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Professional Preparation

Univ. Science and Technology of China 1999	Hefei, China	Materials Science	B.S.
Univ. Science and Technology of China 2002	Hefei, China	Materials Science	M.S.
Univ. of Texas at Austin 2005	Austin, TX	Physics	Ph.D.

Appointments

Aug 2018 – Present Associate Professor, Department of Physics and Astronomy, The University of Tennessee, Knoxville, TN
Aug 2012 – Jul 2018 Assistant Professor, Department of Physics and Astronomy, The University of Tennessee, Knoxville, TN
Summer, 2013-2016 Visiting Scientist, National High Magnetic Field Laboratory, Tallahassee, FL
Sep 2008 – Aug 2012 Assistant Scholar/Scientist, National High Magnetic Field Laboratory, Tallahassee, FL
Mar 2006 – Aug 2008 Postdoctoral, National High Magnetic Field Laboratory, Tallahassee, FL

Awards

NSF faculty early career development award, DMR-1350002 “Emergent quantum spin-liquid in Yb-pyrochlores and Yb-spinels” [Aug. 2014 -]

Excellence in Research/Creative Achievement Award, Mid-Career Faculty, College of Arts and Science/University of Tennessee, 2017

Graduate and Postdoctoral Advisors

Graduate Advisor: John B. Goodenough, University of Texas at Austin

Postdoctoral Advisors: Chris Wiebe, National High Magnetic Field Lab/ Florida State University

Graduated Ph.D student:

Zhiling Dun, Ryan Sinclair, Ryan Rawl

Present Ph.D student:

Qiang Chen, Qing Huang

Research

My main research interests are to discovery new materials possessing abnormal physical properties, such as geometrically frustrated magnetism showing quantum spin behaviors,

multiferroicity, orbital ordering, and metal-insulator transitions. The strategies are to grow single crystals of them, and study them by x-ray scattering, low temperature and high magnetic field measurements, and neutron scattering. We expect our studies will advance the understanding of strongly correlated systems and quantum matters.

Publications

Total 224 publications, 3500 citations, h-index 31
(Web of Science, ResearcherID: O-4373-2016).

