

Qinfang Zhang

School of Materials Science and Engineering, Yancheng Institute of Technology, Jiangsu, China

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Title

Dean, Professor of Materials Physics

Personal Data

Gender: Male
Date of Birth: September 15, 1980
Nationality: Chinese
Marital Status: Married
Health: Excellent

Education

2005 - *Ph.D. in Condensed matter physics*, Nanjing University, China
Supervisor: Prof. Dr. Weiyi Zhang
2002 - *M.S. in Condensed matter physics*, Nanjing University, China

Employment and Professional Experience

11/2017- present **Dean** at School of Materials Science and Engineering,
Yancheng Institute of Technology, China
3/2012- 10/2017 **Professor** at Key Laboratory for Advanced Technology in Environmental
Protection of Jiangsu Province, Yancheng Institute of Technology, China
3/2012- present **Visiting Scientist** at Riken, Japan
3/2017-4/2017 **Visiting Professor** at Institute of Solid State Physics, TU Wien, Austria
9/2015-10/2015 **Visiting Scientist** at International Centre for Theoretical Physics, Italy
12/2012-2/2013 **JSPS Invitation Fellowship Program for Research in Japan (Short term)**
Group of Prof. Dr. Seiji Yunoki, Riken, Japan
7/2009-2/2012 **Special Post-Doc. Researcher** at Computational Condensed Matter Physics
Group of Prof. Dr. Seiji Yunoki, Riken, Japan
7/2005-7/2009 **Post-Doc. Researcher** at Computational Materials Science
Group of Prof. Dr. Paul. J. Kelly, University of Twente, the Netherlands
9/2000-7/2005 **Research Assistant** at National Laboratory of Solid State Microstructures
Group of Prof. Dr. Weiyi Zhang, Nanjing University, China

Honors and Awards

2014	Innovative Research Team in QingLan Project	Jiangsu Province, China
2013	”333” High-Level Talents Award	Jiangsu Province, China
2012	JSPS Invitation fellowship	JSPS, Japan
2012	the ”Six Top Talents program” Award	Jiangsu Province, China
2003	Motorola Award	Physics Department, Nanjing University, China
2003	Outstanding Graduate Award	Nanjing University, China
1999	the Top Student	Ministry of Education, China
1999	Chunan Hu Award	Ministry of Education, China

Research Interests

- Computational materials science; materials design from *Ab-initio*, tight-binding, multiscale materials simulations;
- Interfaces in Oxides, interface-related phenomena and microstructure evolution of materials;
- Strong correlations in atomic cluster;
- Materials physics: energy conversion materials, materials at reduced dimensions.
- Visible-light photocatalysis.

Teaching Experience

- Lectures on **General Physics**, Yancheng Institute of Technology, (2012-).
- Working class on **Solid State Physics**, Faculty of Science and Technology, University of Twente, (2007).
- Lectures on **Probability and Statistics**, the Adult Education College, Nanjing University, (2003).
- Lectures on **Foundation and Application of Computer**, the Adult Education College, Nanjing University, (2002).
- Working class on **General Physics Laboratory**, Department of Physics, Nanjing University, (2001).

Selected Publications: (Partial list)

— More than 60 SCI papers published in Nature Communications, Advanced Materials, Physical Review Letters, Physical Review B, Nano Letters, Applied Physics Letters, etc.

59. Bai, YJ; Zhang, QF*; Luo, GX; Bu YL; Zhu L; Fan, LL; Wang BL, ”GaS_{0.5}Te_{0.5} monolayer as an efficient water splitting photocatalyst”, *PHYSICAL CHEMISTRY CHEMICAL PHYSICS* **19**, 15394 (2017).

