

Dr. Qiang Zhang

Point of contact and Neutron Scattering Scientist at POWGEN

Neutron Science Division, ORNL

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Total publications: 170; Citations: 5111; H index: 35

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EDUCATION

Ph.D Materials Physics and Chemistry, Institute of Metal Research, Chinese academy of sciences

Aug. 2005-Apr. 2009

Exchange Ph.D student, Magnetic & Superconducting Materials group, Leiden University,
the Netherlands

Oct. 2006---Jan. 2007

M.S. Materials Physics and Chemistry, Institute of Metal Research, Chinese academy of sciences

Aug. 2002-Sep. 2005

B.S. Physics, Qufu Normal University

Sep. 1998-July. 2002

EMPLOYMENT

March. 2019--- Present Point of contact for POWGEN at SNS, ORNL

Aug. 2018--- Present Instrument Scientist for POWGEN at SNS, ORNL

Mar. 2018---Aug. 2018 Assistant Professor in Louisiana State University (remote station in Shull
Wollan Center, ORNL)

Apr. 2015--- Mar. 2018 Research associate 5 in Louisiana Consortium for Neutron Scattering (LaCNS),
Louisiana State University (remote station in the time-of-flight (TOF) group, QCMD, Oak Ridge National
Laboratory)

Sep. 2011--- April. 2015 Postdoctoral research associate, Ames laboratory, U.S. Department of Energy
& Division of Materials Sciences and Engineering, Iowa State University

Mar. 2012---May. 2012 Newton fellow in School of Physics and Astronomy, University of Glasgow

Sep. 2009---Sep. 2011 Marie Curie fellow, Laboratory CRISMAT, CNRS, France

Sep. 2008---Sep. 2009 Research associate in Department of Physics, Pusan National University,
Busan, Republic of Korea

AWARDS

Neutron Science Division “Best Experiment” Award (POWGEN Gas dosing experiments) 2025

Top 10 science achievements in SNS & HFIR (First-authored *JACS*) 2023

Neutron Science Division “Best Paper” Award (First-authored *JACS*) 2022

Top 10 science achievements in SNS & HFIR (Two papers selected: first-authored
PRL and coauthored *Nature Energy*) 2022

Outstanding contribution in reviewing in *Journal of magnetism and magnetic materials* 2017

Newton International Fellowship in Royal Society 2011

Marie Curie Fellow within the Seventh Framework Programme (FP7) of the European Community
2009-2011

Changxu Shi Scholarship in Chinese Academy of Sciences 2008

FUNDING

Mid-Scale funding “Development of the 7 T Vanadium-tail magnet to use on POWGEN and NOMAD” (awarded 65,000 \$)	2020-2022
Laboratory Directed Research and Development (Project No. 9533, Investigator and main proposal preparer) (awarded 707,000 \$), “Accelerating Discovery, Synthesis, and Control of Magnetic Weyl Semimetals”	2018-2020
Newton International Fellowship in Royal Society (awarded 101,000 £/2 years, success ratio ~ 5.6%)	2011

REVIEWS FOR PROPOSALS AND PAPERS

External reviewer for grant proposals submitted to *Swiss National Science foundation*
Invited reviewer for *Weinberg Fellowship proposal for NSF program*
Invited reviewer for *Laboratory Directed Research and Development proposals* in MSTD and CNMS
Invited reviewer for *Physical Review letters, npj 2D Materials and Applications, Chemistry of materials, ACS Materials Letters, Applied physics letters, Physical Review B, Physical Review Materials, The Journal of Physical Chemistry Letters, ACS Applied Materials & Interfaces, Inorganic Chemistry, EPL, Journal of applied physics, Journal of physics: Condensed Matter, Philosophical magazine letters, Intermetallics, Journal of physics D: applied physics, Thin solid films, Journal of alloys and compounds, Applied Physics A: Materials Science & Processing, Journal of Magnetism and Magnetic Materials, Journal of Applied crystallography, The Journal of Physical Chemistry C*, etc