- 1) “Enhancement of thermal conductivity across the metal-insulator transition in vanadium dioxide”, L. Chen, Z. Xiang, C. Tinsman, T. Asaba, Q. Huang, H. D. Zhou, and L Li, *Applied Physics Letters* *accepted* (2018).
- 2) “Real-space magnetic imaging of the multiferroic spinels MnV_2O_4 and Mn_3O_4 ”, B. Wolin, X. Wang, T. Naibert, S. L. Gleason, G. J. MacDougall, H. D. Zhou, S. L. Cooper, and R. Budakian, *Physical Review Materials* **2**, 064407 (2018).
- 3) “Hierarchy of exchange interactions in the triangular lattice spin liquid $YbMgGaO_4$ ”, X. Zhang, F. Mahmood, M. Daum, Z. L. Dun, Joseph A. M. Paddison, Nicholas J. Laaurita, T. Hong, H. D. Zhou, N. P. Armitage, and M. Mourigal, *Physical Review X* **8**, 031001 (2018).
- 4) “The nature of spin excitations in a the one-third magnetization plateau pahse of $Ba_3CoSb_2O_9$ ”, Y. Kamiya, L. Ge, T. Hong, Y. Qiu, D. L. Quintero-Castro, Z. Lu, H. B. Cao, M. Matsuda, E. S. Choi, C. D. Batista, M. Morigal, H. D. Zhou, and J. Ma, *Nature Communications* **9**, 2666 (2018).
- 5) “Determination of thermal expansion of $KCaI_3$ using in situ high temperature powder x-ray diffraction”, Adam C. Lindsey, Matthew Loyd, Maulik K. Patel, R. Rawl, H. D. Zhou, M. Koschan, Charles L. Melcher, and M. Zhuravleva, *Materials Chemistry and Physics*, **212**, 161 (2018).
- 6) “Absence of local fluctuating dimers in superconducting $Ir_{1-x}(Pt,Rh)_xTe_2$ ”, R. Yu, S. Banerjee, H. C. Lei, R. Sinclair, M. Abeykoon, H. D. Zhou, C. Petrovic, Z. Guguchia, and E. S. Bozin, *Physical Review B* **97**, 174515 (2018).
- 7) “Naturally tuned quantum critical point in the $S = 1$ kagome $YCa_3(VO)_3(BO_3)_4$ ”, H. J. Silverstein, R. Sinclair, A. Sharma, Y. Qiu, I. Heinmaa, A. Leitmae, C. R. Wiebe, R. Stern, and H. D. Zhou, *Physical Review Materials* **2**, 044006 (2018).
- 8) “Tunable quantum spin liquidity in the 1/6th-filled breathing kagome lattice”, A. Akbari-Shaebaf, R. Sinalir, A. Verrier, D. Ziat, H. D. Zhou, X. F. Sun, and J. A. Quilliam, *Physical Review Letters* **120**, 227201 (2018).
- 9) “Field driven quantum criticality in the spinel magnet $ZnCr_2Se_4$ ”, C. C. Gu, Z. Y. Zhao, X. L. Chen, M. Lee, E. S. Choi, Y. Y. Han, L. S. Ling, L. Pi, Y. H. Zhang, G. Chen, Z. R. yang, H. D. Zhou, and X. F. Sun, *Physical Review Letters* **120**, 147204 (2018).
- 10) “Search for a nematic phase in the quasi-two-dimensional antiferromagnet $CuCrO_2$ by NMR in an electric field”, Yu. A. Sakhratov, J. J. Kweon, E. S. Choi, H. D. Zhou, L. E. Svistov, and A. P. Reyes, *Physical Review B* **97**, 094409 (2018).
- 11) “Multiferroicity of $CuCrO_2$ tested by electron spin resonance”, S. K. Gotovko, T. A. Soldatov, L.E. Svistov, and H. D. Zhou, *Physical Review B* **97**, 094425 (2018).
- 12) “B site cation order/disorder and their valence states in $Ba_3MnNb_2O_9$ ” perovskite oxide”, Y. Xin, Q. Huang, Z. Shafieizadeh, and H. D. Zhou, *Journal of Solid State Chemistry* **262** (8-15) (2018).
- 13) “Evidence for negative thermal expansion in the superconducting precursor phase $SmFeAsO$ ”, H. D. Zhou, P. M. Sarte, B. S. Corner, L. Balicas, C. R. Wiebe, X. H. Chen, T. Wu, G. Wu, R. H. Liu, H. Chen, AND D. F. Fang, *J. Phys: Condens. Matter* **30**, 095601 (2018).
- 14) “Magnetic frustration driven by itinerancy in spinel CoV_2O_4 ”, J. H. Lee, J. Ma, S. E. Hahn, H. B. Cao, M. Lee, Tao Hong, H. J. Lee, M. S. Yeom, S. Okamoto, H. D. Zhou, M. Matsuda, and R. S. Fishman, *Scientific Reports*: **7**, 17129 (2017).
- 15) “Evidence for Dyakonov-Perel-like spin relaxation in Pt” R. Freeman, Andrei Zholud, Z. L. Dun,

