Garrett E. Granroth

Curriculum Vitae

Employment

2019–present **Senior Instrument Scientist**, *Neutron Scattering Division, Oak Ridge National Laboratory*, Oak Ridge, Tennessee.

2013–2019 **Group Leader and Senior Scientist**, *Neutron Data Analysis and Visualization Division, Oak Ridge National Laboratory*, Oak Ridge, Tennessee.

2009–2013 **Instrument Scientist**, *Quantum Condensed Matter Division, Oak Ridge National Laboratory*, Oak Ridge, Tennessee.

2002–2009 **SING-I Sub project Manager : SEQUOIA**, *Neutron Sciences Division, Oak Ridge National Laboratory*, Oak Ridge, Tennessee.

2000–2006 **Instrument Scientist**, *Spallation Neutron Source Project, Oak Ridge National Laboratory*, Oak Ridge, Tennessee.

1998–2000 **Postdoctoral Research Fellow**, *Solid State Division, Oak Ridge National Laboratory*, Oak Ridge, Tennessee.

Education

1993–1998 **PhD**, *The University of Florida*, Gainesville, Florida.
Studied Condensed Matter Physics

Dissertation: *Experimental studies of integer spin antiferromagnetic chains*

1989–1993 **BS**, *Stetson University*, DeLand, Florida, *Cum Laude*.
Studied Physics

Skills

Science Expertise Condensed Matter Physics, Quantum Magnetism, Itinerant Magnetism, and, Correlated Electron Systems

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Scientific Instrumentation	Design, construction, and operation of neutron scattering instrumentation
	Bulk magnetization and transport techniques
	High field magnet operation
	Ultra-low temperature instrumentation
	Familiar with Nuclear Magnetic Resonance and Electron Paramagnetic Resonance spectroscopies
Computation	Programing Languages: Python/Numpy, C, C++, Matlab
	Monte Carlo ray tracing neutron instrument simulation
	Familiar with high performance computing
Project Management	Experience with US Department of Energy construction projects (DOE 413)
	Experienced with distributed software development projects (Mantid, McStas)

Awards and Achievements

2021 **Doing it Better Award**, *Neutron Scattering Division Awards, Oak Ridge National Laboratory*.

Technology Commercialization Award, *Oak Ridge National Laboratory*, ExOne.

2019 **Technology Commercialization Award**, *Oak Ridge National Laboratory*, ExOne.

2016 **Discover Magazine Top 100 breakthroughs #16**, *Quantum Spin Liquid*.

Director's Award for Outstanding Team Accomplishment, UT-Battelle Awards Night, *Observation of fractionalized quantum spin liquid excitations*.

Team Research Accomplishment Award, UT-Battelle Awards Night, *Observation of fractionalized quantum spin liquid excitations*.

2014 **Recognized as an Outstanding and Exceptional Referee for Review of Scientific Instruments**.

2009 **Significant Event Award, Oak Ridge National Laboratory**, *Successful commissioning of two neutron beamlines*.

Achievement, *Completion of the SEQUOIA beamline at the Spallation Neutron Source*.

2007 **Employee Recognition Award, Oak Ridge National Laboratory**, *Completion of the SEQUOIA scattering vessel*.

Featured Alumnus, Stetson University.

Mentoring

PostDocs Fahima Islam (Scientist, Oak Ridge National Laboratory), Jooseop Lee (Instrument Scientist, Institute for Basic Science, Korea), Adam Aczel (Instrument Scientist, Oak Ridge National Laboratory), Greg MacDougall (Assistant Professor, University of Illinois), Andrei Savici (Computational Instrument Scientist, Oak Ridge National Laboratory)

Graduate Students Marcus Daum (Current, Georgia Tech)

Undergraduate Students Ian Lumsden (Graduate Student, University of Tennessee), Yijun Tang (Engineer, Argo AI), Tabatha Rainwater (Math Teacher, Austin-East High School)

Professional Affiliations

American Physical Society, American Association for the Advancement of Science, American Chemical Society, and the Neutron Scattering Society of America

Science Community Service

2014–Present Serves on the Data Management and Software Center, Scientific and Technical Advisory Panel for the European Spallation Neutron Source

2022 Data Challenge Sponsor for Smoky Mountains Computational Sciences and Engineering Conference

2022 Served on the Second Target Station Initial Review of Instrument Designs

2022 Serving on the International Organizing Committee for the JCNS Workshop, "Trends and perspectives in neutron scattering: Experiments and data analysis in the digital age."