EDITORIAL ROLE, WORKSHOP ORGANIZATION AND OUTREACH

Associate editor in *Frontier In Physics* (2023-now)
Associate editor in *Crystals* (2022-now)
Co-organizer for workshop on “Neutrons and Complementary Techniques for Quantum Materials”, in 2020, 2022 and 2024
Co-organizer for “Magnetic structure determination from Neutron Diffraction Data with GSAS-II” workshop at ORNL on June 5th, 2023
Lead organizer for the workshop “Getting the most from your POWGEN data” in 2023
Organizing Committee member for Focus Topic “Spin-Dependent Phenomena in Semiconductors including 2D Materials and Topological Systems” in APS march meeting in 2023
Invited lecturer for 2021 School on Representational Analysis and Magnetic Structures (RAMS).
Invited lecturer of the Rietveld analysis on TOF neutron data using GSAS-II on the attendees for “National School on Neutron and X-ray Scattering” in 2019, 2021, and 2023
Invited tutorials on the Magnetic Structure Determination from Neutron Diffraction Data (MagStr) workshop in 2022 and 2024
Head judge for MiTeGen-Society of Physics Students Undergraduate Poster award at ACA2021.
Member of American Crystallographic Association, American Physical Society, Neutron Scattering Society of America, Materials Research Society, SNS/HFIR Users' Group
Member of the Low temperature and High Magnetic Field Steering Committee in the Neutron Scattering Division, ORNL
Member of the Quantum Materials Science Initiative, ORNL

INVITED/CONTRIBUTED TALKS

(Invited keynote speaker) **June 17-19, 2024, Chemistry 2024, Paris, France.** “Correlation between crystal structure, magnetic order and topological states in Co₃Sn₂S₂”

(Invited) April 18, 2024, Materials Physics Research Institute Seminar Series, University of the Witwatersrand, “Interplay between crystal structure, magnetic order and topological Weyl states in $\text{Co}_3\text{Sn}_2\text{S}_2$ ”

(Invited) June 10-13, 2024, 5th International conference on Materials Science & Engineering, San Francisco, CA, “Interplay between crystal structure, magnetic order and topological Weyl states in a Kagome magnet”

March 3rd-8th, APS March meeting in 2024, Minneapolis, “Symmetry breaking and magnetic structural transformations in hexagonal Mn_3Ga ”

(Invited) June 5th, 2023 “GSAS-II refinement of commensurate magnetic structure from TOF data” for Magnetic structure determination from Neutron Diffraction Data with GSAS-II” workshop at ORNL

(Invited) March 6-10th, APS March meeting in 2023, Las Vegas, “Interplay between local symmetry breaking, magnetic order and Weyl states in $\text{Co}_3\text{Sn}_2\text{S}_2$ ”

(Invited) October 3-7, 2022, “FullProf refinement of commensurate magnetic structure from TOF data” & “GSAS-II refinement of commensurate magnetic structure from TOF data” for Magnetic Structure Determination from Neutron Diffraction Data (MagStr) workshop,

July 30-Aug 3rd, 2022, ACA2022, Portland, Oregon “Correlation between local symmetry breaking, magnetism and Weyl properties in $\text{Co}_3\text{Sn}_2\text{S}_2$ ”

March 14-18, 2022, APS March meeting in 2022, Chicago “Magnetic order, unusual exchange couplings and intermediate temperature electronic band structures in $\text{Co}_3\text{Sn}_2\text{S}_2$ ”

(Invited) Nov. 8-13, 2021, Representational Analysis and Magnetic Structure School in 2021, “FullProf refinement of commensurate structure from TOF data”

July 30- Aug. 5, 2021, 71st Annual Meeting of the 2021 American Crystallographic Association, “Structural, magnetic ordering process and the magnetic excitations in spinel FeMn_2O_4 ”

July 13-16, 2020, Virtual American Conference on Neutron Scattering, “Quasi-Two-Dimensional Magnetism and Unusual Intermediate Spin State of Tetrahedral Co^{4+} in Ba_2CoO_4 ”

(Invited) Jan. 23-25, 2019 Conference on Electronic Materials and Applications, “Quasi-two-dimensional magnetism and unusual intermediate spin state in Cobaltite involving isolated CoO_4 tetrahedra”

March 4-8, 2019, APS March Meeting, Boston, Massachusetts, “Magnetoelastic coupling, phonon and magnons in inverse spinel NiFe_2O_4 ”

