



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

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	Programming 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

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- 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*, Institut 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.

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- 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*, Grudewald, 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

- 2023 Prisk, T. R., Azuah, R. T., Abernathy, D. L., Granroth, G. E., Sherline, T. E., Sokol, P. E., Hu, J., and Boninsegni, M. (2023). "Zero-point motion of liquid and

solid hydrogen". In: *Phys. Rev. B* 107, p. 094511.

Teng, X., Oh, J. S., Tan, H., Chen, L., Huang, J., Gao, B., Yin, J.-X., Chu, J.-H., Hashimoto, M., Lu, D., Jozwiak, C., Bostwick, A., Rotenberg, E., Granroth, G. E., Yan, B., Birgeneau, R. J., Dai, P., and Yi, M. (2023). "Magnetism and charge density wave order in kagome FeGe". In: *Nature Physics*.

2022 Anderson, D. C., Elliott, A. M., Haberl, B., and Granroth, G. E. (2022). "Additive Manufacturing of Composite Neutron Absorbing Components". US Patent 11538597 B2 (Oak Ridge, TN).

Bai, X., Lechermann, F., Liu, Y., Cheng, Y., Kolesnikov, A. I., Ye, F., Williams, T. J., Chi, S., Hong, T., Granroth, G. E., May, A. F., and Calder, S. (2022). "Antiferromagnetic fluctuations and orbital-selective Mott transition in the van der Waals ferromagnet $\text{Fe}_{3-x}\text{GeTe}_2$ ". In: *Phys. Rev. B* 106, p. L180409.

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 CrCl_3 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 RbCeX_2 (X_2 : O_2 , S_2 , SeS , Se_2 , TeSe , 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 TbMn_6Sn_6 ". In: *Phys. Rev. X* 12, p. 021043.

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- 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.
- Watson, G. R., Cage, G., Fortney, J., Granroth, G. E., Hughes, H., Maier, T., McDonnell, M., Ramirez-Cuesta, A., Smith, R., Yakubov, S., and Zhou, W. (2022). “Calvera: A Platform for the Interpretation and Analysis of Neutron Scattering Data”. In: *Accelerating Science and Engineering Discoveries Through Integrated Research Infrastructure for Experiment, Big Data, Modeling and Simulation*. Ed. by K. Doug, G. Al, S. Pophale, H. Liu, and S. Parete-Koon. Cham: Springer Nature Switzerland, pp. 137–154.
- Winn, B. L., Broholm, C., Bird, M. D., Haberl, B., Granroth, G. E., and Katsaras, J. (2022). “A flexible neutron spectrometer concept with a new ultra-high field steady-state vertical-bore magnet”. In: *Review of Scientific Instruments* 93, p. 123903.
- Xie, T., Yin, Q., Wang, Q., Kolesnikov, A. I., Granroth, G. E., Abernathy, D. L., Gong, D., Yin, Z., Lei, H., and Podlesnyak, A. (2022). “Spin excitations in the kagome-lattice metallic antiferromagnet $\text{Fe}_{0.89}\text{Co}_{0.11}\text{Sn}$ ”. In: *Phys. Rev. B* 106, p. 214436.
- 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., Neufeind, 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 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.
- Frost, M. J., Granroth, G. E., Huegle, T., and Robertson, J. L. (2021). *Ray-Tracing Simulations Characterising the Performance of the Proposed 2024 HFIR HB4 Main Shutter*. Tech. rep. United States.

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- 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 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 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 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 $\text{TbBaFe}_2\text{O}_5$ ". 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., Ravulaparthi, 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,

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- 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 $\text{ZrH}_{0.0155}$ 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 $\text{Fe}_{1.03}\text{Se}_{0.4}\text{Te}_{0.6}$ ”. 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 $\text{Cr}_{0.8}\text{Ru}_{0.2}$ ”. 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 LuCoGaO₄". 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 ⁴He". 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 LiNiPO₄". 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 Re⁶⁺ (*5d*¹) Double Perovskites, Ba₂MgReO₆, Ba₂ZnReO₆, and Ba₂Y_{2/3}ReO₆: Magnetism, Heat Capacity, μ SR, and Neutron Scattering Studies and Comparison with Theory". In: *Inorganic Chemistry* 55, p. 10701.