2021 Served on the Final Design Review Committee for the HB1A backend upgrade

2021 Served on the Preliminary Design Review Committee for the HB1A backend upgrade

2020 Data Challenge Sponsor for Smoky Mountains Computational Sciences and Engineering Conference

2013–2020 Served on the Mantid software Project Management Board

2019 Served as the Program Chair for ICANS XXIII

2019 Data Challenge Sponsor for Smoky Mountains Computational Sciences and Engineering Conference

2018 Data Challenge Sponsor for Smoky Mountains Computational Sciences and Engineering Conference

2017 Data Challenge Sponsor for Smoky Mountains Computational Sciences and Engineering Conference

2015–2017 Served on the SEED Proposal Review Committee for Oak Ridge National Laboratory

2012, 2014 Served on the International Organizing Committee for Workshop on Inelastic Spectrometers

2011 Served on the Program Committee for American Conference on Neutron Scattering

2009 Chaired committee for time of flight (TOF) Spectroscopy for Long-Pulse Instrumentation Workshop

2007–2009 Represented the SNS in the UK-US-J-K collaboration on neutron spectroscopy software

2007 Chaired committee for TOF Spectroscopy for SNS-Second Target Station Workshop

Community Service

2021–Present Scout Master, Scouts BSA Troop 444, Farragut, Tennessee

2016–2020 Assistant Scout Master, Scouts BSA Troop 444, Farragut, Tennessee

Invited Talks

2022 **Instrumental resolution considerations for DGS instruments and plans for convoluting with models**, *Modern approaches to numerical spin-wave calculations*, Oak Ridge, Tennessee, USA.

Choosing the right spectrometer, *Neutron and Xray scattering School 2022*, Oak Ridge, Tennessee, USA.

Reduction and analysis challenges across the STS instrument suite, *Second Target Station/Computer Science & Math Workshop*, Oak Ridge, Tennessee, USA.

2021 **Database needs for Quantum Magnetism under extreme Magnetic Fields**, *ORNL Extreme Materials Database Workshop*, Oak Ridge, Tennessee, USA.

2019 **Data and the software for Neutron Scattering at the SNS and HFIR**, *HOW2019 Workshop, Jefferson Laboratory*, Newport News, Virginia, USA.

SNS and HFIR facility Status, *Mantid User Meeting, Insitut Laue-Langevin*, Grenoble, Fr.

Novel Scientific Investigations Using Event Neutron Data, *Gordon Research Conference*, Hong Kong,CN.

Machine Learning for accelerating understanding from Neutron Scattering Data, *Artificial Intelligence Applied to Photon and Neutron Science Workshop*, Grenoble,Fr.

2017 **Status of the Oak Ridge National Laboratory Spallation Neutron Source(SNS)**, *International Collaboration on Advanced Neutron Sources*, Oxford, UK.

2016 **Reduction and Analysis of Neutron Data**, *ORNL Neutron Life Cycle Talk, Oak Ridge National Laboratory*, Oak Ridge, Tennessee, USA.

Update on Reduction and Analysis for the ORNL Neutron Sources, *American Conference on Neutron Scattering*, Long Beach, California, USA.

2015 **Data for Neutron Sources at the Oak Ridge National Laboratory Neutron Sources**, *Workshop on Management, Visualization, and Analysis of Experimental and Observational Data (EOD) The Convergence of Data and Computing*, Bethesda, Maryland,USA.

Mathematical and Computational Challenges in Neutron Scattering, *Computation and Applied Math Seminar, Oak Ridge National Laboratory*, Oak Ridge, Tennessee, USA.

2014 **Mantid: Now and in the Future**, *NOBUGS*, Tskuba, Japan.

Mantid and Adara: Streaming Data and Reduction, *ICANS-XXI*, Mito, Japan.

2012 **Direct Geometry Neutron Spectroscopy at the SNS**, *WINS*, Nikko, Japan.

Pulsed Magnetic Field Diffraction at the SNS, *ACA meeting*, Boston, Massachusetts, USA.

2011 **Danse and its Impact on Neutron Spectroscopy**, *Last Danse Meeting*, Pasadena, California, USA.

