.
First-principles study of the structural stability of cubic, tetragonal and hexagonal phases in Mn3Z (Z= Ga, Sn and Ge) Heusler compounds.
Journal of Physics: Condensed Matter **25**(20) (2013), 206006 (6pp).
39. Adler, P., V. Ksenofontov, A. K. Paul, M. Reehuis, B. ***Yan***, M. Jansen, and C. Felser.
Magnetic phase transitions and iron valence in the double perovskite Sr 2 FeOsO 6.
Hyperfine Interactions **226**(1-3) (2014), 289–297.
40. Kanungo, S., B. ***Yan***, M. Jansen, and C. Felser.
Ab initio study of low-temperature magnetic properties of double perovskite Sr2FeOsO 6.
Physical Review B **89**(21) (2014), 214414 (6pp).
41. Kou, L., F. Hu, B. ***Yan***, T. Frauenheim, and C. Chen.
Opening a band gap without breaking lattice symmetry: a new route toward robust graphene-based nanoelectronics.
Nanoscale **6**(13) (2014), 7474–7479.
42. Kou, L., S.-C. Wu, C. Felser, T. Frauenheim, C. Chen, and B. ***Yan***.
Robust 2D Topological Insulators in van der Waals Heterostructures.
ACS Nano **8**(10) (2014), 10448–10454.
43. Li, C., T. Winzer, A. Walsh, B. ***Yan***, C. Stampfl, and A. Soon.
Stacking-dependent energetics and electronic structure of ultrathin polymorphic V 2 VI 3 topological insulator nanofilms.
Physical Review B **90**(7) (2014), 075438 (7pp).
44. Penazzi, G., P. Deak, B. Aradi, T. Wehling, A. Gagliardi, H. A. Huy, B. ***Yan***, and T. Frauenheim.
TiO 2 Nanowires as a Wide Bandgap Dirac Material: a numerical study of impurity scattering and Anderson disorder.
MRS Proceedings **1659** (2014), 187–191.
45. Shekhar, C., C. ViolBarbosa, B. ***Yan***, S. Ouardi, W. Schnelle, G. H. Fecher, and C. Felser.
Evidence of surface transport and weak antilocalization in a single crystal of the Bi 2 Te 2 Se topological insulator.
Physical Review B **90**(16) (2014), 165140 (6pp).
46. Tang, P., B. ***Yan***, W. Cao, S.-C. Wu, C. Felser, and W. Duan.
Weak topological insulators induced by the interlayer coupling: A first-principles study of stacked Bi2TeI.
Physical Review B **89**(4) (2014), 041409 (R) (5pp).
47. Wu, S.-C., G. Shan, and B. ***Yan***.
Prediction of Near-Room-Temperature Quantum Anomalous Hall Effect on Honeycomb Materials.
Physical Review Letters **113**(25) (2014), 256401.
48. Wu, S.-C., B. ***Yan***, and C. Felser.
Ab initio study of topological surface states of strained HgTe.
EPL (Europhysics Letters) **107**(5) (2014), 57006 (5pp).