58. Zhang, QF; Chen, GH ; Yunoki, S, "Surface ferromagnetism in HfO₂ induced by excess oxygen", *SOLID STATE COMMUNICATIONS* **252**, 33 (2017).
57. Xie, MH; Shao, R; Xi, XG; Hou, GH ; Guan, RF; Dong, PY ; Zhang, QF* ; Yang, XL *, "Metal-Organic Framework Photosensitized TiO₂ Co-catalyst: A Facile Strategy to Achieve a High Efficiency Photocatalytic System", *CHEMISTRY-A EUROPEAN JOURNAL* **23**, 3931 (2017).
56. Bai, YJ; Zhang, QF*; Zheng, FB; Yang, Y; Meng, QQ; Zhu, L; Wang, BL, "First-principles study on codoping effect to enhance photocatalytic activity of anatase TiO₂", *INTERNATIONAL JOURNAL OF MODERN PHYSICS B* **31**, 1750036 (2017).
55. Zhang, WH; Zhang, WC; Chen, B ; Shao, R; Guan, RF ; Zhang, WD ; Zhang, QF ; Hou, GH ; Yue, L,"Controllable biomolecule-assisted synthesis and gas sensing properties of In₂O₃ micro/nanostructures with double phases", *SENSORS AND ACTUATORS B-CHEMICAL* **239**,270 (2017).
54. Yue, L; Tang, JL; Li, F ; Xu, N ; Zhang, F ; Zhang, QF; Guan, RF ; Hong, J ; Zhang, WH , "Enhanced reversible lithium storage in ultrathin W₁₈O₄₉ nanowires entwined Si composite anode", *MATERIALS LETTERS* **187**,118 (2017).
53. Tao, ZT ; Zhang, QF ; Xi, XG ; Hou, GH; Bi, L , "A strategy of tailoring stable electrolyte material for high performance proton-conducting solid oxide fuel cells (SOFCs)", *ELECTRO-CHEMISTRY COMMUNICATIONS* **72**, 19 (2016).
52. Tao, Z ; Hou, G ; Zhang, Q ; Sang, S ; Xing, F ; Wang, B, "Characterization of Ba_{0.5}Sr_{0.5}Co_{0.7}In_{0.1}Fe_{0.2}O_{3-δ} as the Cathode Material for Proton-conducting SOFCs", *FUEL CELLS***16**, 263 (2016).
51. Kazuhiro Seki, Tomonori Shirakawa, Qinfang Zhang, Tao Li, and Seiji Yunoki, "Emergence of massless Dirac quasiparticles in correlated hydrogenated graphene with broken sublattice symmetry", *Phys. Rev. B* **93**, 155419 (2016).
50. Yue, L; Xue, C ; Huang, BB ; Xu, N ; Guan, RF ; Zhang, QF ; Zhang, WH , "High performance hollow carbon@SnO₂@graphene composite based on internal-external double protection strategy for lithium ion battery", *ELECTROCHIMICA ACTA***220**, 222 (2016).
49. Fan, LL ; Chen, YL; Liu, QH; Chen, S; Zhu, L; Meng, QQ ; Wang, BL ; Zhang, QF; Ren, H ; Zou, CW , "Infrared Response and Optoelectronic Memory Device Fabrication Based on Epitaxial VO₂ Film", *ACS APPLIED MATERIALS & INTERFACES* **8**, 32971 (2016).