Advances in Neutron Spectroscopy and High Magnetic Field Instrumentation for Studies of Correlated Electron Systems, *NASCES*, Mito, Japan.

2010 **Zeemans: A High Magnetic Field Beamline for the SNS**, *ICANS-XIX*, Grudenwald, Switzerland.

2009 **SEQUOIA: A Tool for Magnetism Research at the SNS**, *Condensed Matter Seminar, Department of Physics,University of Florida*, Gainesville, Florida, USA.

2007 **The Inelastic Instrument Suite at the SNS**, *ICANS-XVIII*, Dongguan, China.

Opportunities in Inelastic Neutron Scattering at Oak Ridge National Laboratory, *SESAPS*, Nashville, Tennessee, USA.

Neutron Scattering at the SNS, *Condensed Matter Seminar, Department of Physics, University of Florida*, Gainesville, Florida, USA.

2006 **Prospects for Neutron Probed Magnetic Resonance Imaging**, *Imaging and Neutrons Workshop*, Oak Ridge, Tennessee, USA.

2005 **Update on the ARCS and SEQUOIA Spectrometers**, *WINS*, Cairns, Australia.

2003 **Performance Comparisons of Four Direct Geometry Spectrometers Planned for the Spallation Neutron Source**, *ICANS-XVI*, Neuss, Germany.

Publications

2022 Ehlers, G., Crow, M. L., Diawara, Y., Gallmeier, F. X., Geng, X., Granroth, G. E., Gregory, R. D., Islam, F. F., Knudson, R. O., Li, F., Loyd, M. S., and Vacaliuc,

B. (2022). "Modern Trends in Neutron Scattering Instrument Technologies". In: *Instruments* 6, p. 22.

Haberl, B., Quirinale, D. G., Li, C. W., Granroth, G. E., Nojiri, H., Donnelly, M.-E., Ushakov, S. V., Boehler, R., and Winn, B. L. (2022). "Multi-extreme conditions at the Second Target Station". In: *Review of Scientific Instruments* 93, p. 083907.

Heller, W. T., Hetrick, J., Bilheux, J., Calvo, J. M. B., Chen, W.-R., DeBeer-Schmitt, L., Do, C., Doucet, M., Fitzsimmons, M. R., Godoy, W. F., Granroth, G. E., Hahn, S., He, L., Islam, F., Lin, J., Littrell, K. C., McDonnell, M., McGaha, J., Peterson, P. F., Pingali, S. V., Qian, S., Savici, A. T., Shang, Y., Stanley, C. B., Urban, V. S., Whitfield, R. E., Zhang, C., Zhou, W., Billings, J. J., Cuneo, M. J., Leal, R. M. F., Wang, T., and Wu, B. (2022). "drtsans: The data reduction toolkit for small-angle neutron scattering at Oak Ridge National Laboratory". In: *SoftwareX* 19, p. 101101.

Li, X., Do, S.-H., Yan, J., McGuire, M. A., Granroth, G. E., Mu, S., Berlijn, T., Cooper, V. R., Christianson, A. D., and Lindsay, L. (2022). "Phonons and phase symmetries in bulk CrCl3 from scattering measurements and theory". In: *Acta Materialia* 241, p. 118390.

Ortiz, B. R., Bordelon, M. M., Bhattacharyya, P., Pokharel, G., Sarte, P. M., Posthuma, L., Petersen, T., Eldeeb, M. S., Granroth, G. E., Dela Cruz, C. R., Calder, S., Abernathy, D. L., Hozoi, L., and Wilson, S. D. (2022). "Electronic and structural properties of $\mathrm{RbCe}X_2$ $(X_2 : \mathrm{O}_2, \mathrm{S}_2, \mathrm{SeS}, \mathrm{Se}_2, \mathrm{TeSe}, \mathrm{Te}_2)$". In: *Phys. Rev. Materials* 6, p. 084402.

Riberolles, S. X. M., Slade, T. J., Abernathy, D. L., Granroth, G. E., Li, B., Lee, Y., Canfield, P. C., Ueland, B. G., Ke, L., and McQueeney, R. J. (2022). "Low-Temperature Competing Magnetic Energy Scales in the Topological Ferrimagnet $\mathrm{TbMn_6Sn_6}$". In: *Phys. Rev. X* 12, p. 021043.