49. Xu, G., J. Wang, B. ***Yan***, and X.-L. Qi.
Topological superconductivity at the edge of transition-metal dichalcogenides.
Physical Review B **90**(10) (2014), 100505 (R) (5pp).
50. ***Yan***, B., A. K. Paul, S. Kanungo, M. Reehuis, A. Hoser, D. M. T*ö*bbens, W. Schnelle, R. C. Williams, T. Lancaster, F. Xiao, o. S. Moller, S. J. Blundell, W. Hayes, C. Felser, and M. Jansen.
Lattice-Site-Specific Spin Dynamics in Double Perovskite Sr2CoOsO6.
Physical Review Letters **112** (2014), 147202.
51. Felser, C., B. ***Yan***, S. Chadov, J. K*ü*bler, L. M*ü*chler, and S. Zhang.
New developments in the area of topological insulators.
AIP Conference Proceedings **1697**(1) (2015).
52. Kanungo, S., B. ***Yan***, P. Merz, C. Felser, and M. Jansen.
Na4IrO4: Square-Planar Coordination of a Transition Metal in d5 Configuration due to Weak On-Site Coulomb Interactions.
Angewandte Chemie **127**(18) (2015), 5507–5510.
53. Kou, L., F. Hu, B. ***Yan***, T. Wehling, C. Felser, T. Frauenheim, and C. Chen.
Proximity enhanced quantum spin Hall state in graphene.
Carbon **87** (2015), 418–423.
54. Kou, L., Y. Ma, B. ***Yan***, X. Tan, C. Chen, and S. C. Smith.
Encapsulated silicene: A robust large-gap topological insulator.
ACS Applied Materials & Interfaces **7**(34) (2015), 19226–19233.
55. Li, G., B. ***Yan***, R. Thomale, and W. Hanke.
Topological nature and the multiple Dirac cones hidden in Bismuth high-Tc superconductors.
Scientific Reports **5** (2015), 10435 (8pp).
56. Lin, S.-Y., M. Chen, X.-B. Yang, Y.-J. Zhao, S.-C. Wu, C. Felser, and B. ***Yan***.
Theoretical search for half-Heusler topological insulators.
Physical Review B **91**(9) (2015), 094107 (6pp).
57. Ma, Y., X. Li, L. Kou, B. ***Yan***, C. Niu, Y. Dai, and T. Heine.
Two-dimensional inversion-asymmetric topological insulators in functionalized III-Bi bilayers.
Physical Review B **91**(23) (2015), 235306 (9pp).
58. Narayanan, A., M. D. Watson, S. F. Blake, N. Bruyant, L. Drigo, Y. L. Chen, D. Prabhakaran, B. ***Yan***, C. Felser, T. Kong, Canfield, P. C., and A. I. Coldea.
Linear Magnetoresistance Caused by Mobility Fluctuations in n-Doped Cd 3 As 2.
Physical Review Letters **114**(11) (2015), 117201.
59. Nikitin, A., Y. Pan, X. Mao, R. Jehee, G. Araizi, Y. Huang, C. Paulsen, S. Wu, B. ***Yan***, and A. de Visser.
Magnetic and superconducting phase diagram of the half-Heusler topological semimetal HoPdBi.
Journal of Physics: Condensed Matter **27**(27) (2015), 275701.
60. Paul, A. K., A. Sarapulova, P. Adler, M. Reehuis, S. Kanungo, D. Mikhailova, W. Schnelle, Z. Hu, C. Kuo, V. Siruguri, S. Rayaprol, Y. Soo, B. ***Yan***, C. Felser, L. Hao Tjeng, and M. Jansen.
Magnetically Frustrated Double Perovskites: Synthesis, Structural Properties, and Magnetic Order of Sr2BOsO6 (B= Y, In, Sc).
Zeitschrift für anorganische und allgemeine Chemie **641**(2) (2015), 197–205.
61. Shekhar, C., A. K. Nayak, Y. Sun, M. Schmidt, M. Nicklas, I. Leermakers, U. Zeitler, Y. Skourski, J. Wosnitza, Z. Liu, Y. Chen, W. Schnelle, H. Borrmann, Y. Grin, C. Felser, and B. ***Yan***.
Extremely large magnetoresistance and ultrahigh mobility in the topological Weyl semimetal candidate NbP.
Nature Physics **11** (2015), 645–649.
62. Sun, Y., C. Felser, and B. ***Yan***.
Graphene-like Dirac states and quantum spin Hall insulators in square-octagonal M X 2 (M= Mo, W; X= S, Se, Te) isomers.
Physical Review B **92**(16) (2015), 165421 (5pp).