(Invited) July 23-25, 2018, Global Conference on Magnetism and Magnetic Materials, Osaka, Japan, “Low dimensional magnetism in cobaltite Ba_2CoO_4 involving isolated CoO_4 tetrahedra”

(Invited) Oct. 12, 2017, Louisiana State University, Baton Rouge, Louisiana, “Unveiling the Properties of Condensed Matter with Neutrons”

March 5-9, 2018, APS March meeting, LA, California, USA. “Magnetic structure and spin-wave dispersion in spinel FeMn_2O_4 ”

Aug. 1-3, 2017, Joint Nanoscience and Neutron Scattering User Meeting in ORNL, “Realization of the low-dimensional magnetism in non-layered cobaltite”

March 13-17, 2017, APS March meeting, New Orleans, LA, USA, “Magnetic structure and anisotropic spin dynamics in Ba_2CoO_4 ”

July 10-14, 2016, American Conference on Neutron Scattering, Long Beach, CA, USA. “Anisotropic In-Plane Magnetic Correlation Length and Structure-Magnetism Correlation in Bilayered Perovskite $\text{Sr}_3(\text{Ru}_{1-x}\text{Mn}_x)_2\text{O}_7$ ”

March 14-19, 2016, APS March meeting, Baltimore, MD, USA. “Magnetic structure and its role in the possible Weyl state in topological semimetal $\text{Sr}_{1-y}\text{Mn}_{1-z}\text{Sb}_2$ ($0 < y, z < 0.1$)”

March 14-19, 2015, APS March meeting, San Antonio, Texas, USA. “Sharp enhancement of spin fluctuations by nematic order in iron pnictides”

(Invited) Jan. 26, 2015, Louisiana Consortium for Neutron Scattering (LaCNS) in Louisiana State University, Baton Rouge, Louisiana, “Magnetism and its coupling to structure and superconductivity in iron pnictides”

March 3-7, 2014 APS March meeting, Denver, Colorado, USA. “Effect of nematic order on the spin fluctuation spectrum of LaFeAsO ”

March 18-22, 2013 APS March meeting, Baltimore, MD, USA. “Coupled orthorhombic distortion, antiferromagnetism, and superconductivity in a single twin domain of $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ ($x=0.047$)

Feb. 27 – Mar. 2, 2012 APS March meeting, Boston, USA. “Cerium-Iron Magnetic Coupling in Single Crystal CeFeAsO at Low Temperatures

(Invited) April 6-8, 2011 European Marie Curie project “SOPRANO” meeting in Timisoara, Romania.

“Magnetocaloric effect and enhanced refrigeration capacity in a series of $(\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3/\text{SrRuO}_3)$ superlattices

Feb.27-March 3, 2011 TMS Annual Meeting & Exhibition, San Diego, California, USA.

“Magnetocaloric effect and enhanced refrigeration efficiency in $(\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3/\text{SrRuO}_3)$ superlattices”

(Invited) Sept. 15-17, 2010 European Marie Curie project “SOPRANO” mid-term Meeting within FP7 in Bordeaux, France. “Magnetic properties and magnetocaloric effect in various oxides”.

PUBLICATION SUMMARY

170 peer-reviewed journal articles in total: *Nature Materials* (2), *Nature energy* (1), *Science Advance* (1), *Physical Review Letters* (3), *Nature Communications* (7), *Journal of the American Chemical Society* (7), *Energy & Environmental Science* (1), *Advanced Materials* (1), *NPG: Asia Materials* (1), *Advanced science*(1), *ACS energy letters* (2), etc. Citations ~ 5111 and an h-index of 35 based on Google scholar as of Feb 20th, 2025. All of my publications can be found in my google citations: <https://scholar.google.com/citations?user=Hj33eQgAAAAJ&hl=en> or my ORCID: <http://orcid.org/0000-0003-0389-7039>. Here is the bar chart of citation result from google scholar and the list of my publications.