Saunders, C. N., Kim, D. S., Hellman, O., Smith, H. L., Weadock, N. J., Omelchenko, S. T., Granroth, G. E., Bernal-Choban, C. M., Lohaus, S. H., Abernathy, D. L., and Fultz, B. (2022). "Thermal expansion and phonon anharmonicity of cuprite studied by inelastic neutron scattering and ab initio calculations". In: *Phys. Rev. B* 105, p. 174308.

Scheie, A., Laurell, P., McClarty, P. A., Granroth, G. E., Stone, M. B., Moessner, R., and Nagler, S. E. (2022a). "Dirac Magnons, Nodal Lines, and Nodal Plane in Elemental Gadolinium". In: *Phys. Rev. Lett.* 128, p. 097201.

Scheie, A., Laurell, P., McClarty, P. A., Granroth, G. E., Stone, M. B., Moessner, R., and Nagler, S. E. (2022b). "Spin-exchange Hamiltonian and topological degeneracies in elemental gadolinium". In: *Phys. Rev. B* 105, p. 104402.

Shinohara, Y., Ivanov, A. S., Maltsev, D., Granroth, G. E., Abernathy, D. L., Dai, S., and Egami, T. (2022). "Real-Space Local Dynamics of Molten Inorganic Salts Using Van Hove Correlation Function". In: *The Journal of Physical Chemistry Letters* 13. PMID: 35735362, pp. 5956–5962.

2021 Dai, P.-L., Zhang, G., Xie, Y., Duan, C., Gao, Y., Zhu, Z., Feng, E., Tao, Z., Huang, C.-L., Cao, H., Podlesnyak, A., Granroth, G. E., Everett, M. S., Neuefeind, J. C., Voneshen, D., Wang, S., Tan, G., Morosan, E., Wang, X., Lin, H.-Q., Shu, L., Chen, G., Guo, Y., Lu, X., and Dai, P. (2021). "Spinon Fermi Surface Spin Liquid in a Triangular Lattice Antiferromagnet $\mathrm{NaYbSe_2}$". In: *Phys. Rev. X* 11, p. 021044.

Doucet, M., Samarakoon, A. M., Do, C., Heller, W. T., Archibald, R., Tennant, D. A., Proffen, T., and Granroth, G. E. (2021). "Machine learning for neutron scattering at ORNL". In: *Machine Learning: Science and Technology* 2, p. 023001.

Haberl, B., Molaison, J. J., Frontzek, M., Novak, E. C., Granroth, G. E., Goldsby, D., Anderson, D. C., and Elliott, A. M. (2021). "3D-printed B4C collimation for neutron pressure cells". In: *Review of Scientific Instruments* 92, p. 093903.

Islam, F. F., Haberl, B., Lin, J. Y., Anderson, D. C., Molaison, J. J., and Granroth, G. E. (2021). "Novel data analysis method for obtaining better performance from a complex 3D-printed collimator". In: *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* 1014, p. 165646.

LeBlanc, M. D., Aczel, A. A., Granroth, G. E., Southern, B. W., Yan, J.-Q., Nagler, S. E., Whitehead, J. P., and Plumer, M. L. (2021). "Impact of further-range exchange and cubic anisotropy on magnetic excitations in the fcc kagome antiferromagnet $\mathrm{IrMn_3}$". In: *Phys. Rev. B* 104, p. 014427.

Scheie, A., Laurell, P., Samarakoon, A. M., Lake, B., Nagler, S. E., Granroth, G. E., Okamoto, S., Alvarez, G., and Tennant, D. A. (2021). "Witnessing entanglement in quantum magnets using neutron scattering". In: *Phys. Rev. B* 103, p. 224434.

Scheie, A., Sherman, N. E., Dupont, M., Nagler, S. E., Stone, M. B., Granroth, G. E., Moore, J. E., and Tennant, D. A. (2021). "Detection of Kardar–Parisi–Zhang hydrodynamics in a quantum Heisenberg spin-1/2 chain". In: *Nature Physics* 17, p. 726.

2020 Islam, F., Lin, J., Huegle, T., Lumsden, I., Anderson, D., Elliott, A., Haberl, B., and Granroth, G. (2020). "Computational optimization of a 3D printed collimator". In: *Journal of Neutron Research* 22, pp. 155–168.