- H. D. Zhou, and S. Urazhdin, *Physical Review Letters* **120**, 067204 (2018).
- 16) “Experimental evidence for bipolaron condensation as a mechanism for the metal-insulator transition in rare-earth nickelates” J. Shamblin, M. Heres, H. D. Zhou, J. Sangoro, M. Lang, J. Neufeind, J. Alonso, and S. Johnston, *Nature Communications* **9**, 86 (2018).
 - 17) “Momentum-resolved observations of the phonon instability driving geometric improper ferroelectricity in yttrium manganites” D. Bansal, J. Niedziela, R. Sinclair, V. Garlea, D. Abernathy, S. X. Chi, Y. Ren, H. D. Zhou, and O. Delaire, *Nature Communications* **9**, 15 (2018).
 - 18) “Robust pinning of magnetic moments in pyrochlore iridates” W. C. Yang, W. K. Zhu, H. D. Zhou, L. Ling, E. S. Choi, M. Lee, Y. Losovyi, Chi-Ken Lu, and S. X. Zhang, *Physical Review B* **96**, 094437 (2017).
 - 19) “Crystal field excitations in multiferroic TbMnO₃ by Mn L3 and O K resonant inelastic X-ray scattering”, J. Feng, A. Juhin, R. Delaunay, R. Jarrier, N. Jaouen, A. Nicolaou, R. Sinclair, H. D. Zhou, Jean-Michel Mariot, and Sorin G. Chiuzhaian, *Journal of Applied Physics* **122**, 194101 (2017).
 - 20) “Expitaxial Fe thin films on {100} Y₂Ti₂O₇: Model interfaces for nano-oxide dispersion strengthened steels”, T. Stan, Y. Wu, P. B. Wells, H. D. Zhou, and G. R. Odette, *Metallurgical and Materials Transactions A*, **48A** 5659 (2017).
 - 21) “Magnetism out of disorder in a J = 0 compound Ba₂YIrO₆” Q. Chen, C. Svoboda, Q. Zheng, B. C. Sales, D. G. Mandrus, H. D. Zhou, J. S. Zhou, D. McComb, M. Randeria, N. Trivedi, J. Q. Yan, *Physical Review B* **96**, 144423 (2017).
 - 22) “Structural and magnetic short range ordering in fluorite Yb₂TiO₅”, J. Shamblin, Z. Dun, M. Lee, S. Johnston, E. S. Choi, K. Page, Y. Qiu and H. D. Zhou, *Physical Review B* **96**, 174418 (2017).
 - 23) “Ferroelectricity of structural origin in the spin-chain compounds Ca₃Co_{2-x}Mn_xO₆”, J. Shi, J. D. Song, J. C. Wu, X. Rao, H. L. Che, Z. Y. Zhao, H. D. Zhou, J. Ma, R. R. Zhang, L. Zhang, X. G. Liu, X. Zhao, and X. F. Sun, *Physical Review B* **96**, 064112 (2017).
 - 24) “Spectroscopic evidence for superexchange in the ferrimagnetic spinel FeCr₂S₄” Sorin G. Chiuzbaian, S. Brignolo, Coryn F. Hauge, R. Delaunay, M. Guarise, A. Nicolaou, Z. Yang, H. D. Zhou, and J. M. Mariot, *The Journal of Physical Chemistry* **121**, 22369 (2017).
 - 25) “Scaling of memories and crossover in glassy magnets”, A. M. Samarakoon, M. Takahashi, D. Zhang, J. Yang, N. Katayama, R. Sinclair, H. D. Zhou, S. O. Diallo, G. Ehlers, D. A. Tennant, S. Wakimoto, K. Yamada, G. W. Chern, T. J. Sato, and S. H. Lee, *Scientific Reports* **7**, 12053 (2017).
 - 26) “Graphene-loaded porous ZnCo₂O₄ nanosheets composite as counter electrode for dye-sensitized solar cells”, W. Q. Wang, F. Du, Q. Yang, K. Zhang, J. Yao, G. Li, and H. D. Zhou, *Materials Letters* **207**, 117-120 (2017).
 - 27) “Landau-level spectroscopy of massive Dirac fermions in single crystalline ZrTe₅ thin flakes”, 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, *Physical Review B* **96**, 041101(R) (2017).
 - 28) “Controllable synthesis and magnetic properties of hydrothermally synthesized NiCo₂O₄ nanospheres”, X. Yang, X. Yu, Q. Yang, D. Zhao, K. Zhang, J. Yao, G. Li, H. D. Zhou, and X. Zuo, *Ceramics International* **43**, 8585 (2017).
 - 29) “Itinerant antiferromagnetism in RuO₂” T. Berlijn, P. C. Snijders, O. Delaire, H. D. Zhou, T. A. Maier, H. B. Cao, S. X. Chi, M. Matsuda, Y. Wang, M. R. Koehler, P. R. C. Kent, H. H. Weitering, *Physical Review Letters* **118**, 077201 (2017).
 - 30) “A novel method combining additive manufacturing and alloy infiltration for NdFeB bonded magnet fabrication”, Ling Li, Angelica Tirado, B. S. Conner, Miaofang Chi, Amy M. Elliott, Orlando Rios, Haidong Zhou, and M. Parans Paranthaman, *J. Magnetism and Magnetic Materials* **438**, 163 (2017).
 - 31) “Magnetic properties of the triangular lattice magnets A₄B³B₂O₁₂ (A = Ba, Sr, La; B³=Co, Ni, Mn; B = W, Re)”, R. Rawl. M. Lee, E. S. Choi, G. Li, K. W. Chen, R. Baumbach, dela Cruz C., J. Ma, and H. D. Zhou, *Physical Review B* **95**, 174438 (2017).
 - 32) “Three dimensional magnetic interactions in quasi-two-dimensional PdAsO₂O₆”, Z. Y. Zhao, Y.