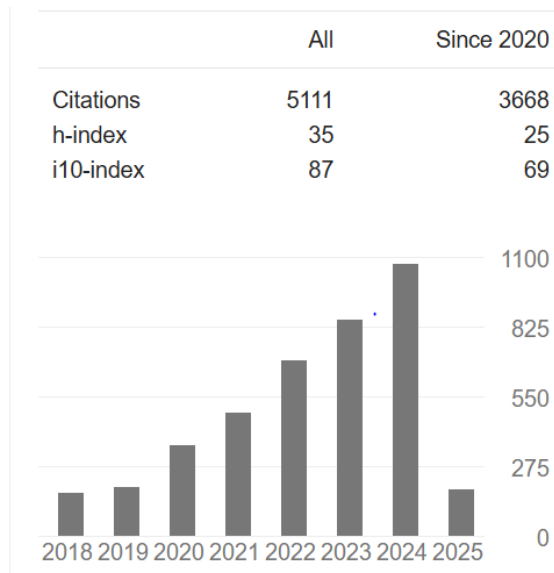


Qiang Zhang

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Neutron scattering magnetism



2025:

1. Chandan De, Yu Liu, Sai Venkata Gayathri Ayyagari, Boyang Zheng, Kyle P Kelley, Sankalpa Hazra, Jingyang He, Sylwia Pawledzio, Subin Mali, Samareh Guchait, Suguru Yoshida, Yingdong Guan, Seng Huat Lee, Milos Sretenovic, Xianglin Ke, Le Wang, Mark H Engelhard, Yingge Du, Weiwei Xie, Xiaoping Wang, Vincent H Crespi, Nasim Alem, Venkatraman Gopalan*, **Qiang Zhang***, Zhiqiang Mao*, *Science Advances*, 11, eadp9379, (2025).
2. Alon Hendler Avidor, Brenden R. Ortiz, Paul M. Sarte, **Qiang Zhang**, and Stephen D. Wilson, “Impurity-induced moment freezing in $\text{NaFe}_x\text{Ru}_{1-x}\text{O}_2$ ”, *Phys. Rev. Materials* 9, 024404, (2025).