Karigerasi, M. H., Kang, K., Granroth, G. E., Banerjee, A., Schleife, A., and Shoemaker, D. P. (2020). "Strongly two-dimensional exchange interactions in the in-plane metallic antiferromagnet $\mathrm{Fe_2As}$ probed by inelastic neutron scattering". In: *Phys. Rev. Materials* 4, p. 114416.

Lee, J., Prokeš, K., Park, S., Zaliznyak, I., Dissanayake, S., Matsuda, M., Frontzek, M., Stoupin, S., Chappell, G. L., Baumbach, R. E., Park, C., Mydosh, J. A., Granroth, G. E., and Ruff, J. P. C. (2020). "Charge density wave with anomalous temperature dependence in $\mathrm{UPt_2Si_2}$". In: *Phys. Rev. B* 102, p. 041112.

Pajerowski, D. M., Pratt, D. K., Hahn, S. E., Tian, W., Granroth, G. E., Kolesnikov, A. I., Taskin, A. A., Ando, Y., and McQueeney, R. J. (2020). "Spin waves above and below the Verwey transition in $TbBaFe_2O_5$". In: *Phys. Rev. B* 101, p. 064418.

Parete-Koon, S., Peterson, P. F., Granroth, G. E., Zhou, W., Devineni, P., Laanait, N., Yin, J., Borisevich, A., Maheshwari, K., Allen-Dumas, M., Ravulaparthy, S., Kurte, K., Sanyal, J., Berres, A., Kotevska, O., Alamudun, F., Gray, K., Grossman, M., Yusifov, A., Danciu, I., Alterovitz, G., and Herrmannova, D. (2020). "Smoky Mountain Data Challenge 2020: An Open Call to Solve Data Problems in the Areas of Neutron Science, Material Science, Urban Modeling and Dynamics, Geophysics, and Biomedical Informatics". In: *Driving Scientific and Engineering Discoveries Through the Convergence of HPC, Big Data and AI*. Ed. by J. Nichols, B. Verastegui, A. ' Maccabe, O. Hernandez, S. Parete-Koon, and T. Ahearn. Cham: Springer International Publishing, pp. 425–442.

Proffen, T. and Granroth, G. E. (2020). "Cross-Cutting Software Solutions in Support of Experimental Analysis Challenges at National Scattering Facilities". In: *Handbook on Big Data and Machine Learning in the Physical Sciences, Volume 2: Advanced Analysis Solutions for Leading Experimental Techniques*. Ed. by K. K. van Dam, K. G. Yager, S. I. Campbell, R. Farnsworth, and M. van Dam. World Scientific Series on Emerging Technologies, pp. 179–187.

2019 Bai, X., Paddison, J. A. M., Kapit, E., Koohpayeh, S. M., Wen, J.-J., Dutton, S. E., Savici, A. T., Kolesnikov, A. I., Granroth, G. E., Broholm, C. L., Chalker, J. T., and Mourigal, M. (2019). "Magnetic Excitations of the Classical Spin Liquid $MgCr_2O_4$". In: *Phys. Rev. Lett.* 122, p. 097201.

Islam, F., Lin, J. Y. Y., Archibald, R., Abernathy, D. L., Al-Qasir, I., Campbell, A. A., Stone, M. B., and Granroth, G. E. (2019). "Super-resolution energy spectra from neutron direct-geometry spectrometers". In: *Review of Scientific Instruments* 90, p. 105109.

Lin, J. Y. Y., Islam, F., Sala, G., Lumsden, I., Smith, H., Doucet, M., Stone, M. B., Abernathy, D. L., Ehlers, G., Ankner, J. F., and Granroth, G. E. (2019). "Recent developments of MCViNE and its applications at SNS". In: *Journal of Physics Communications* 3, p. 085005.

Prisk, T. R., Kolesnikov, A. I., Granroth, G. E., Lin, J.-L., and Heuser, B. J. (2019). "Vibrational modes and quantum zero-point energy of hydrogen in $ZrH_{0.0155}$ and ZrH_2". In: *Journal of Alloys and Compounds*, p. 152832.