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10/17

- 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., Kolesnikov, 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 $\text{La}_{2-x}(\text{Sr}, \text{Ba})_x\text{CuO}_4$ ". In: *Physical Review B* 93, p. 094416.
- Xu, Z., Schneeloch, J. A., Wen, J., Bozin, E. S., Granroth, G. E., Winn, B. L., Feyngenson, 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 $\text{FeTe}_{1-x}\text{Se}_x$ ". 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 $\text{Yb}_2\text{Ti}_2\text{O}_7$ ". 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 $\text{Tb}_2\text{Sn}_{2-x}\text{Ti}_x\text{O}_7$ ". In: *Physical Review B* 91, p. 245141.
- Granroth, G. E. and Hahn, S. E. (2015). "Monte Carlo simulation of the resolution volume for the SEQUOIA spectrometer". In: *EPJ Web of Conferences* 83, p. 03006.
- Kermarrec, E., Marjerrison, C. A., Thompson, C. M., Maharaj, D. D., Levin, K., Kroeker, S., Granroth, G. E., Flacau, R., Yamani, Z., Greedan, J. E., and Gaulin, B. D. (2015). "Frustrated fcc antiferromagnet Ba_2YOsO_6 : Structural characterization, magnetic properties, and neutron scattering studies". In: *Physical Review B* 91, p. 075133.

- Wakimoto, S., Ishii, K., Kimura, H., Fujita, M., Dellea, G., Kummer, K., Braicovich, L., Ghiringhelli, G., Debeer-Schmitt, L. M., and Granroth, G. E. (2015). "High-energy magnetic excitations in overdoped $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ studied by neutron and resonant inelastic x-ray scattering". In: *Physical Review B* 91, p. 184513.
- 2014 Campbell, S. I., Kohl, J. A., Granroth, G. E., Miller, R. G., Doucet, M., Stansberry, D. V., Proffen, T. E., Taylor, R. J., and Dillow, D. (2014). *Accelerating Data Acquisition, Reduction, and Analysis at the Spallation Neutron Source*. Tech. rep. Oak Ridge National Laboratory (ORNL); Oak Ridge Leadership Computing Facility (OLCF).
- Guo, Y.-N., Ungur, L., Granroth, G. E., Powell, A. K., Wu, C., Nagler, S. E., Tang, J., Chibotaru, L. F., and Cui, D. (2014). "An NCN-pincer ligand dysprosium single-ion magnet showing magnetic relaxation via the second excited state". In: *Scientific Reports* 4.
- Hahn, S. E., Podlesnyak, A. A., Ehlers, G., Granroth, G. E., Fishman, R. S., Kolesnikov, A. I., Pomjakushina, E., and Conder, K. (2014). "Inelastic neutron scattering studies of YFeO_3 ". In: *Physical Review B* 89, p. 014420.
- Lin, J., Aczel, A. A., Abernathy, D. L., Nagler, S. E., Buyers, W., and Granroth, G. E. (2014). "Using Monte Carlo ray tracing simulations to model the quantum harmonic oscillator modes observed in uranium nitride". In: *Physical Review B* 89, p. 144302.
- MacDougall, G. J., Brodsky, I., Aczel, A. A., Garlea, V. O., Granroth, G. E., Christianson, A. D., Hong, T., Zhou, H., and Nagler, S. E. (2014). "Magnons and a two-component spin gap in FeV_2O_4 ". In: *Physical Review B* 89, p. 224404.
- Plumb, K. W., Savici, A. T., Granroth, G. E., Chou, F. C., and Kim, Y.-J. (2014). "High-energy continuum of magnetic excitations in the two-dimensional quantum antiferromagnet $\text{Sr}_2\text{CuO}_2\text{Cl}_2$ ". In: *Physical Review B* 89, p. 180410.
- Shipman, G., Campbell, S., Dillow, D., Doucet, M., Kohl, J., Granroth, G., Miller, R., Stansberry, D., Proffen, T., and Taylor, R. (2014). "Accelerating Data Acquisition, Reduction, and Analysis at the Spallation Neutron Source". In: *2014 IEEE 10th International Conference on e-Science*. Vol. 1. IEEE, pp. 223–230.
- Stone, M. B., Niedziela, J. L., Abernathy, D. L., DeBeer-Schmitt, L., Ehlers, G., Garlea, O., Granroth, G. E., Graves-Brook, M., Kolesnikov, A. I., Podlesnyak, A., and Winn, B. (2014). "A comparison of four direct geometry time-of-flight spectrometers at the Spallation Neutron Source". In: *Review of Scientific Instruments* 85, p. 045113.
- Zhang, J., Fritsch, K., Hao, Z., Bagheri, B., Gingras, M., Granroth, G. E., Jiramongkolchai, P., Cava, R., and Gaulin, B. (2014). "Neutron spectroscopic study of crystal field excitations in $\text{Tb}_2\text{Ti}_2\text{O}_7$ and $\text{Tb}_2\text{Sn}_2\text{O}_7$ ". In: *Physical Review B* 89, p. 134410.