2024

1. Tsung-Han Yang, Shang Gao, Yuanpeng Zhang, Daniel Olds, William R. Meier, Matthew B. Stone, Brian C. Sales, Andrew D. Christianson*, and **Qiang Zhang***, “Simultaneous development of antiferromagnetism and local symmetry breaking in a kagome magnet ($\text{Co}_{0.45}\text{Fe}_{0.55}\text{Sn}$)”, *Journal of the American Chemical Society*, 146, 34374, (2024)
2. Lujin Min, John P. Barber, Yu Wang, Sai Venkata Gayathri Ayyagari, Gabriela E. Niculescu, Evan Krysko, Gerald R. Bejger, Leixin Miao, Seng Huat Lee, **Qiang Zhang**, Nasim Alem, Christina M. Rost, Zhiqiang Mao, “High Entropy Protected Sharp Magnetic Transitions in Highly Disordered Spinel Ferrites”, *Journal of the American Chemical Society*, 146, 24320, (2024)
3. **Qiang Zhang**, Yingdong Guan, Yongqiang Cheng, Lujin Min, Jong K Keum, Zhiqiang Mao, Matthew B Stone, “Structure and lattice excitations of the copper substituted lead oxyapatite $\text{Pb}_{9.06(7)}\text{Cu}_{0.94(6)}(\text{PO}_{3.92(4)})_6\text{O}_{0.96(3)}$ ”, *Phys. Rev. Materials* (*Editor's suggestions*), 8, 014605 (2024).
4. Hengheng Wu, Lei Zhang, **Qiang Zhang***, Fei Gao, Meng An, Bing Li, Weijun Ren*, Zhidong Zhang, “Transition from an incommensurate spin density wave to a commensurate magnetic order in a triangular lattice compound $\text{Ho}_2\text{PdAl}_6\text{Ge}_4$ ”, *Journal of Alloys and Compounds*, (2024).
5. Fei Gao, Weijun Ren, Chin-Wei Wang, S Yano, Stuart Calder, **Qiang Zhang**, Hengheng Wu, Meng An, Yanpei Jing, Bing Li, Zhidong Zhang, “High-order harmonics and the reverse of the squaring up process in the triangular-lattice magnet $\text{HoPdAl}_4\text{Ge}_2$ ”, *Phys. Rev. B* (*Editor's suggestions*), 109, 13, 134407, (2024).
6. John A Schneeloch, Shunshun Liu, Prasanna V Balachandran, **Qiang Zhang**, Despina Louca, “Helimagnetism in the candidate ferroelectric CrI_2 ”, *Phys. Rev. B* (*Editor's suggestions*), 109, 144403 (2024)
7. Simon XM Riberolles, Tianxiong Han, Tyler J Slade, JM Wilde, A Sapkota, Wei Tian, **Qiang Zhang**, DL Abernathy, LD Sanjeeva, SL Bud'ko, PC Canfield, RJ McQueeney, BG Ueland, “New insight into tuning magnetic phases of RMn_6Sn_6 kagome metals”, *npg: Quantum Materials* (2024).
8. Henrik Thoma, Rajesh Dutta, Vladimir Hutanu, Veronica Granata, Rosalba Fittipaldi, **Qiang Zhang**, Jeffrey W. Lynn, Petr ˇCerm´ak, Nazir Khan, Shibabrata Nandi, and Manuel Angst, “Novel multiferroic quantum material $\text{Ba}_2\text{Cu}_{1-x}\text{Mn}_x\text{Ge}_2\text{O}_7$ ($0 \leq x \leq 1$) as potential candidate for frustrated Heisenberg antiferromagnet”, *npj Quantum Materials*, 9, 58 (2024).
9. Lawrence O. Anderson, **Qiang Zhang**, and Nicola H. Perry, “Tuning Perovskites’ Hydration-Induced Chemical Expansion with Octahedral Tilt Angles”, *Chemistry of Materials*, 36, 5953 (2024)
10. Ian Campbell, Vasile Ovidiu Garlea, **Qiang Zhang**, Yuwaraj Adhikari, Peng Xiong, Nathan J Yutronkie, Andrei Rogalev, Michael Shatruk, “Antiferromagnetic Ordering in Quasi-One-Dimensional FeBi_4S_7 ”, *Chemistry of Materials*, 36 (7), 3147, (2024).
11. Zhenhai Yu, Kaijuan Zhou, Xiaofei Hou, Xuejiao Chen, Zhen Tao, Yunguan Ye, Wei Xia, Zhongyang Li, Jinggeng Zhao, Wei Wu, Ziyi Liu, Xia Wang, Na Yu, Jinguang Cheng, Jian-Lin Luo, **Qiang Zhang**, Vladimir Pomjakushin, Zhicheng Zhong, Shihao Zhang, Jian-Rui Soh, Xingye Lu, Yanfeng Guo, “Noncentrosymmetric Nowotny Chimney Ladder Ferromagnet Cr_4Ge_7 with a High Curie Temperature of ~ 207 K”, *Chemistry of Materials*, 36, 7656, (2024)
12. Joseph AM Paddison, Juba Bouaziz, Andrew F May, **Qiang Zhang**, Stuart Calder, Douglas Abernathy, Julie B Staunton, Stefan Blügel, Andrew D Christianson, “Spin Dynamics of the Centrosymmetric Skyrmion Material GdRu_2Si_2 ”, *Cell Reports Physical Science*, 5, 102280, (2024).
13. Yubo Wang, J. David Bazak, Laidong Zhou, **Qiang Zhang**, Baltej Singh, and Linda F. Nazar, “Liquid-like solid-state diffusion of lithium ions in super-halide-rich argyrodite”, *Cell Reports Physical Science*, 5, 1023142024.
14. Evans H.A., Yildirim T., Peng P., Cheng Y.Q., Deng Z., **Zhang Q.**, Mullangi D., Zhao D., Canepa P., Breunig H.M., Cheetham A.K., Brown C.M., “ALF”, *Neutron News*, <https://www.tandfonline.com/doi/full/10.1080/10448632.2024.2331390>, (2024).
15. Sanat Kumar Adhikari, Riya Roy, Mohamad Numan, Ashok Das, Rosni Roy, Sambhu Charan Das, Jhuma Sannigrahi, Sabyasachi Pramanick, Kalyanashis De, **Qiang Zhang**, Sergiu Levchenko, Edmund Welter, Sudipta Bandyopadhyay, Rajib Mondal, and Souvik Chatterjee, “Effect of Cr-doping on the magnetic structures of Mn_5Si_3 Antiferromagnetic alloy”, *Physical Review Materials*, 8, 064405, (2024).