48. Wenhui Zhang, Lin Wu, Lijuan Du, Lu Yue*, Rongfeng Guan, Qinfang Zhang*, Guihua Hou and Rong Shao, "Layer-by-layer assembly modification to prepare firmly bonded Si-graphene composites for high-performance anodes", *RSC Advances* **6**, 4835 (2016).
47. Wang, YZ; Huang, R; Wang, XQ ; Zhang, QF ; Gao, BL ; Zhou, L ; Hu, G, "STRAIN-TUNABLE ELECTRONIC PROPERTIES OF CrS₂ NANOTUBES", *CHALCOGENIDE LETTERS***13**, 301 (2016).
46. Zetian Tao, Hanping Ding, Xiahui Chen, Guihua Hou, Qinfang Zhang, ManTang, and Wei Gu, The co-doping effect on Sm and In on ceria for electrolyte application in IT-SOFC, *Journal of Alloys and Compounds* **663**,750 (2016).
45. Luo, Gaixia; Zhang, Qinfang*; Wang, Baolin, "Adsorption of CO₂ by 3D Covalent-Organic Framework Materials", *Asian Journal of Chemistry* **27**, 4243 (2015).
44. Seki, Kazuhiro, Shirakawa, Tomonori, Zhang, Qinfang, Li, Tao and Yunoki, Seiji, "Ferromagnetism and single-particle excitations in a periodic Anderson model on the honeycomb lattice", *Journal of Physics: Conference Series*, **603**, 012024 (2015).
43. Wang, Xiaoqiu; Wang, Baoling; Zhang, Qinfang*, "First-Principles Study of Intrinsic Defects on Bulk SrTiO₃", *Asian Journal of Chemistry* **27**, 4232 (2015).
42. Z. Zhong, L. Si, Q. Zhang, W.-G. Yin, S. Yunoki, and K. Held,"Giant Switchable Rashba Effect in Oxide Heterostructures", *Adv. Mater. Interfaces*, **2**, 1400445 (2015).
41. Taishi Chen, Wenqing Liu, Fubao Zheng, Ming Gao, Xingchen Pan, Gerrit van der Laan, Xuefeng Wang*, Qinfang Zhang*, Fengqi Song*, Baigeng Wang , Baolin Wang ,Yongbing Xu , Guanghou Wang , and Rong Zhang, "High-Mobility Sm-Doped Bi₂Se₃ Ferromagnetic Topological Insulators and Robust Exchange Coupling", *Advanced Materials* **33**, 4823 (2015).
40. X. H. Chen, Z. T. Tao, G. H. Hou, N. Xu, and Q. F. Zhang, "La_{0.7}Sr_{0.3}FeO_{3-δ} composite cathode enhanced by Sm_{0.5}Sr_{0.5}CoO_{3-δ} impregnation for proton conducting SOFCs", *Electrochimica Acta*, **165**, 142 (2015).
39. Zhang, W. H.; Yue, L.; Zhang, F.; Zhang Q. F.; Gui, X. C.; Guan, R. F.; Hou, G. H.; and Xu, N, "One-step in situ synthesis of ultrathin tungsten oxide@carbon nanowire webs as an anode material for high performance", *Journal of Materials Chemistry A* **3**, 6102 (2015).