63. Sun, Y., S.-C. Wu, M. N. Ali, C. Felser, and B. ***Yan***.
Prediction of Weyl semimetal in orthorhombic MoTe 2.
Physical Review B **92**(16) (2015), 161107 (R) (7pp).
64. Sun, Y., S.-C. Wu, and B. ***Yan***.
Topological surface states and Fermi arcs of the noncentrosymmetric Weyl semimetals TaAs, TaP, NbAs, and NbP.
Physical Review B **92**(11) (2015), 115428 (11pp).
65. Wang, Q.-Z., S.-C. Wu, C. Felser, B. ***Yan***, and C.-X. Liu.
Spin texture and mirror Chern number in Hg-based chalcogenides.
Physical Review B **91**(16) (2015), 165435 (9pp).
66. Xiao, J., L. Kou, C.-Y. Yam, T. Frauenheim, and B. ***Yan***.
Toward Rational Design of Catalysts Supported on a Topological Insulator Substrate.
ACS Catalysis **5**(12) (2015), 7063–7067.
67. ***Yan***, B., B. Stadtmüller, N. Haag, S. Jakobs, J. Seidel, D. Jungkenn, S. Mathias, M. Cinchetti, M. Aeschlimann, and C. Felser.
Topological states on the gold surface.
Nature Communications **6** (2015), 10167 (6pp).
68. Yang, L. X., Z. K. Liu, Y. Sun, H. Peng, H. F. Yang, T. Zhang, B. Zhou, Y. Zhang, Y. F. Guo, M. Rahn, D. Prabhakaran, Z. Hussain, S.-K. Mo, C. Felser, B. ***Yan***, and Y. L. Chen.
Weyl semimetal phase in the non-centrosymmetric compound TaAs.
Nature Physics **11**(9) (2015), 728–732.
69. Zhou, L., L. Kou, Y. Sun, C. Felser, F. Hu, G. Shan, S. C. Smith, B. ***Yan***, and T. Frauenheim.
New Family of Quantum Spin Hall Insulators in Two-dimensional Transition-Metal Halide with Large Nontrivial Band Gaps.
Nano Letters **15**(12) (2015), 7867–7872.
70. Arnold, F., C. Shekhar, S.-C. Wu, Y. Sun, R. D. dos Reis, N. Kumar, M. Naumann, M. O. Ajeesh, M. Schmidt, A. G. Grushin, J. H. Bardarson, M. Baenitz, D. Sokolov, H. Borrmann, M. Nicklas, C. Felser, E. Hassinger, and B. ***Yan***.
Negative magnetoresistance without well-defined chirality in the Weyl semimetal TaP.
Nature Communications **7** (2016), 11615 (7pp).
71. Kanungo, S., K. Mogare, B. ***Yan***, M. Reehuis, A. Hoser, C. Felser, and M. Jansen.
Weak orbital ordering of Ir t 2 g states in the double perovskite Sr2CeIrO6.
Physical Review B **93**(24) (2016), 245148 (6pp).
72. Kanungo, S., B. ***Yan***, C. Felser, and M. Jansen.
Active role of nonmagnetic cations in magnetic interactions for double-perovskite S r2BOsO6 (B= Y, In, Sc).
Physical Review B **93**(16) (2016), 161116(R) (6pp).
73. Klotz, J., S.-C. Wu, C. Shekhar, Y. Sun, M. Schmidt, M. Nicklas, M. Baenitz, M. Uhlarz, J. Wosnitza, C. Felser, and B. ***Yan***.
Quantum oscillations and the Fermi surface topology of the Weyl semimetal NbP.
Physical Review B **93**(12) (2016), 121105 (5pp).
74. Kumar, N., C. Shekhar, S.-C. Wu, I. Leermakers, O. Young, U. Zeitler, B. ***Yan***, and C. Felser.
Observation of pseudo-two-dimensional electron transport in the rock salt-type topological semimetal LaBi.
Physical Review B **93**(24) (2016), 241106 (6pp).
75. Liu, Z. K., L. X. Yang, Y. Sun, T. Zhang, H. Peng, H. F. Yang, C. Chen, Y. Zhang, Y. F. Guo, D. Prabhakaran, M. Schmidt, Z. Hussain, S.-K. Mo, C. Felser, B. ***Yan***, and Y. L. Chen.
Evolution of the Fermi surface of Weyl semimetals in the transition metal pnictide family.
Nature Materials **15**(1) (2016), 27–31.
76. Nayak, A. K., J. E. Fischer, Y. Sun, B. ***Yan***, J. Karel, A. C. Komarek, C. Shekhar, N. Kumar, W. Schnelle, J. Ku bler, C. Felser, and S. Parkin.