16. B Yu, L Huang, JS Li, L Lin, V Ovidiu Garlea, **Q Zhang**, T Zou, JC Zhang, J Peng, YS Tang, GZ Zhou, JH Zhang, SH Zheng, MF Liu, ZB Yan, XH Zhou, S Dong, JG Wan, J-M Liu, “Magnetic structure and magnetoelectric coupling in the antiferromagnet $\text{Co}_5(\text{TeO}_3)_4\text{Cl}_2$ ”, *Physical Review B.*, 109, 184106 (2024).
17. Han Ge, Tiantian Li, S. E. Nikitin, Nan Zhao, Fangli Li, Huanpeng Bu, Jiayue Yuan, Jian Chen, Ying Fu, Jiong Yang, Le Wang, Ping Miao, **Qiang Zhang**, In'es Puente-Orench, Andrey Podlesnyak, Jieming Sheng, and Liusuo Wu, “Magnetic structure and Ising-like antiferromagnetism in the bilayer triangular lattice of NdZnPO ”, *Physical Review B.* 10, 054443, (2024).
18. Yuanpeng Zhang, Zhiling Dun, Yunqi Cai, Chengkun Xing, Qi Cui, Naveen Kumar Chogondahalli Muniraju, **Qiang Zhang**, Yongqing Li, Jinguang Cheng, and Haidong Zhou, “Local distortion driven magnetic phase switching in pyrochlore $\text{Yb}_2(\text{Ti}_{1-x}\text{Sn}_x)_2\text{O}_7$ ”, *Physical Review B*, 109, 144407, (2024).
19. Yimeng Gu, Zeyu Kao, Yiqing Hao, Weiqin Zhu, **Qiang Zhang**, Yan Wu, Changsong Xu, Huibo Cao, Jun Zhao, “Noncoplanar magnetic order in the breathing kagome lattice compound $\text{Pb}(\text{OF})\text{Cu}_3(\text{SeO}_3)_2(\text{NO}_3)$ ”, *Physical Review B*, 109, 144407, (2024).
20. Nathan D Arndt, Brianna L Musicó, Kausturi Parui, Keon Sahebkar, **Qiang Zhang**, Alessandro R Mazza, Megan M Butala, Veerle Keppens, T Zac Ward, Ryan F Need, “Magnetic structure and properties of the compositionally complex perovskite $(\text{Y}_{0.2}\text{La}_{0.2}\text{Pr}_{0.2}\text{Nd}_{0.2}\text{Tb}_{0.2})\text{MnO}_3$ ”, *Journal of Materials Chemistry C*, 12, 13474, (2024).
21. Matt Boswell, **Qiang Zhang**, Xianglin Ke, Weiwei Xie, “Triangular Lattice of Ho^{3+} with $S_{\text{eff}} = \frac{1}{2}$ in Antiferromagnetic KHoSe_2 ”, *ACS Applied Electronic Materials*, 6, 3827, (2024).
22. Jing-Han Chen, Tej Poudel Chhetri, Anthony T Grant, Xiaojian Bai, **Qiang Zhang**, Chung-Kai Chang, David P Young, Igor Dubenko, Saikat Talapatra, Naushad Ali, Shane Stadler, “Controlling phase transitions in MnNiGe using thermal quenching and hydrostatic pressure”, *Journal of Physics D: Applied Physics*, **57**, 205003 (2024).
23. Yinghua Liang, Tingting Qi, Baochao Zhang, **Qiang Zhang**, Jihoon Park, Qiong Wu, Chul-Jin Choi, Hongliang Ge, Pingzhan Si, “Structure and tunable temperature coefficient of magnetization of $\text{Mn}_{4-x}\text{Ga}_x\text{C}$ alloys prepared by induction melting method”, *Materials Research Express*, 11 (10), 106101, (2024).