38. Yue, Lu; Zhang, WenHui; Zhang, Weide; Zhang, Qinfang, Guan, Rongfeng, Hou, Guihua and Xu, Ning, "One-step solvothermal process of $\text{In}_2\text{O}_3/\text{C}$ nanosheet composite with double phases as high-performance lithium-ion battery anode", *Electrochimica Acta* **160**, 123 (2015).
37. Hou, Guihua; Xue, Guangzhao; Yue, Lu; Zhang, Qinfang, "Preparation and Activation Mechanism of Rice Husk Based Mesoporous Carbon", *Asian Journal of Chemistry* **27**, 4285 (2015).
36. J.-Y. Yang, C. Terakura, M. Medarde, J. S. White, D. Sheptyakov, X.-Z. Yan, N.-N. Li, W.-G. Yang, H.-L. Xia, J.-H. Dai, Y.-Y. Yin, Y.-Y. Jiao, J.-G. Cheng, Y.-L. Bu, Q.-F. Zhang,* X.-D. Li, C.-Q. Jin, Y. Taguchi, Y. Tokura, and Y.-W. Long*, "Pressure-induced spin reorientation and spin state transition in SrCoO_3 ", *Phys. Rev. B* **92**, 195147 (2015).
35. Hou, Guihua; Ni, Yuanman; Wan, Yali; Cui, Entian; Zhang, Qinfang; Zhu, HuaJun; Chen, Hailin; Chen, Minggong, "Study on Straw Micron Pores Encapsulating Paraffin and Performance of Its Shape-Stabilized Phase Change Materials", *Asian Journal of Chemistry* **27**, 4282 (2015).
34. Pengyu Dong, Yan Hao, Peiyang Gao, Entian Cui, and Qinfang Zhang, "Synthesis and Photocatalytic Activity of Ag_3PO_4 Triangular Prism", *Journal of Nanomaterials* **2015**, 857506(2015).
33. Pengyu Dong, Entian Cui, Guihua Hou, Rongfeng Guan and Qinfang Zhang, "Synthesis and photocatalytic activity of $\text{Ag}_3\text{PO}_4/\text{TiO}_2$ composites with enhanced stability", *Materials letters*, **143**, 20 (2015).
32. Xinguo Xi, Xiahua Chen, Guihua Hou, Ning Xu, Qinfang Zhang and Zetian Tao, "Fabrication and evaluation of $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{CoO}_{3-\delta}$ impregnated $\text{PrBaCo}_2\text{O}_{5+\delta}$ composite cathode for proton conducting SOFCs", *Ceramics International* **40**, 13753 (2014).
31. Xinguo Xi, Pengyu Dong, Huanhuan Pei, Guihua Hou, Qinfang Zhang, Rongfeng Guan, Ning Xu and Yuhua Wang, "Density functional study of X monodoped and codoped (X = C, N, S, F) anatase TiO_2 ", *Computational Materials Science* **93**, 1 (2014).
30. Tao, ZT ; Hou, GH ; Xu, N; Zhang, QF ; Ding, HP, "A mixed proton-oxide ion-electron conducting anode for highly coking-resistant solid oxide fuel cells" ,*ELECTROCHIMICA ACTA* **150**, 55 (2014).
29. Y.Z. Wang, B.L. Wang, Q. F. Zhang*, R. Huang, B.L.Gao, F.J. Kong, and X.Q.Wang, "Tuning structural and electronic properties of MoS_2 nanotubes by transverse electric field", *Chalcogenide Letters* **11**,493 (2014).

28. Ruiyu Jiang, Jiling Zhang, Lei Zhang, Qinfang Zhang*, Guihua Hou and Ning Xu, "Study on structural characteristics and adsorption performance of ultrasonic treated Mn-containing sulfur transfer agent/ultrasonic treated Mn-containing sulfur transfer agent", *Journal of energy chemistry* **23**, 789 (2014).
27. T. C. Asmara, X. Wang, I. Santoso, Q. Zhang, T. Shirakawa, D. Qi, A. Kotlov, M. Motapothula, M. H. Breese, T. Venkatesan, S. Yunoki, M. Rubhausen, Ariando, and A. Rusydi, "Large spectral weight transfer in optical conductivity of SrTiO₃ induced by intrinsic vacancies", *Journal of Applied Physics* **115**, 213706 (2014).
26. Yanzong Wang, Baolin Wang, Rui Huang, Benling Gao, Fanjie Kong and Qinfang Zhang*, "First-principles study of transition-metal atoms adsorption on MoS₂ monolayer", *Physica E* **63**, 276 (2014).
25. Zetian Tao, Guihua Hou, Xiao Zhi, Ning Xu, and Qinfang Zhang, "YBaCo₃ZnO_{7+d}-Sm₂O₃ as the cathode material for proton-conducting SOFCs", *Ceramics International* **40**, 8931 (2014).
24. Zetian Tao, Guihua Hou, Ning Xu and Qinfang Zhang, "A highly coking-resistant solid oxide fuel cell with a nickel doped ceria: Ce_{1-x}Ni_xO_{2-y} reformation layer", *INT J HYDROGEN ENERG* **39**, 5113 (2014).
23. Z.Tao, G.Hou, N.Xu, X. Chen and Q. Zhang, "Pr Doped Barium Cerate as the cathode material for proton-conducting SOFCs", *Fuel Cells* **14**, 135 (2014).
22. Zhicheng Zhong, Qinfang Zhang and Karsten Held, "Quantum confinement in perovskite oxide heterostructures: Tight binding instead of a nearly free electron picture", *Phys. Rev. B*, **88**, 125401 (2013).
21. Junfeng Gao, Junfeng Zhang, Hongsheng Liu, Qinfang Zhang and Jijun Zhao, "Structures, mobilities, electronic and magnetic properties of point defects in silicone", *Nanoscale* **5**, 9785 (2013).
20. A. Annadi, Q. Zhang, X. Wang, N. Tuzla, K. Gopinadhan, W. M. Lv, A. Roy Barman, Z. Q. Liu, A. Srivastava, S. Saha, Y. L. Zhao, S. W. Zeng, S. Dhar, E. Olsson, B. Gu, S. Yunoki, S. Maekawa, H. Hilgenkamp, T. Venkatesan, Ariando, "Anisotropic two dimensional electron gas at the LaAlO₃/SrTiO₃(110) interface," *Nat. Commun.* **4**, 1838 (2013).
19. Yanzong Wang, Baolin Wang, Qinfang Zhang*, Daning Shi, Seiji Yunoki, Fanjie Kong and Ning Xu, "Tunable electronic properties of ZnO nanowires and nanotubes under a transverse