- Wu, H. B. Chao, H. D. Zhou, and J. Q. Yan, *J. Phys: Condens. Matter* **29**, 285301 (2017).
- 33) “Frustrated spin-1/2 molecular magnetism in the mixed-valence antiferromagnets $\text{Ba}_3\text{MRu}_2\text{O}_9$ (M = In, Y, Lu)”, D. Ziat, A. A. Aczel, R. Sinclair, Q. Chen, H. D. Zhou, T. J. Williams, M. B. Stone, A. Verrier, and J. A. Quilliam, *Physical Review B* **95**, 184424 (2017).
- 34) “Magnetic ground state and magnetodielectric effect of $\text{RCr}(\text{BO}_3)_2$ (R= Y and Ho)”, R. Sinclair, H. D. Zhou, M. Lee, E. S. Choi, G. Li, T. Hong, and S. Calder, *Physical Review B* **95**, 174410 (2017).
- 35) “Structural and magnetic properties of two branches of the tripod-kagome-lattice family $\text{A}_2\text{R}_3\text{Sb}_3\text{O}_{14}$ (A = Mg, Zn; R = Pr, Nd, Gd, Tb, Dy, Ho, Er, Yb)”, Z. L. Dun, J. Trinh, M. Lee, E. S. Choi, K. Li, Y. F. hu, Y. X. Wang, N. Blanc, A. P. Ramirez, and H. D. Zhou, *Physical Review B* **95**, 104439 (2017).
- 36) “ $\text{Ba}_8\text{CoNb}_6\text{O}_{24}$: a spin-1/2 triangular lattice Heisenberg antiferromagnet in the two dimensional limit”, R. Rawl, L. Ge, H. Agrawal, Y. Kamiya, C. R. Dela Cruz, N. P. Butch, X. F. Sun, M. Lee, E. S. Choi, J. Oitmaa, C. D. Batista, M. Mourigal, H. D. Zhou, and J. Ma, *Physical Review B* **95**, 060412 (R) (2017).
- 37) “Lattice dynamics and thermal transport in multiferroic CuCrO_2 ”, Dipanshu Bansal, Jennifer L. Niedziela, Andrew F. May, Ayman Said, Georg Ehlers, Douglas L. Abernathy, Ashifa Huq, Melanie Kirkham, Haidong Zhou, Olivier Delaire, *Physical Review B* **95**, 054306 (2017).
- 38) “Magnetic and electric properties of triangular lattice antiferromagnets $\text{Ba}_3\text{ATa}_2\text{O}_9$ (A = Ni and Co)”, M. Lee, E. S. Choi, J. Ma, R. Sinclair, C. R. Dele Cruz, and H. D. Zhou, *Materials Research Bulletin* **88**, 308 (2017).
- 39) “Canted magnetic ground state of quarter-doped manganites $\text{R}_{0.75}\text{Ca}_{0.25}\text{MnO}_3$ ”, R. Sinclair, H. B. Cao, V. O. Garlea, M. Lee, E. S. Choi, Z. L. Dun, S. Dong, E. Dagotto, and H. D. Zhou, *J. Phys: Condens. Matter* **29**, 065802 (2017).
- 40) “Continuous excitations of the triangular-lattice quantum spin liquid YbMgGaO_4 ”, J. A. M. Paddison, M. Daum, Z. L. Dun, G. Ehlers, Y. Liu, M. B. Stone, H. D. Zhou, and M. Mourigal, *Nature Physics* **13**, 117 (2017)
- 41) “Long range magnetic order in the Heisenberg pyrochlore antiferromagnets $\text{Gd}_2\text{Ge}_2\text{O}_7$ and $\text{Gd}_2\text{Pt}_2\text{O}_7$ synthesized under high pressure”, X. Li, Y. Q. Cai, Q. Cui, C. J. Lin, Z. L. Dun, K. Matsubayashi, Y. Uwatoko, Y. Sato, T. Kawae, S. J. Lv, C. Q. Jin, J. S. Zhou, J. B. Goodenough, H. D. Zhou, and J. G. Cheng, *Physical Review B* **94**, 214429 (2016).
- 42) “Revisiting the ground state of CoAl_2O_4 : comparison to the conventional antiferromagnet MnAl_2O_4 ”, G. J. MacDougall, A. A. Aczel, Y. Su, W. Schweika, E. Faulhaber, A. Schneidewind, A. D. Christianson, J. L. Zarestky, H. D. Zhou, D. Mandrus, and S. E. Nagler, *Physical Review B* **94**, 184422 (2016).
- 43) “Anomalous bulk modulus in vanadate spinels”, Z. Y. Li, X. Li, J. G. Cheng, L. G. Marshall, X. Y. Li, A. M. dos Santos, W. G. Yang, J. J. Wu, J. F. Lin, G. Henkelman, T. Okada, Y. Uwatoko, H. B. Cao, H. D. Zhou, J. B. Goodenough, and J. S. Zhou, *Physical Review B* **94**, 165159 (2016).
- 44) “Magnetic phases of the quasi-two-dimensional antiferromagnet CuCrO_2 on a triangular lattice”, Yu. A. Sakhmatov, L. E. Svistov, P. L. Kuhns, H. D. Zhou, and A. P. Reyes, *Physical Review B* **94**, 094410 (2016).
- 45) “Magnetism and multiferroicity of an isosceles triangular lattice antiferromagnet $\text{Sr}_3\text{NiNb}_2\text{O}_9$ ”, M. Lee, E. S. Choi, J. Ma, R. Sinclair, C. R. Dela. Cruz, and H. D. Zhou, *Journal of Physics: Condensed Matter* **28**, 476004 (2016).
- 46) “Aging, memory, and nonhierarchical energy landscape of spin jam”, A. Samarakoom, Taku J. Sato, Tianran Chen, G. W. Chern, J. Yang, I. Klich, R. Sinclair, H. D. Zhou and S. H. Lee, *Proceedings of the National Academic Sciences* **113**, 11806 (2016).
- 47) “Direct and real time probe of photoinduced structure transition in colossal magnetoresistive material”, J. Li, X. Wang, H. D. Zhou, J. Zhou, J. G. Cheng, and J. Cao, *Applied Physical letters* **109**, 041905 (2016).
- 48) “Quantum oscillations at integer and fractional Landau level indices in single crystalline ZrTe_5 ”,