2018 Granroth, G. E., An, K., Smith, H. L., Whitfield, P., Neuefeind, J. C., Lee, J., Zhou, W., Sedov, V. N., Peterson, P. F., Parizzi, A., Skorpenske, H., Hartman, S. M., Huq, A., and Abernathy, D. L. (2018). "Event-based processing of neutron scattering data at the Spallation Neutron Source". In: *Journal of Applied Crystallography* 51, pp. 616–629.

Lee, J., Matsuda, M., Mydosh, J. A., Zaliznyak, I., Kolesnikov, A. I., Süllow, S., Ruff, J. P. C., and Granroth, G. E. (2018). "Dual Nature of Magnetism in a Uranium Heavy-Fermion System". In: *Physical Review Letters* 121, p. 057201.

Liu, J., Savici, A. T., Granroth, G. E., Habicht, K., Qiu, Y., Hu, J., Mao, Z. Q., and Bao, W. (2018). "A Triplet Resonance in Superconducting $Fe_{1.03}Se_{0.4}Te_{0.6}$". In: *Chinese Physics Letters* 35, p. 127401.

Ramazanoglu, M., Ueland, B. G., Pratt, D. K., Harriger, L. W., Lynn, J. W., Ehlers, G., Granroth, G. E., Bud'ko, S. L., Canfield, P. C., Schlagel, D. L., Goldman, A. I., Lograsso, T. A., and McQueeney, R. J. (2018). "Suppression of antiferromagnetic spin fluctuations in superconducting $Cr_{0.8}Ru_{0.2}$". In: *Phys. Rev. B* 98, p. 134512.

2017 Fritsch, K., Ross, K. A., Granroth, G. E., Ehlers, G., Noad, H. M. L., Dabkowska, H. A., and Gaulin, B. D. (2017). "Quasi-two-dimensional spin correlations in the triangular lattice bilayer spin glass $LuCoGaO_4$". In: *Physical Review B* 96, p. 094414.

Prisk, T. R., Bryan, M. S., Sokol, P. E., Granroth, G. E., Moroni, S., and Boninsegni, M. (2017). "The Momentum Distribution of Liquid ^{4}He". In: *Journal of Low Temperature Physics*.

Toft-Petersen, R., Fogh, E., Kihara, T., Jensen, J., Fritsch, K., Lee, J., Granroth, G. E., Stone, M. B., Vaknin, D., Nojiri, H., and Christensen, N. B. (2017). "Field-induced reentrant magnetoelectric phase in $LiNiPO_4$". In: *Physical Review B* 95, p. 064421.

Xu, Z., Schneeloch, J. A., Wen, J., Winn, B. L., Granroth, G. E., Zhao, Y., Gu, G., Zaliznyak, I., Tranquada, J. M., Birgeneau, R. J., and Xu, G. (2017). "Surprising loss of three-dimensionality in low-energy spin correlations on approaching superconductivity in $Fe_{1+y}Te_{1-x}Se_x$". In: *Physical Review B* 96, p. 134505.

2016 Banerjee, A., Bridges, C. A., Yan, J.-Q., Aczel, A. A., Li, L., Stone, M. B., Granroth, G. E., Lumsden, M. D., Yiu, Y., Knolle, J., Bhattacharjee, S., Kovrizhin, D. L., Moessner, R., Tennant, D. A., Mandrus, D. G., and Nagler, S. E. (2016). "Proximate Kitaev quantum spin liquid behaviour in a honeycomb magnet". In: *Nature Materials* 15, pp. 733–740.

Carr, S. V., Zhang, C., Song, Y., Tan, G., Li, Y., Abernathy, D. L., Stone, M. B., Granroth, G. E., Perring, T. G., and Dai, P. (2016). "Electron doping evolution of the magnetic excitations in $NaFe_{1-x}Co_xAs$". In: *Physical Review B* 93, p. 214506.

Granroth, G. E. and Proffen, T. E. (2016). "Data for Neutron Sources at the Oak Ridge National Laboratory Neutron Sources". In: *Management, Visualization, and Analysis of Experimental and Observational Data (EOD) The Convergence of Data and Computing Workshop Final Report*. Ed. by W. Bethel. LBNL, p. 134.

Kolesnikov, A. I., Podlesnyak, A., Sadykov, R. A., Antonov, V. E., Kuzovnikov, M. A., Ehlers, G., and Granroth, G. E. (2016). "Pressure effect on hydrogen tunneling and vibrational spectrum in α-Mn". In: *Physical Review B* 94, p. 134301.

