CURRICULUM VITAE
Collin Leslie Broholm

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Department of Physics and Astronomy
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Birth: September 20, 1961, Copenhagen, Denmark.
Citizenship: US Citizen.
Marital Status: Married, 3 children born 1988, 1991 and 1995.

Employment:

2008-	Gerhard H. Dieke Professor, The Johns Hopkins University
1997-	Professor of Physics, The Johns Hopkins University.
1994-1997	Associate Professor of Physics, The Johns Hopkins University.
1990-1994	Assistant Professor of Physics, The Johns Hopkins University.
1988-1990	Postdoctoral Member of Technical Staff, AT&T Bell Laboratories, Murray Hill, New Jersey.
1985-1988	Research Assistant, Department of Solid Sate Physics, Risø National Laboratory, Denmark.

Education:

1985-1988	The University of Copenhagen, Denmark Ph.D., Physics, September 1988.
1980-1985	The Technical University of Denmark M. S., Physics and Electrical Engineering, September 1985.
1977-1980	Roskilde Katedralskole August 8, 1977 to June 27, 1980. Studentereksamen June 1980.

Grants and Awards:

2014-2019	Moore Foundation. Experimentalist in Quantum Materials. ($1.8M)
2014-2017	DoE "Johns Hopkins Institute for Quantum Matter" with 5 co-PIs. ($4.2M)
2011-2014	DoE "Johns Hopkins Institute for Quantum Matter" with 5 co-PIs. ($3.9M)
2010	Sustained Research Prize of the Neutron Scattering Society of America
2008-2009	NSF MRI "Acquisition of a high field, multi-probe cryogenic system for quantum and nanostructured materials research ($501k)"
2008-2011	DoE "Institute for Quantum Matter" with 5 co-PIs. ($3.2M)
2006-2008	NSF "IMR-MIP Conceptual and Engineering Design of Instrumentation for Probing Matter in Magnetic Fields above 30

	Tesla through Neutron Scattering" ($1.7M)
2005	Fellow of the American Physical Society
2003-2007	NSF "Dynamic Correlations in Strongly Fluctuating Condensed Matter" ($460k).
2002-2005	DoE "Pulsed Neutron Scattering Studies of Strongly Fluctuating Solids" ($375k).
2001-2006	NSF "Development of High Intensity Cold Neutron Spectrometer with Multichannel Analyzer" ($1.6M).
2000-2003	NSF "Neutron Scattering Studies of Solids with Strong Fluctuations" ($330k).
1998-2001	NIST "Development of new High Intensity Cold Neutron Spectrometers" ($216k).
1998-2001	NSF "Magnetized States of Quantum Spin Chains" with D. H. Reich ($270k).
1997	NSF "High Field Low T Cryo-System for Neutron Scattering" ($100k).
1995-1998	NIST "design of doubly focusing cold neutron spectrometer ($\approx$ $150k).
1994-1999	NSF "Presidential Faculty Fellowship" ($500k).
1993-1996	NSF "Low Dimensional Quantum Magnetism" with D. H. Reich ($275k).
1987	Travel Grant from the Danish Research Academy.
1987	The Danish J. Angelo Award for excellence in research.

Professional Activities:

2013-2015	Member of the International Advisory Committee for the Conference on Materials and Mechanisms of Superconductivity M2S 2015.
2013	Program advisory committee for the 27^{th} International Conference on Low Temperature Physics in Buenos Aires Argentina
2012-2014	Chair of the Focus session on Frustrated Magnetism at the 2013 and 2014 APS March meetings
2012-2013	International Advisory Committee for the 2013 Conference on Magnetic Materials and Applications organized by the Magnetics Society of India, IIT Guwahati.
2012-2013	International Advisory Committee for the 2013 International Conference on Neutron Scattering
2012	Committee of Visitors, Basic Energy Sciences, Division of Materials Sciences and Engineering.
2012	Particle theory faculty search committee Johns Hopkins University
2011-2012	Materials 2022, NSF DMR advisory committee on funding for Instrumentation
2011	Prize Committee for Neutron Scattering Society of America
2011-	Member of Materials Council, Materials Sciences and Engineering Basic Energy Sciences, Department of Energy
2011-	International Peer Review Panels of the Danish Council for Independent Research
2010-2011	Member of external advisory committee for the conference on Novel Phenomena in Frustrated Systems, Santa Fe, NM 2011
2010-2011	Member of program committee for the 2011 Conference on Low Temperature Physics, Beijing China
2010-2011	Member of the international advisory committee for NASCES 2011 Tokao, Ibaraki, Japan.
2009-2010	Member of organizing Committee for the HFM 2010 International Conference on Highly Frustrated Magnetism
2010	Member of the program committee for SENSE 2010, Grenoble, France