- 2013 Carlo, J. P., Clancy, J. P., Fritsch, K., Marjerrison, C., Granroth, G. E., Greedan, J. E., Dabkowska, H., and Gaulin, B. D. (2013). "Spin gap and the nature of the $4d^3$ magnetic ground state in the frustrated fcc antiferromagnet Ba_2YRuO_6 ". In: *Physical Review B* 88, p. 024418.
- Chi, S., Ye, F., Bao, W., Fang, M., Wang, H., Dong, C., Savici, A. T., Granroth, G. E., Stone, M. B., and Fishman, R. S. (2013). "Neutron scattering study of spin dynamics in superconducting $(Tl, Rb)_2Fe_4Se_5$ ". In: *Physical Review B* 87, p. 100501.
- Hong, T., Zhu, L., Ke, X., Garlea, V. O., Qiu, Y., Nambu, Y., Yoshizawa, H., Zhu, M., Granroth, G. E., Savici, A. T., Gai, Z., and Zhou, H. D. (2013). "Structural and magnetic properties in the quantum $S=1/2$ dimer system $Ba_3(Cr_{1-x}V_x)_2O_8$ with site disorder". In: *Physical Review B* 87, p. 144427.
- Matsuda, M., Granroth, G. E., Fujita, M., Yamada, K., and Tranquada, J. M. (2013). "Energy-dependent crossover from anisotropic to isotropic magnetic dispersion in lightly doped $La_{1.96}Sr_{0.04}CuO_4$ ". In: *Physical Review B* 87, p. 054508.
- Stone, M. B., Ehlers, G., and Granroth, G. E. (2013). " $S=2$ quasi-one-dimensional spin waves in $CrCl_2$ ". In: *Physical Review B* 88, p. 104413.
- 2012 Aczel, A. A., Granroth, G. E., MacDougall, G. J., Buyers, W., Abernathy, D. L., Samolyuk, G. D., Stocks, G. M., and Nagler, S. E. (2012). "Quantum oscillations of nitrogen atoms in uranium nitride". In: *Nature Communications* 3, p. 1124.
- Granroth, G. E., Galambos, J. D., Parizzi, A. A., McHargue, W. M., Kohl, J. A., Yao, X., I, K. A., and Sherline, T. E. (2012). "Direct geometry spectroscopy on a nearly constant frequency source". In: *Proceedings of ICANS XX*, p. 413.
- Tucker, G. S., Pratt, D. K., Kim, M. G., Ran, S., Thaler, A., Granroth, G. E., Marty, K., Tian, W., Zarestky, J. L., Lumsden, M. D., Bud'ko, S. L., Canfield, P. C., Kreyssig, A., Goldman, A. I., and McQueeney, R. J. (2012). "Competition between stripe and checkerboard magnetic instabilities in Mn-doped $BaFe_2As_2$ ". In: *Physical Review B* 86, p. 020503.
- 2011 Carlo, J. P., Clancy, J. P., Aharen, T., Yamani, Z., Ruff, J. P. C., Wagman, J. J., Van Gastel, G. J., Noad, H. M. L., Granroth, G. E., Greedan, J. E., Dabkowska, H. A., and Gaulin, B. D. (2011). "Triplet and in-gap magnetic states in the ground state of the quantum frustrated fcc antiferromagnet Ba_2YMoO_6 ". In: *Physical Review B* 84, p. 100404.
- Clancy, J. P., Gaulin, B. D., Adams, C. P., Granroth, G. E., Kolesnikov, A. I., Sherline, T. E., and Chou, F. (2011). "Singlet-triplet excitations in the unconventional Spin-Peierls $TiOBr$ compound". In: *Physical Review Letters* 106, p. 117401.
- Granroth, G. E. (2011). "Advances in neutron spectroscopy and high magnetic field instrumentation for studies of correlated electron systems". In: *Journal of the Physical Society of Japan* 80, SB016.