2023

1. X Xu, Y Hao, S Peng, **Q Zhang**, D Ni, C Yang, X Dai, H Cao, RJ Cava, “Large off-diagonal magnetoelectricity in a triangular Co^{2+} -based collinear antiferromagnet”, *Nature Communications*, 14, 8034 (2023).
2. Meng Xu, Qiang Li, Yuzhu Song, Yuanji Xu, Andrea Sanson, Naike Shi, Na Wang, Qiang Sun, Changtian Wang, Xin Chen, Yongqiang Qiao, Feixiang Long, Hui Liu, **Qiang Zhang**, Alessandro Venier, Yang Ren, Francesco d’Acapito, Luca Olivi, Danilo Oliveira De Souza, Xianran Xing, Jun Chen, “Giant uniaxial negative thermal expansion in FeZr_2 alloy over a wide temperature range”, *Nature Communications*, 14, 4439 (2023).
3. **Q Zhang***, W Tian, RK Nepal, A Huq, S Nagler, JF DiTusa, R Jin*, “Polyhedral distortions and unusual magnetic order in spinel FeMn_2O_4 ”, *Chemistry of Materials*, **35**, 6, 2330–2341, (2023).
4. Y Huang, **Q Zhang**, YC Li, Y Yao, Y Hu, S Ren, “Chemical Tuning Meets 2D Molecular Magnets”, *Advanced Materials* **35** (5), 2208919, (2023).
5. Hayden Evans, Taner Yildirim, Peng Peng, Yongqiang Cheng, Zeyu Deng, **Qiang Zhang**, Dinesh Mullangi, Dan Zhao, Piero Canepa, Hanna Bruenig, Anthony Cheetham, Craig Brown, “Hydrogen Storage with Aluminum Formate, ALF: Experimental, Computational and Technoeconomic Studies”, *Journal of the American Chemical Society*, 145, 22150 (2023). ([Gas dosing experiment, contributing to 2025 Neutron Science Division “Best Experiment” Award](#)).
6. Laidong Zhou, Tongtong Zuo, Chang Li, **Qiang Zhang**, Jürgen Janek, Linda F Nazar, “ $\text{Li}_{3-x}\text{Zr}_x(\text{Ho/Lu})_{1-x}\text{Cl}_6$ Solid Electrolytes Enable Ultrahigh-Loading Solid-State Batteries with a Prelithiated Si Anode”, *ACS Energy Letters* 8, 3102 (2023).