2009-2010	Co-Chair of the Program Committee for the American Conference on Neutron Scattering
2009-2010	Member of the Program Committee for the SCES 2010 International Conference on Strongly Correlated Electron Systems
2007-	Member of the Advisory Committee for the Center for Nanophase Materials Science, ORNL
2008-	Member of the Advisory Committee for the Helmholtz Zentrum Berlin Research Facility
2006-2008	Member of NAS/BPA/SSSC panel to assess the status of New Materials Synthesis and Crystal Growth
2007-	Member of beam time allocation committee for the Spallation Neutron Source
2007-	Member of beam time allocation committee for the NIST Center for Neutron Research Expansion
2006-	Member of the National Advisory Committee for the SCES2007 meeting on Strongly Correlated Electron Systems
2005-	Member of the Solid State Sciences Advisory Committee, under the Board on Physics and Astronomy, the National Academy of Sciences.
2005-2006	Member of the International Advisory Committee for the HFM2006 meeting on Highly Frustrated Magnetism
2004-2005	Member of the National Advisory Committee for the LT24 conference on Low Temperature Physics
2004-	Member of the editorial board of the Journal of Statistical Mechanics: Theory and Experiment
2003	Member of BESAC sub-panel for a 20-year DoE Facilities Road-map
2003-	Member of the NIST Center for Neutron Research Users group
2002-2003	Member of International Advisory Committee for HFM2003 conference on Highly Frustrated Magnetism to be held at ILL, Grenoble, France, Aug. 2003.
2002-2006	Chair of the Experimental Facilities Advisory Committee for the Spallation Neutron Source.
2001-2002	Member of International Advisory Committee for workshop on Single Crystal Neutron Spectroscopy held at ILL, Grenoble, France Dec. 2002.
2001-2002	International Advisory Panel for 23th International Conference on Low Temperature Physics, Japan, 2002.
2001-	Member of ISIS spallation neutron source instrument scheduling panel.
2001-2002	Symposium Co-Organizer MRS 2002 Fall meeting.
2000	Member of BESAC sub-panel evaluating LANSCE and IPNS.
1999-2000	International Advisory Committee for HFM2000 conference on Highly Frustrated Magnetism held at Waterloo University, Canada June 2000.
2000-	Referee for Science and Nature.
1999-2002	Member of SNS Instrumentation Oversight Committee.
1999-	Member of the DOE Basic Energy Sciences Advisory Committee.
1997-1998	Chairman of the executive committee of the Los Alamos Neutron Science Center Users Group.
1996-1997	Vice chairman of the executive committee of the Los Alamos

	Neutron Science Center Users Group.
1996	Member of subpanel evaluating upgrade proposals at US spallation neutron sources for the DOE.
1995	Invited participant in work shop evaluating the merits of a long pulse spallation neutron source in the USA.
1988-	Editorial Consultant: Physical Review Letters (sometimes as Divisional Associate Editor), Physical Review B, Physica B and Journal of Applied Physics.
1993	Chairman, Condensed Matter Physics Working Group at workshop on Opportunities at Future Spallation Neutron Sources.
1991-1994	Summer visitor, National Institute of Standards and Technology.
1991	Summer Visitor, Risø National Laboratory.
1987	Visiting Scientist, AECL, Chalk River Nuclear Labs, Canada.
1987	Visiting Scientist, AT&T Bell Laboratories, Murray Hill, New Jersey.