- electric field”, *J. Appl. Phys.* **113**, 034301 (2013).
18. Qinfang Zhang*, Shuai Dong, Baolin Wang, and Seiji Yunoki, ”Strain-engineered magnetic order in $(\text{LaMnO}_3)_n/(\text{SrMnO}_3)_{2n}$ superlattices”, *Phys. Rev. B* **86**, 094403 (2012).
 17. Shuai Dong, Qinfang Zhang, Seiji Yunoki, J. -M. Liu, and Elbio Dagotto, ”Magnetic and orbital order in $(\text{RMnO}_3)_n/(\text{AMnO}_3)_{2n}$ superlattices studied via a double-exchange model with strain”, *Phys. Rev. B* **86**, 205121 (2012).
 16. Y. Wang, B. Wang, Q. Zhang*, J. Zhao, D. Shi, S. Yunoki, F. Kong, and N. Xu, ”Tunable deformation and electronic properties of single-walled ZnO nanotubes under a transverse electric field”, *J. Appl. Phys.* **111**, 073704 (2012).
 15. Yanzong Wang, Baolin Wang and Qinfang Zhang* Daning Shi, Seiji Yunoki, Fanjie Kong, and Ning Xu, ”A simple capacitor model and first-principles study of carbon-doped zigzag ZnO nanoribbons”, *Solid State Commun.* **152**, 534 (2012).
 14. Guohong Chen, Qinfang Zhang*, Seiji Yunoki, and Xingao Gong, “ d^0 ferromagnetic surface in HfO_2 .” *J. Phys.: Conf. Ser.*, **400**, 032008 (2012).
 13. Qinfang Zhang* and Seiji Yunoki, “A first-principles study for electronic and magnetic properties of $\text{LaFeO}_3/\text{LaCrO}_3$ superlattices” *J. Phys.: Conf. Ser.*, **400**, 032126 (2012).
 12. Q. Zhang*, S. Hikino, and S. Yunoki, ”First-principles study of the spin-mixing conductance in $\text{Pt}/\text{Ni}_{81}\text{Fe}_{19}$ junctions”. *Appl. Phys. Lett.* **99**, 172105 (2011).
 11. S. Dong, Q. Zhang, S. Yunoki, J.-M. Liu, and Elbio Dagotto, ”*Ab initio* study of the intrinsic exchange bias at the $\text{SrRuO}_3/\text{SrMnO}_3$ interface”, *Phys. Rev. B* **84**, 224437 (2011).
 10. Y. Zhu, S. Dong, Q. Zhang, S. Yunoki, Y. Wang, and J.-M. Liu, ”Tailoring magnetic order in $(\text{LaFeO}_3)_n-(\text{LaCrO}_3)_n$ superlattices model”, *J. Appl. Phys.* **110**, 053916 (2011).
 9. Guoquan Zhang, Shuai Dong, Zhibo Yan, Yanyan Guo, Qinfang Zhang, Seiji Yunoki, Elbio Dagotto, and J.-M. Liu, ”Multiferroic properties of $\text{CaMn}_7\text{O}_{12}$ ”. *Phys. Rev. B* **84**, 174413 (2011).
 8. Moosa Hatami, Gerrit E. W. Bauer, Qinfang Zhang and Paul J. Kelly, ”Thermoelectric effects in magnetic nanostructures ”, *Phys. Rev. B* **79**, 174426 (2009).