Large anomalous Hall effect driven by a nonvanishing Berry curvature in the noncollinear antiferromagnet Mn3Ge.
Science Advances **2**(4) (2016), e1501870 (5pp).

77. Qi, Y., P. G. Naumov, M. N. Ali, C. R. Rajamathi, W. Schnelle, O. Barkalov, M. Hanfland, S.-C. Wu, C. Shekhar, Y. Sun, V. Süβ, M. Schmidt, U. Schwarz, E. Pippel, P. Werner, R. Hillebrand, T. Forster, E. Kampert, S. Parkin, R. J. Cava, C. Felser, B. ***Yan***, and S. A. Medvedev.
Superconductivity in Weyl semimetal candidate MoTe2.
Nature Communications **7** (2016), 11038 (7pp).
78. Reis, R. dos, S. Wu, Y. Sun, M. Ajeesh, C. Shekhar, M. Schmidt, C. Felser, B. ***Yan***, and M. Nicklas.
Pressure tuning the Fermi surface topology of the Weyl semimetal NbP.
Physical Review B **93**(20) (2016), 205102 (7pp).
79. Sun, Y., Q.-Z. Wang, S.-C. Wu, C. Felser, C.-X. Liu, and B. ***Yan***.
Pressure-induced topological insulator in NaBaBi with right-handed surface spin texture.
Physical Review B **93**(20) (2016), 205303 (9pp).
80. Zhang, R.-X., J. A. Hutasoit, Y. Sun, B. ***Yan***, C. Xu, and C.-X. Liu.
Topological nematic phase in Dirac semimetals.
Physical Review B **93**(4) (2016), 041108(R) (5pp).

Invited Reviews

1. ***Yan***, B. and S.-C. Zhang.
Topological materials.
Reports on Progress in Physics **75**(9) (2012), 096501(23pp).
2. ***Yan***, B. and A. de Visser.
Half-Heusler topological insulators.
MRS Bulletin **39** (2014), 859–866.
3. Felser, C. and B. ***Yan***.
Topological Materials: From Insulators, Semimetals to Dirac and Weyl Semimetals.
Annual Review of Condensed Matter Physics **8**(1) (2016).

ArXiv Pre-prints

1. Shekhar, C., E. Kampert, T. Foerster, B. ***Yan***, A. K. Nayak, M. Nicklas, and C. Felser.
Large linear magnetoresistance and weak anti-localization in Y (Lu) PtBi topological insulators.
arXiv preprint arXiv:1502.00604 (2015).
2. Arnold, F., M. Naumann, S.-C. Wu, Y. Sun, M. Schmidt, H. Borrmann, C. Felser, B. ***Yan***, and E. Hassinger.
Chiral Quasiparticles at the Fermi Surface of the Weyl Semimetal TaAs.
arXiv preprint arXiv:1603.08846 (2016).
3. Batabyal, R., N. Morali, N. Avraham, Y. Sun, M. Schmidt, C. Felser, A. Stern, B. ***Yan***, and H. Beidenkopf.
Visualizing" Fermi arcs" in the Weyl semimetal TaAs.
arXiv preprint arXiv:1603.00283 (2016).
4. Dong, X.-Y., S. Kanungo, B. ***Yan***, and C.-X. Liu.
Time-reversal-breaking topological phases in anti-ferromagnetic Sr_2FeOsO_6 films.
arXiv preprint arXiv:1606.07343 (2016).
5. Jiang, J., Z. K. Liu, Y. Sun, H. F. Yang, R. Rajamathi, Y. P. Qi, L. X. Yang, C. Chen, H. Peng, C. C. Hwang, S. Z. Sun, S.-K. Mo, I. Vobornik, J. Fujii, S. Parkin, C. Felser, B. ***Yan***, and Y. L. Chen.
Observation of the Type-II Weyl Semimetal Phase in MoTe2.
arXiv preprint arXiv:1604.00139 (2016).
6. Li, G., B. ***Yan***, and K. Held.
Heart and diamond Fermi arcs in Pd and Pt oxide topological Dirac semimetals.
arXiv preprint arXiv:1602.05533 (2016).