- Ke, X., Hong, T., Peng, J., Nagler, S. E., Granroth, G. E., Lumsden, M. D., and Mao, Z. Q. (2011). "Spin-wave excitation in the antiferromagnetic bilayer ruthenate $\text{Ca}_3\text{Ru}_2\text{O}_7$ ". In: *Physical Review B* 84, p. 014422.
- Kolesnikov, A. I., Antonov, V. E., Efimchenko, V. S., Granroth, G., Klyamkin, S. N., Levchenko, A. V., Sakharov, M. K., and Ren, Y. (2011). "Neutron spectroscopy of magnesium dihydride". In: *Journal of Alloys and Compounds* 509, S599–S603.
- Nojiri, H., Yoshii, S., Yasui, M., Okada, K., Matsuda, M., Jung, J.-S., Kimura, T., Santodonato, L., Granroth, G. E., Ross, K. A., Carlo, J. P., and Gaulin, B. D. (2011). "Neutron Laue diffraction study on the magnetic phase diagram of multiferroic MnWO_4 under pulsed high magnetic fields". In: *Physical Review Letters* 106, p. 237202.
- Smrčok, L., Rieder, M., Kolesnikov, A. I., and Granroth, G. E. (2011). "Combined inelastic neutron scattering and solid-state density functional theory study of dynamics of hydrogen atoms in muscovite 2M1". In: *American Mineralogist* 96, pp. 301–307.
- 2010 Granroth, G. E., Kolesnikov, A. I., Sherline, T. E., Clancy, J. P., Ross, K. A., Ruff, J. P. C., Gaulin, B. D., and Nagler, S. E. (2010). "SEQUOIA: A newly operating chopper spectrometer at the SNS". In: *Journal of Physics: Conference Series* 251, p. 012058.
- Granroth, G. E., Savici, A., Bird, M., Santodonato, L., Lee, Y., and Broholm, C. L. (2010). "Zeemans: A High Magnetic Field Beamline for the SNS". In: *ICANS-XIX*.
- Ruff, J., Kolesnikov, A. I., Clancy, J. P., Ross, K. A., Gaulin, B. D., and Granroth, G. E. (2010). "Prospects for Single Pulse Spectroscopy: A case study from SEQUOIA". In: *ICANS-XIX*.
- Savici, A. T., Granroth, G. E., Broholm, C., Lee, Y. S., and Bird, M. D. (2010). "ZEEMANS—a new facility to probe matter at high magnetic field through neutron scattering". In: *Journal of Physics: Conference Series* 251, p. 012057.
- Sherline, T. E., Solomon, L., Roberts II, C. K., Bruce, D., Gaulin, B., and Granroth, G. E. (2010). "A low-temperature sample orienting device for single crystal spectroscopy at the SNS". In: *Journal of Physics: Conference Series* 251, p. 012085.
- 2009 Kardjilov, N., Lee, W. T. H., and Granroth, G. E. (2009). "Novel imaging techniques: polarized neutrons and neutron-based magnetic resonance imaging". In: *Neutron Imaging and Applications*. Springer US, pp. 171–187.
- Savici, A. T., Granroth, G. E., Broholm, C. L., Pajerowski, D. M., Brown, C., Talham, D. R., Meisel, M. W., Schmidt, K., Uhrig, G., and Nagler, S. E. (2009). "Neutron scattering evidence for isolated spin-1/2 ladders in $(\text{C}_5\text{D}_{12}\text{N})_2\text{CuBr}_4$ ". In: *Physical Review B* 80, p. 094411.
- 2007 Granroth, G. E. (2007). "Prospects for using neutrons to probe nuclear magnetic resonance signals". In: *ICANS-XVIII*.