Graduate Students:

Shu Zhang, matriculated JHU fall 2014
Alan Scheie, matriculated JHU fall 2014
Evan Plunkett, matriculated JHU fall 2014
Guy Marcus, matriculated JHU fall 2013
Wes Fuhrman, matriculated JHU fall 2013
Lin Lin, second year student visiting from Nanjing University
Shan Wu, fifth year student
Jiajia Wen, Ph. D. 2014. Now postdoc at Stanford University.
Vivek Thampy, Ph. D. 2012, now postdoc at Brookhaven National Laboratory.
Ivelisse Cabrera, Ph. D. 2010, Now postdoc at Oxford University.
Hong Tao, Ph. D. 2007, now instrument scientist at ORNL.
Seth Jonas, Ph. D. 2008, now at Science and Technology Policy Institute.
Matthew Stone, Ph. D. 2002, shared with D. H. Reich. now instrument scientist at ORNL.
Ying Chen Ph. D. 2002, shared with D. H. Reich. was instrument scientist at NIST. Now in Kroati
Goran Gasparovic Ph. D. 2004 now Industrial Scientist in Kroatia.
Yiming Qiu Ph. D. 2002, now instrument scientist at NIST.
Guangyong Xu, Ph. D. 1998, now Research Staff at Brookhaven National Laboratory.
Philip Hamar, Ph. D. 1998, shared with D. H. Reich. Now in Industry.
Daniel Dender, Ph. D. 1999, shared with D. H. Reich. now permanent staff at NIST.
Seunghun Lee, Ph.D. March 1996, now Professor at University of Virginia
Wei Bao, Ph.D. 1995, now Distinguished Professor at Renmin University, Beijing, China.
Shaolong Ma, Ph.D. 1994, now in industry.

Postdoctoral fellows supervised:

Dr. Kemp Plumb 2014-
Dr. Jon Leiner 2013-
Dr. Kate Ross, 2012-2014. Now Assistant Prof. at Colorado State Univ.
Dr. Martin Mourigal, 2011-2014. Now Assistant Prof. at Georgia Tech.
Dr. Harini Barath, 2010-2011, returned to India

Dr. Yang Zhao, 2008-2010, now instrument scientist at NIST
Dr. Yusuke Nambu, 2008-2009, now assistant Professor at Tohoku University, Japan
Dr. Andrei Savici, 2007-2009, now scientific software developer at the SNS
Dr. Christopher Stock 2004-2006 now at NIST Center for Neutron Research
Dr. Michel Kenzelmann 2001-2004 now leader of instrument development group, PSI Zürich
Dr. Clemens Ulrich 1999-2000 now Professor at University of New South Wales, Australia.
Dr. Igor Zaliznyak 1996-1999 now research staff at BNL.

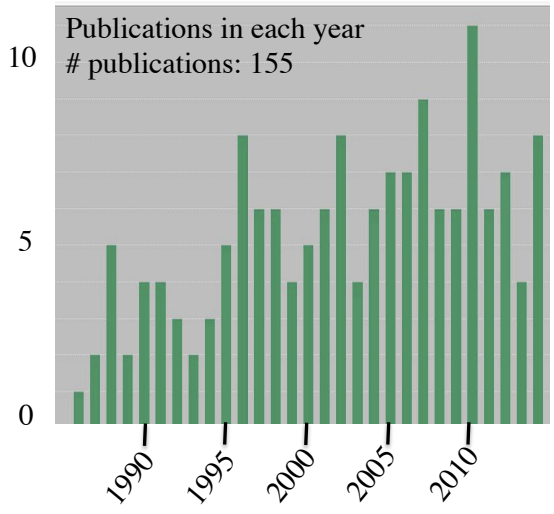
Courses taught :