Lin, J. Y., Smith, H. L., Granroth, G. E., Abernathy, D. L., Lumsden, M. D., Winn, B., Aczel, A. A., Aivazis, M., and Fultz, B. (2016). "MCViNE–An object oriented Monte Carlo neutron ray tracing simulation package". In: *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* 810, pp. 86–99.

Marjerrison, C. A., Thompson, C. M., Sala, G., Maharaj, D. D., Kermarrec, E., Cai, Y., Hallas, A. M., Wilson, M. N., Munsie, T. J. S., Granroth, G. E., Flacau, R., Greedan, J. E., Gaulin, B. D., and Luke, G. M. (2016). "Cubic Re^{6+} $(5d^1)$ Double Perovskites, Ba_2MgReO_6, Ba_2ZnReO_6, and $Ba_2Y_{2/3}ReO_6$: Magnetism, Heat Capacity, μSR, and Neutron Scattering Studies and Comparison with Theory". In: *Inorganic Chemistry* 55, p. 10701.

Plumb, K. W., Hwang, K., Qiu, Y., Harriger, L. W., Granroth, G. E., Kolesnikov, A. I., Shu, G. J., Chou, F. C., Ruegg, C., Kim, Y. B., and Kim, Y.-J. (2016). "Quasiparticle-continuum level repulsion in a quantum magnet". In: *Nature Physics* 12, pp. 224–229.

Wagman, J. J., Carlo, J. P., Gaudet, J., Van Gastel, G., Abernathy, D. L., Stone, M. B., Granroth, G. E., Koleshnikov, A. I., Savici, A. T., Kim, Y. J., Zhang, H., Ellis, D., Zhao, Y., Clark, L., Kallin, A. B., Mazurek, E., Dabkowska, H. A., and Gaulin, B. D. (2016). "Neutron scattering studies of spin-phonon hybridization and superconducting spin-gaps in high temperature superconductor $La_{2-x}(Sr, Ba)_xCuO_4$". In: *Physical Review B* 93, p. 094416.

Xu, Z., Schneeloch, J. A., Wen, J., Bozin, E. S., Granroth, G. E., Winn, B. L., Feygenson, M., Birgeneau, R. J., Gu, G., Zaliznyak, I. A., Tranquada, J. M., and Xu, G. (2016). "Thermal evolution of antiferromagnetic correlations and tetrahedral bond angles in superconducting $FeTe_{1-x}Se_x$". In: *Physical Review B* 93, p. 104517.

Yiu, Y., Aczel, A. A., Granroth, G. E., Abernathy, D. L., Stone, M. B., Buyers, W. J. L., Lin, J. Y. Y., Samolyuk, G. D., Stocks, G. M., and Nagler, S. E. (2016). "Light atom quantum oscillations in UC and US". In: *Physical Review B* 93, p. 014306.

2015 Fuhrman, W. T., Leiner, J., Nikolić, P., Granroth, G. E., Stone, M. B. ., Lumsden, M. D., DeBeer-Schmitt, L., Alekseev, P. A., Mignot, J.-M., Koohpayeh, S. M., Cottingham, P., Phelan, W. A., Schoop, L., McQueen, T. M., and Broholm, C. (2015). "Interaction driven subgap spin exciton in the kondo insulator SmB_6". In: *Physical Review Letters* 114, p. 036401.

Gaudet, J., Maharaj, D. D., Sala, G., Kermarrec, E., Ross, K. A., Dabkowska, H. A., Kolesnikov, A. I., Granroth, G. E., and Gaulin, B. D. (2015). "Neutron spectroscopic study of crystalline electric field excitations in stoichiometric and lightly stuffed $Yb_2Ti_2O_7$". In: *Physical Review B* 92, p. 134420.

Gaulin, B. D., Kermarrec, E., Dahlberg, M. L., Matthews, M. J., Bert, F., Zhang, J., Mendels, P., Fritsch, K., Granroth, G. E., Jiramongkolchai, P., Amato, A., Baines, C., Cava, R. J., and Schiffer, P. (2015). "Quenched crystal-field disorder and magnetic liquid ground states in $Tb_2Sn_{2-x}Ti_xO_7$". In: *Physical Review B* 91, p. 245141.

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