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14/17

- Granroth, G. E., Abernathy, D. L., Ehlers, G., Hagen, M., Herwig, K., Mamontov, E., Ohl, M., and Wildgruber, C. (2007). "The Inelastic Instrument suite at the SNS". In: *ICANS-XVIII*.
- Granroth, G. E., Chen, M., Kohl, J. A., Hagen, M. E., and Cobb, J. W. (2007). "Fast Monte Carlo simulation of a dispersive sample on the SEQUOIA spectrometer at the SNS". In: *Journal of Neutron Research* 15, pp. 91–94.
- Stone, M. B., Tian, W., Lumsden, M. D., Granroth, G. E., Mandrus, D., Chung, J.-H., Harrison, N., and Nagler, S. E. (2007). "Quantum spin correlations in an organometallic alternating-sign chain". In: *Physical Review Letters* 99, p. 087204.
- 2006 Granroth, G. E., Vandergriff, D. H., and Nagler, S. E. (2006). "SEQUOIA: A fine resolution chopper spectrometer at the SNS". In: *Physica B-Condensed Matter* 385-86, 1104–1106.
- Mason, T. E., Abernathy, D., Anderson, I., Ankner, J., Egami, T., Ehlers, G., Ekkebus, A., Granroth, G., Hagen, M., Herwig, K., Hodges, J., Hoffmann, C., Horak, C., Horton, L., Klose, F., Larese, J., Mesecar, A., Myles, D., Neufeind, J., Ohl, M., Tulk, C., Wang, X.-L., and Zhao, J. (2006). "The Spallation Neutron Source in Oak Ridge: A powerful tool for materials research". In: *Physica B: Condensed Matter* 385, pp. 955–960.
- Stone, M. B., Tian, W., Granroth, G. E., Lumsden, M. D., Chung, J.-H., Mandrus, D. G., and Nagler, S. E. (2006). "Spin dynamics of the low-dimensional magnet $(\text{CH}_3)_2\text{NH}_2\text{CuCl}_3$ ". In: *Physica B: Condensed Matter* 385, pp. 438–440.
- Willett, R. D., Twamley, B., Montfroiij, W., Granroth, G. E., Nagler, S. E., Hall, D. W., Park, J.-H., Watson, B. C., Meisel, M. W., and Talham, D. R. (2006). "Dimethylammonium trichlorocuprate (II): Structural transition, low-temperature crystal structure, and unusual two-magnetic chain structure dictated by nonbonding chloride-chloride contacts". In: *Inorganic Chemistry* 45, pp. 7689–7697.
- 2004 Granroth, G. E., Mandrus, D., Keppens, V., and Nagler, S. E. (2004). "Long- and short-range magnetic order in the spinel $\text{Co}_2\text{Ru}_{1-x}\text{Mn}_x\text{O}_4$ ". In: *Journal of Magnetism and Magnetic Materials* 272, pp. 1306–1307.
- 2003 Granroth, G. E. and Abernathy, D. L. (2003). "Performance comparisons of four direct geometry spectrometers planned for the Spallation Neutron Source". In: *ICANS-XVI*, p. 289.
- Tennant, D. A., Broholm, C., Reich, D. H., Nagler, S. E., Granroth, G. E., Barnes, T., Damle, K., Xu, G., Chen, Y., and Sales, B. C. (2003). "Neutron scattering study of two-magnon states in the quantum magnet copper nitrate". In: *Physical Review B* 67, p. 054414.
- 2002 Granroth, G. E., Nagler, S. E., Coldea, R., Eccleston, R. S., Ward, B. H., Talham, D. R., and Meisel, M. W. (2002). "Neutron-scattering studies of the $S=2$ antiferromagnetic chain $\text{MnCl}_3(\text{C}_{10}\text{D}_8\text{N}_2)$ ". In: *Applied Physics A* 74, s868–s870.