7. Moosa Hatami, Gerrit E. W. Bauer, Qinfang Zhang and Paul J. Kelly, "Thermal Spin-Transfer Torque in Magnetoelectronic Devices", *Phys. Rev. Lett.* **99**, 066603 (2007).
6. Qinfang Zhang*, Weiyi Zhang, and Zhengsheng Jiang, "Theoretical study of the spin and orbital ordered states of $LaBaMn_2O_{5.5}$ ", *Phys. Rev. B* **72**, 144415 (2005).
5. Qinfang Zhang*, Weiyi Zhang, and Zhengsheng Jiang, "Spin and orbital ordering in $La_{2-2x}Sr_{1+2x}Mn_2O_7$ compounds", *Phys. Rev. B* **72**, 142401, (2005).
4. Qinfang Zhang*, Xiaoyun Huang, Weiyi Zhang and An Hu, "Theoretical study on magnetic structures of electron-doped $La_{1-x}Ce_xCoO_3$ compounds", *J. Appl. Phys.* **95**, 6822 (2004).
3. Qinfang Zhang* and Weiyi Zhang, "Magnetic ground state of electron-doped $La_{1-x}Ce_xCoO_3$ compounds", *Phys. Rev. B* **68**, 184403 (2003).
2. Qinfang Zhang* and Weiyi Zhang, "Theoretical study of electron-doped $La_{1-x}Ce_xMnO_3$ compounds", *Phys. Rev. B* **68**, 134449 (2003).
1. Qinfang Zhang* and Weiyi Zhang, "Magnetic ground state of $RBaCo_2O_{5.5}$ (R=Tb, Gd) compounds", *Phys. Rev. B* **67**, 094436 (2003).

Attended Meetings

- The 8th International conference on multi-functional materials and applications 2014 (Hoseo University, Chungnam, Korea), oral presentation .
- 26th International Conference on Low Temperature Physics 2011 (Beijing, China), poster presentation.
- JPS Annual Meeting, 2010 (Osaka, Japan), poster presentation.
- APS March Meeting, March 2010 (Portland, USA), oral presentation.
- Crest Meeting, December 2009 (Wako, Japan), oral presentation.
- Crest Meeting, September 2009 (Sendai, Japan), oral presentation.
- Crest Meeting, July 2009 (Sendai, Japan), oral presentation.
- DynaMax Meeting, April 2009 (Trondheim, Norway), oral presentation.
- Workshop on Spin Caloritronics, February 2009 (Leiden, the Netherlands).
- The FOM Meeting, January 2009, (Veldhoven, the Netherlands) poster presentation.

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- MESA⁺ Annual Meeting, 23 November 2008 (Enschede, the Netherlands), poster presentation.
 - 5th NN-NEM meeting, September 2008, (Eindhoven, the Netherlands).
 - DynaMax Meeting, September 2007, (Leuven, Belgium).
 - DynaMax Meeting, March 2007 (Groningen, the Netherlands), oral presentation.
 - The FOM Meeting, January 2007, (Veldhoven, the Netherlands).
 - Quantum Transport and non-adiabatic electron evolution from first principles approaches, December 2006, (Lyon, France).
 - DynaMax Meeting, September 2006, (Delft, the Netherlands).
 - Electronic Structure Workshop, May 2006, (Nijmegen, the Netherlands).
 - MESA⁺ Annual Meeting, September 2006, (Enschede, the Netherlands).
 - Novel Nanomaterials, Quantum Transport, and Noise of Electrons and Photons, January 2006, (Lancaster University, UK).
 - The FOM Meeting, December 2005, (Veldhoven, the Netherlands).
 - MESA⁺ Annual Meeting, September 2005, (Enschede, the Netherlands).