- W. Yu, Y. Jiang, J. Yang, Z. L. Dun, H. D. Zhou, Z. Jiang, P. Lu, and W. Pan, *Scientific Reports*: DOI:10.1038/srep35357.
- 49) “Crystal structure and partial Ising-like magnetic ordering of orthorhombic Dy_2TiO_5 ”, J. Shamblin, S. Calder, Z. L. Dun, M. Lee, E. S. Choi, J. Neufeind, H. D. Zhou, and M. Lang, *Physical Review B* **94**, 024413 (2016).
 - 50) “Fragile singlet ground-state magnetism in the pyrochlore osmates $\text{R}_2\text{Os}_2\text{O}_7$ ($\text{R} = \text{Y}$ and Ho)”, Z. Y. Zhao, S. Calder, A. A. Aczel, M. A. McGuire, B. C. Sales, D. G. Mandrus, G. Chen, N. Trivedi, H. D. Zhou, and J. Q. Yan, *Physical Review B* **93**, 134426 (2016).
 - 51) “Magnetic ground states of the Rare-earth tripod kagome lattice $\text{Mg}_2\text{RE}_3\text{Sb}_3\text{O}_{14}$ ($\text{RE} = \text{Gd}$, Dy , Er)”, 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, *Physical Review Letters* **116**, 157201 (2016).
 - 52) “Structural transition and orbital glass physics in near-itinerant CoV_2O_4 ”, D. Reig-i-Plessis, D. Casavant, V. O. Garlea, A. A. Aczel, M. Feyngenson, J. Neufeind, H. D. Zhou, S. E. Nagler, and G. J. MacDougall, *Physical Review B* **93**, 014437 (2016).
 - 53) “Incommensurate crystal supercell and polarization flop observed in the magnetoelectric ilmenite MnTiO_3 ”, Harlyn J. Silverstein, Elizabeth Skoropata, Paul M. Sarte, Cole Mauws, Adam A. Aczel, Eun Sang Choi, Johan van Lierop, Christopher R. Wiebe, and Haidong Zhou, *Physical Review B* **93**, 054416 (2016).
 - 54) “Pressure dependence of the magnetic ground states in MnP ” M. Matsuda, F. Ye, S. E. Dissanayake, J.-G. Cheng, S. Chi, J. Ma, H. D. Zhou, J.-Q. Yan, S. Kasamatsu, O. Sugino, T. Kato, K. Matsubayashi, T. Okada, and Y. Uwatoko, *Physical Review B* **93**, 100405(R) (2016).
 - 55) “Pulsed field magnetization in rare-earth kagome systems”, M. J. R. Hoch, H. D. Zhou, E. Mun and N. Harrison, *Journal of Physics: Condensed Matter* **28**, 046001 (2016).
 - 56) “Probing disorder in isometric pyrochlore and related complex oxides”, Jacob Shamblin, Mikhail Feyngenson, Joerg Neufeind, Cameron L. Tracy, Fuxiang Zhang, Sarah Finkeldei, Dirk Bosbach, Haidong Zhou, Rodney C. Ewing and Maik Lang, *Nature Materials* DOI:10.1038/NMAT4581.