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15/17

- 2001 Montfrooij, W., Granroth, G. E., Mandrus, D. G., and Nagler, S. E. (2001). "Spin dynamics of the quasi-one-dimensional ferromagnet $\text{CoCl}_2 \cdot 2\text{D}_2\text{O}$ ". In: *Physical Review B* 64, p. 134426.
- Watson, B. C., Kotov, V. N., Meisel, M. W., Hall, D. W., Granroth, G. E., Montfrooij, W. T., Nagler, S. E., Jensen, D. A., Backov, R., Petruska, M. A., Fanucci, G. E., and Talham, D. R. (2001). "Magnetic spin ladder $(\text{C}_5\text{H}_{12}\text{N})_2\text{CuBr}_4$: high-field magnetization and scaling near quantum criticality". In: *Physical Review Letters* 86, p. 5168.
- 2000 Lumsden, M. D., Granroth, G. E., Mandrus, D., Nagler, S. E., Thompson, J. R., Castellan, J. P., and Gaulin, B. D. (2000). "Long-range antiferromagnetic order in the $S = 1$ chain compound LiVGe_2O_6 ". In: *Physical Review B* 62, R9244.
- 1998 Fanucci, G. E., Nixon, C. M., Petruska, M. A., Seip, C. T., Talham, D. R., Granroth, G. E., and Meisel, M. W. (1998). "Metal phosphonate Langmuir-Blodgett films: magnetic monolayers and organic/inorganic dual network assemblies". In: *Supramolecular Engineering of Synthetic Metallic Materials*, pp. 465–475.
- Granroth, G. E., Maegawa, S., Meisel, M. W., Krzystek, J., Brunel, L.-C., Bell, N. S., Adair, J. H., Ward, B. H., Fanucci, G. E., Chou, L.-K., and Talham, D. R. (1998). "Magnetic studies of end-chain spin effects in the Haldane-gap material $\text{Ni}(\text{C}_3\text{H}_{10}\text{N}_2)_2\text{N}_3(\text{ClO}_4)$ ". In: *Physical Review B* 58, p. 9312.
- Granroth, G. E., Masuhara, N., Ihas, G. G., and Meisel, M. W. (1998). "Broadband frequency study of the zero sound attenuation near the quantum limit in normal liquid ^3He close to the superfluid transition". In: *Journal of Low Temperature Physics* 113, pp. 543–548.
- Mandrus, D., Keppens, V., Chakoumakos, B. C., Granroth, G. E., and Nagler, S. E. (1998). "A neutron diffraction study of $\text{Co}_2\text{Ru}_{1-x}\text{Mn}_x\text{O}_4$ spinels". In: *MRS Proceedings* 547, p. 177.
- Ward, B. H., Granroth, G. E., Talham, D. R., and Meisel, M. W. (1998). "Magnetic properties of the antiferromagnetic $S = 1$ spin chain system $[\text{Ni}(\text{C}_4\text{H}_{12}\text{N}_2)_2(\mu - \text{N}_3)]_n(\text{ClO}_4)_n$ ". In: *Journal of Magnetism and Magnetic Materials* 177, pp. 661–662.
- Ward, B. H., Granroth, G. E., Walden, J. B., Abboud, K. A., Meisel, M. W., Rasmussen, P. G., and Talham, D. R. (1998). "Synthesis, structure and physical properties of a new organic metal, $(\text{BEDO} - \text{TTF})_4[\text{C}_4\text{N}_6]\text{H}_2\text{O}$ ". In: *Journal of Materials Chemistry* 8, pp. 1373–1378.
- Ward, B. H., Granroth, G. E., Abboud, K. A., Meisel, M. W., and Talham, D. R. (1998). "New BEDT-TTF salts incorporating the hydrogen dichloride (HCl_2^-) anion". In: *Chemistry of Materials* 10, pp. 1102–1108.

- 1997 Liu, H.-L., Chou, L.-K., Abboud, K. A., Ward, B. H., Fanucci, G. E., Granroth, G. E., Canadell, E., Meisel, M. W., Talham, D. R., and Tanner, D. B. (1997). "Structure and physical properties of a new 1: 1 cation-radical salt, $\zeta - (\text{BEDT} - \text{TTF})\text{PF}_6$ ". In: *Chemistry of Materials* 9, pp. 1865–1877.
- Seip, C. T., Granroth, G. E., Meisel, M. W., and Talham, D. R. (1997). "Langmuir-Blodgett films of known layered solids: Preparation and structural properties of octadecylphosphonate bilayers with divalent metals and characterization of a magnetic Langmuir-Blodgett film". In: *Journal of the American Chemical Society* 119, pp. 7084–7094.
- 1996 Granroth, G. E., Genio, E. B., Walden, J. B., Xu, J.-W., Ihas, G. G., and Meisel, M. W. (1996). "Zero sound spectroscopy of ^3He -B below $250 \mu\text{K}$ ". In: *Czechoslovak Journal of Physics* 46, pp. 61–62.
- Granroth, G. E., Meisel, M. W., Chaparala, M., Jolicoeur, T., Ward, B. H., and Talham, D. R. (1996). "Experimental evidence of a Haldane gap in an $S=2$ quasi-linear-chain antiferromagnet". In: *Physical Review Letters* 77, p. 1616.
- 1995 Bremer, J., Sergatskov, D. A., Xia, J. S., Granroth, G. E., Signore, P. J. C., Ihas, G. G., Meisel, M. W., Canfield, P. C., Movshovich, R., Lacerda, A., and Fisk, Z. (1995). "Ultralow temperature inductive measurements of YbBiPt ". In: *Physica B: Condensed Matter* 206, pp. 336–337.
- Granroth, G. E., Chou, L.-K., Kim, W. W., Chaparala, M., Naughton, M. J., Haanappel, E., Lacerda, A., Rickel, D., Talham, D. R., and Meisel, M. W. (1995). "Magnetization studies of the Haldane gap material TMNIN ". In: *Physica B: Condensed Matter* 211, pp. 208–212.