7. Liu, Z., L. Yang, S.-C. Wu, C. Shekhar, J. Jiang, H. Yang, Y. Zhang, S.-K. Mo, Z. Hussain, B. ***Yan***, C. Felser, and Y. Chen.
   Observation of Unusual Topological Surface States in Half-Heusler Compounds LnPtBi (Ln= Lu, Y).
   arXiv preprint arXiv:1602.05633 (2016).
8. Nayak, J., S.-C. Wu, N. Kumar, C. Shekhar, S. Singh, J. Fink, E. E. Rienks, G. H. Fecher, S. S. Parkin, B. ***Yan***, and C. Felser.
   Multiple Dirac cones at the surface of the topological metal LaBi.
   arXiv preprint arXiv:1605.06997 (2016).
9. Qi, Y., W. Shi, P. G. Naumov, N. Kumar, W. Schnelle, O. Barkalov, C. Shekhar, H. Borrmann, C. Felser, B. ***Yan***, and S. A. Medvedev.
   Pressure-driven Superconductivity in Transition-metal Pentatelluride HfTe5.
   arXiv preprint arXiv:1602.08616 (2016).
10. Sessi, P., Y. Sun, T. Bathon, F. Glott, Z. Li, H. Chen, L. Guo, X. Chen, M. Schmidt, C. Felser, B. ***Yan***, and M. Bode.
    Visualizing the response of Weyl semimetals to Coulomb and magnetic perturbations.
    arXiv preprint arXiv:1606.00243 (2016).
11. Shekhar, C., A. K. Nayak, S. Singh, N. Kumar, S.-C. Wu, Y. Zhang, A. C. Komarek, E. Kampert, Y. Skourski, J. Wosnitza, W. Schnelle, A. McCollam, U. Zeitler, J. K*ü*bler, S. Parkin, B. ***Yan***, and C. Felser.
    Observation of chiral magneto-transport in RPtBi topological Heusler compounds.
    arXiv preprint arXiv:1604.01641 (2016).
12. Sun, Y., Y. Zhang, C. Felser, and B. ***Yan***.
    Giant intrinsic spin Hall effect in the TaAs family of Weyl semimetals.
    arXiv preprint arXiv:1604.07167 (2016).
13. Zhang, W., W. Han, S.-h. Yang, Y. Sun, Y. Zhang, B. ***Yan***, and S. S. Parkin.
    Facet-dependent giant spin orbit torque in single crystalline antiferromagnetic Ir-Mn/ferromagnetic permalloy bilayers.
    arXiv preprint arXiv:1602.00670 (2016).
14. Zhou, L., W. Shi, Y. Sun, B. Shao, C. Felser, B. ***Yan***, and T. Frauenheim.
    Rectangular Tantalum Carbide Halides TaCX (X= Cl, Br, I) monolayer: Novel Large-Gap Quantum Spin Hall Insulator.
    arXiv preprint arXiv:1602.08783 (2016).