 - 57) “Static and Dynamical Properties of the Spin-1/2 Equilateral Triangular-Lattice Antiferromagnet $\text{Ba}_3\text{CoSb}_2\text{O}_9$ ”, J. Ma, Y. Kamiya, Tao Hong, H. B. Cao, G. Ehlers, W. Tian, C. D. Batista, Z. L. Dun, H. D. Zhou, and M. Matsuda, *Physical Review Letters* **116**, 087201 (2016).
 - 58) “High-pressure synthesis and characterization of the effective pseudospin $S = 1/2$ XY pyrochlores $\text{R}_2\text{Pt}_2\text{O}_7$ ($\text{R} = \text{Er}$, Yb)”, Y. Q. Cai, Q. Cui, X. Li, Z. L. Dun, J. Ma, C. dela Cruz, Y. Y. Jiao, J. Liao, P. J. Sun, Y. Q. Li, J. S. Zhou, J. B. Goodenough, H. D. Zhou, and J.-G. Cheng, *Physical Review B* **93**, 014443 (2016).
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 - 60) “Nuclear and magnetic supercells in multiferroic candidate $\text{Pb}_3\text{TeMn}_3\text{P}_2\text{O}_{14}$ ”, H. J. Silverstein, A. Huq, M. Lee, E. S. Choi, H. D. Zhou, and C. R. Wiebe, *Journal of solid state chemistry*, **221**, 216 (2015).
 - 61) “Structural and magnetic phase transitions in $\text{CeCu}_{6-x}\text{T}_x$ ($T = \text{Ag}$, Pd)”, L. Poudel, C. de la Cruz, E. A. Payzant, A. F. May, M. Koehler, V. O. Garlea, A. E. Taylor, D. S. Parker, H. B. Cao, M. A. McGuire, W. Tian, M. Matsuda, H. Jeen, H. N. Lee, T. Hong, S. Calder, H. D. Zhou, M. D. Lumsden, V. Keppens, D. Mandrus, and A. D. Christianson, *Physical Review B* **92**, 214421 (2015).
 - 62) “Evolution of the magnetic and structural properties of $\text{Fe}_{1-x}\text{Co}_x\text{V}_2\text{O}_4$ ”, R. Sinclair, J. Ma, H. B. Cao, T. Hong, M. Matsuda, Z. L. Dun, and H. D. Zhou, *Physical Review B*, **92**, 134410 (2015).
 - 63) “Antiferromagnetic order in the pyrochlores $\text{R}_2\text{Ge}_2\text{O}_7$ ($\text{R} = \text{Er}$, Yb)”, Z. L. Dun, X. Li, R. S. Freitas, E. Arrighi, C. R. Dela Cruz, M. Lee, E. S. Choi, H. B. Cao, H. J. Silverstein, C. R. Wiebe, J. G. Cheng, and H. D. Zhou, *Physical Review B*, **92**, 140704(R) (2015).
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 - 65) “Low temperature thermal conductivity of $\text{Dy}_2\text{Ti}_2\text{O}_7$ and $\text{Yb}_2\text{Ti}_2\text{O}_7$ single crystals”, S. J. Li, Z. Y. Zhao, C. Fan, B. Tong, F. B. Zhang, J. Shi, J. C. Wu, X. G. Liu, H. D. Zhou, X. Zhao, and X. F.