7. C Macchiutti, JR Jesus, FB Carneiro, L Bufaical, RA Klein, **Q Zhang**, M Kirkham, CM Brown, RD dos Reis, EM Bittar, “Tuning the spontaneous exchange bias effect in $\text{La}_{1.5}\text{Sr}_{0.5}\text{CoMnO}_6$ with sintering temperature”, *Phys. Rev. Materials* 8, 044408 (2023)
8. Igor M Gussev, Eric C O'Quinn, Matthew Tucker, Rodney C Ewing, Cale Overstreet, Jörg Neuefeind, Michelle Everett, **Qiang Zhang**, David Sprouster, Daniel Olds, Gianguido Baldinozzi, Maik Lang, “Systematic study of short-and long-range correlations in RE_3TaO_7 weberite-type compounds by neutron total scattering and X-ray diffraction”, *Journal of Materials Chemistry A*, (2023).
9. Hector Cein Mandujano, Alejandro Metta, Neven Barišić, **Qiang Zhang**, Wojciech Tabiś, Naveen Kumar Chogondahalli Muniraju, Harikrishnan S Nair, “Sawtooth lattice multiferroic BeCr_2O_4 : Noncollinear magnetic structure and multiple magnetic transitions”, *Physical Review Materials*, 7, 024422, (2023).
10. Mengru Cong, Han Ge, Lei Zhang, Weijun Ren, Nan Zhao, Tiantian Li, Shanmin Wang, Jinlong Zhu, Jiawei Mei, **Qiang Zhang**, Jieming Sheng, Fei Gao, Bing Li, Zhidong Zhang, Liusuo Wu, “Magnetic phase diagram and multiple field-induced states in the intermetallic triangular-lattice antiferromagnet $\text{NdAuAl}_4\text{Ge}_2$ with Ising-like spins”, *Physical Review Materials*, 7, 024423, (2023).
11. Shivani Sharma, Masoud Mardani, Keke Feng, Kaya Wei, Ryan Baumbach, **Qiang Zhang**, David J Singh, Theo Siegrist, “Crystal growth and magnetic structure of ternary silicide EuPd_3Si_2 ”, *Physical Review Materials*, 7, 023402, (2023).
12. Kun Lin, Wenbing Zhang, Chengyi Yu, Qiang Sun, Yili Cao, Wenjie Li, Suihe Jiang, Qiang Li, **Qiang Zhang**, Ke An, Yan Chen, Dunji Yu, Jue Liu, Kenichi Kato, Qinghua Zhang, Lin Gu, Xiaojun Kuang, Yu Tang, Jun Miao, Xianran Xing, “Chemical Heterogeneity Modulated Zero Thermal Expansion Alloy Over Super-Wide Temperature Range”, *Cell Reports Physical Science* (2023).
13. Xuyu Dong, Kun Lin, Chengyi Yu, Wenbin Zhang, Wenjie Li, Qian Zhang, **Qiang Zhang**, Jue Liu, Yili Cao, Xianran Xing, “Zero thermal expansion in non-stoichiometric and single-phase (Hf, Nb) $\text{Fe}_{2.5}$ alloy”, *Scripta Materialia*, **229**, 115388 (2023).
14. C Dhital, RL Dally, R Ruvalcaba, R Gonzalez-Hernandez, J Guerrero-Sanchez, HB Cao, **Q Zhang**, W Tian, Y Wu, MD Frontzek, SK Karna, A Meads, B Wilson, R Chapai, D Graf, J Bacsá, R Jin, JF DiTusa, “Multi-k magnetic structure and large anomalous Hall effect in candidate magnetic Weyl semimetal NdAlGe ”, *Physical Review B*, **107**, 224414 (2023).
15. Ao Zhang, Ke Deng, Jieming Sheng, Pengfei Liu, Shiv Kumar, Kenya Shimada, Zhicheng Jiang, Zhengtai Liu, Dawei Shen, Jiayu Li, Jun Ren, Le Wang, Liang Zhou, Yoshihisa Ishikawa, Takashi Ohhara, **Qiang Zhang**, Garry McIntyre, Dehong Yu, Enke Liu, Liusuo Wu, Chaoyu Chen, Qihang Liu, “Chiral Dirac fermion in a collinear antiferromagnet”, *Chinese Physics Letters* 40, 126101 (2023)
16. Kelly M Powderly, Qiang Zhang, Kasey P Devlin, Xin Gui, Danrui Ni, Weiwei Xie, RJ Cava, “Quasi-one-dimensional : A realization of the Heisenberg antiferromagnetic spin-1/2 chain”, *Physical Review Materials*, 7, 114408 (2023).
17. Binod K Rai, Boris Maiorov, Krzysztof Gofryk, Patrick O'Rourke, Catherine Housley, Henry Ajo, Asraf Sawon, Arjun Pathak, Narayan Poudel, **Qiang Zhang**, Travis J Williams, Matthias Frontzek, “Structure and properties of NdCuGa_3 single crystals”, *Journal of Magnetism and Magnetic Materials*, 589, 171515 (2023).
18. Evan Krysko, Lujin Min, Yu Wang, Na Zhang, John P Barber, Gabriela E Niculescu, Joshua T Wright, Fankang Li, Kaleb Burrage, Masaaki Matsuda, Robert A Robinson, **Qiang Zhang**, Rowan Katzbaer, Raymond Schaak, Mauricio Terrones, Christina M Rost, Zhiqiang Mao, “Studies on the structure and the magnetic properties of high-entropy spinel oxide $(\text{MgMnFeCoNi})\text{Al}_2\text{O}_4$ ”, *APL Mater.*, 11, 101123 (2023).
19. Tyler J Slade, Aashish Sapkota, John M Wilde, **Qiang Zhang**, Lin-Lin Wang, Saul H Lapidus, Juan Schmidt, Thomas Heitmann, Sergey L Budko, Paul C Canfield, “Vacancy-tuned magnetism in LaMn_xSb_2 ”, *Physical Review Materials*, 7, 114204, (2023).
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