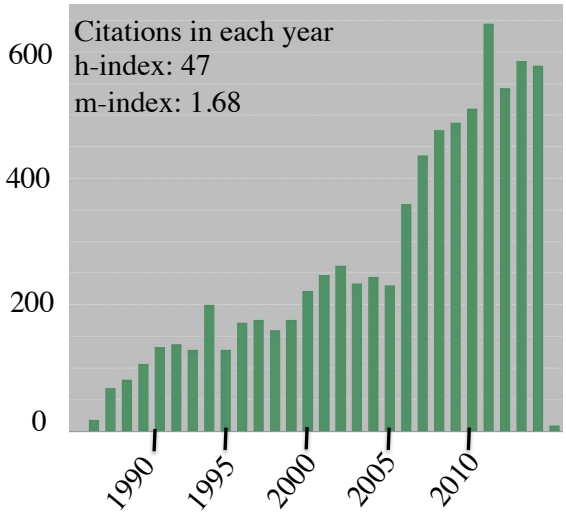
2014 Fall 171.751 "Neutron Scattering and Quantum Condensed Matter Physics"
2014 Spring 171.102 "General Physics II"
2013 Spring 171.102 "General Physics II"
2012 Fall 171.751 "Neutron Scattering and Quantum Condensed Matter Physics"
2012 Spring 171.102 "General Physics II"
2011 Spring 171.712 "Intermediate Seminar for Physics Graduate Students'
' 2010 Fall 171.101 "General Physics"
2010 Spring 171.106 "Electromagnetic Theory I"
2009 Fall 171.634 "Topics in Magnetism"
2009 Spring 171.106 "Electromagnetic Theory I"
2008 Fall 171.303 "Introduction to Quantum Mechanics I"
2008 Spring 171.304 "Introduction to Quantum Mechanics II"
2007 Fall 171.303 "Introduction to Quantum Mechanics I"
2007 Spring 172.632 "Physics Seminar"
2007 Spring 171.304 "Introduction to Quantum Mechanics II"
2006 Fall 172.631 "Physics Seminar"
2006 Fall 171.303 "Introduction to Quantum Mechanics I"
2006 Spring 172.632 "Physics Seminar"
2006 Spring 171.304 "Introduction to Quantum Mechanics II"
2005 Fall 172.631 "Physics Seminar"
2005 Fall 171.303 "Introduction to Quantum Mechanics I"
2005 Spring 172.632 "Physics Seminar"
2005 Spring 171.302 "Topics in Advanced Electromagnetic Theory."
2004 Fall 172.631 "Physics Seminar"
2004 Fall 171.301 "Introduction to Electromagnetic Theory."
2004 Spring 171.302 "Topics in Advanced Electromagnetic Theory."
2003 Fall 171.301 "Introduction to Electromagnetic Theory."
2003 Spring Sabbatical leave
2002 Fall 171.301 "Introduction to Electromagnetic Theory."
2002 Spring 171.312 "Statistical Physics and Thermodynamics."
2001 Fall 171.764 " Experimental Techniques in Condensed Matter Physics"
2001 Spring 171.312 "Statistical Physics and Thermodynamics."
2000 Fall Graduate course on "Magnetism."
2000 Spring 171.104 "General Physics for Bio-Science Majors II."
1999 Fall 171.103 "General Physics for Bio-Science Majors I."
1999 Spring 171.112 "General Physics Laboratory."

1998 Fall 171.103 “General Physics for Bio-Science Majors I.”
1998 Spring 171.112 “General Physics Laboratory.”
1997 Fall 171.103 “General Physics for Bio-Science Majors I.”
1997 Spring 171.764 “Experimental Techniques in Condensed Matter Physics.”
1996 Fall 171.103 “General Physics for Bio-Science Majors I.”
1996 Spring 171.634 “Magnetism.”
1995 Fall 171.621 “Condensed Matter Physics.”
1995 Spring 171.632 “Scattering Techniques in Materials Science.”
1994 Fall 171.621 “Condensed Matter Physics.”
1994 Spring 171.622 “Condensed Matter Physics.”
1993 Fall 171.621 “Condensed Matter Physics.”
1993 Spring 171.302 “Introduction to E & M.”
1992 Fall 171.621 “Condensed Matter Physics.”
1992 Spring 171.622 “Condensed Matter Physics.”
1991 Fall 171.621 “Condensed Matter Physics.”
1991 Spring 172.632 “Physics seminar.”

Publication List for Collin L. Broholm

Citation counts and analysis from Web of Science January 19, 2015.





Total number of citations on ISI: **7774.**
Average Citations per ISI paper: **50.2**
h-number:**47** (47 publications with at least 47 citations)

In the publication list below boxed papers were cited more than 100 times. **Bold papers** were cited at an average rate of at least 10 per year.

1. "Magnons and continua in a magnetized and dimerized spin-1/2 chain," M. B. Stone, Y. Chen, D. H. Reich, C. Broholm, G. Xu, J. R. D. Copley, and J. C. Cook, Phys. Rev. B **90**, 094419 (2014).

2. "Modified magnetism within the coherence volume of superconducting Fe1+δSexTe1−x", J. Leiner, V. Thampy, A. D. Christianson, D. L. Abernathy, M. B. Stone, M. D. Lumsden, A. S. Sefat, B. C. Sales, Jin Hu, Zhiqiang Mao, Wei Bao, and C. Broholm, Phys. Rev. B **90**, 100501(R) (2014).