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- 66) “Ferromagnetic superexchange in insulating Cr_2MoO_6 by controlling orbital hybridization”, M. Zhu, D. Do, C. R. Dela Cruz, Z. L. Dun, J. G. Cheng, H. Goto, Y. Uwatoko, T. Zou, H. D. Zhou, Subhendra D. Mahanti, and X. Ke, *Physical Review B*, **92**, 094419 (2015).
- 67) “High pressure floating zone growth and structural properties of ferromagnetic quantum paraelectric $\text{BaFe}_{12}\text{O}_{19}$ ”, H. B. Cao, Z. Y. Zhao, M. Lee, E. S. Choi, M. A. McGuire, B. C. Sales, H. D. Zhou, J. Q. Yan, and D. G. Mandrus, *Applied Physics Letters Materials* **3**, 062412 (2015).
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- 69) “Strong ferromagnetism induced by canted antiferromagnetic order in double perovskite iridates $(\text{La}_{1-x}\text{Sr}_x)_2\text{ZnIrO}_6$ ”, W. K. Zhu, C. K. Lu, W. Tong, J. M. Wang, H. D. Zhou and S. X. Zhang, *Physical Review B*, **91**, 144408 (2015).
- 70) “Electronic transport in the ferromagnetic pyrochlore $\text{Lu}_2\text{V}_2\text{O}_7$: role of magnetization”, X. Zhang, H. D. Zhou, H. Jeffery Gardner, S. von. Molnar, C. Wiebe, and P. Xiong, *Physical Review B*, **91**, 025107 (2015).
- 71) “Competition between the inter-and intra-sublattice interactions in $\text{Yb}_2\text{V}_2\text{O}_7$ ”, Z. L. Dun, J. Ma, H. B. Cao, Y. Qiu, J. R. D. Copley, T. Hong, M. Matsuda, J. C. Cheng, M. Lee, E. S. Choi, S. Johnston, and H. D. Zhou, *Physical Review B*, **91**, 064425 (2015).
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