3. "Direct link between bulk thermodynamic measurements and surface conduction in SmB6," W. A. Phelan, S. M. Koohpayeh, P. Cottingham, J. W. Freeland, J. C. Leiner, C. L. Broholm, T. M. McQueen, Phys. Rev. X **4**, 031012 (2014); arXiv:1403.1462.

4. **"Synthesis, floating zone crystal growth and characterization of the quantum spin ice Pr2Zr2O7 pyrochlore," S.M. Koohpayeh, J.-J. Wen, B.A. Trump, C.L. Broholm, and T.M. McQueen, J. Cryst. Growth 402, 291 (2014).**

5. "Strict limit on in-plane ordered magnetic dipole moment in URu_2Si_2," K. A. Ross, L. Harriger, Z. Yamani, W. J. L. Buyers, J. D. Garrett, A. A. Menovsky, J. A. Mydosh, and C. L. Broholm, Phys. Rev. B **89**, 155122 (2014).

6. "Magnetic structure of the conductive triangular-lattice antiferromagnet $PdCrO_2$," H. Takatsu, G. Nenert, H. Kadowaki, H. Yoshizawa, M. Enderle, S. Yonezawa, S Y. Maeno, J. K. Kim, N. Tsuji, M. Takata, Phys. Rev. B, **89**, 104408 (2014).

7. "Ghost modes and continuum scattering in the dimerized distorted kagome lattice antiferromagnet $Rb_2Cu_3SnF_{12}$," K. Matan, Y. Nambu, Y. Zhao, T. J. Sato, Y. Fukumoto, T. Ono, H. Tanaka, C. Broholm, A. Podlesnyak, and G. Ehlers, Phys. Rev. B **89**, 024414 (2014).

8. "Molecular Quantum Magnetism in $LiZn_2Mo_3O_8$," M. Mourigal, W. T. Fuhrman, J. P. Sheckelton, A. Wartelle, J. A. Rodriguez-Rivera, D. L. Abernathy, T. M. McQueen, C. L. Broholm, Phys. Rev. Lett. **112**, 027202 (2014).

9. "Optical floating zone crystal growth and magnetic properties of MgCr2O4," S. M. Koohpayeh, J. J. Wen, Martin Mourigal, S. E. Dutton, R. J. Cava, C. Broholm, T. M. McQueen, J. Crystal Growth, **384**, 39 (2013)

10. "Multiferroicity in the generic easy-plane triangular lattice antiferromagnet $RbFe(MoO_4)_2$," J. S. White, C. Niedermayer, G. Gasparovic, C. Broholm, J. M. S. Park, A. Y. Shapiro, L. A. Demianets, LA. and M. Kenzelmann, Phys. Rev. B **88**, 060409 (2013).

11. "Quantum fluctuations in spin-ice-like $Pr_2Zr_2O_7$," K. Kimura, S. Nakatsuji, J.-J. Wen, C. Broholm, M. B. Stone, E. Nishibori, H. Sawa. Nature Communications **4**, 1934 (2013).

12. "Quasi-two-dimensional noncollinear magnetism in the Mott insulator $Sr_2F_2Fe_2OS_2$", Liang L. Zhao, Shan Wu, Jiakui K. Wang, C. Broholm, and E. Morosan, Phys. Rev. B **87**, 020406 (2013).

13. "Fractionalized excitations in the spin-liquid state of a kagome-lattice antiferromagnet," T.-H. Han, J. S. Helton, S. Chu, D. G. Nocera, J. A. Rodriguez-Rivera, C. Broholm, and Y. S. Lee, Nature 492, 406 (2012).

14. "Magnetic field splitting of the spin-resonance in $CeCoIn_5$", C. Stock, C. Broholm, Y. Zhao, F. Demmel, H. J. Kang, K. C. Rule, and C. Petrovic, Phys. Rev. Lett. **109**, 167207 (2012).

15. "From Incommensurate Correlations to Mesoscopic Spin Resonance in $YbRh_2Si_2$," C. Stock, C. Broholm, F. Demmel, J. Van Duijn, J. W. Taylor, H. J. Kang, R. Hu, and C. Petrovic, Phys. Rev. Lett. **109**, 127201 (2012).

16. "Spin-orbital short-range order on a honeycomb-based lattice," S. Nakatsuji, K. Kuga, K. Kimura, R. Satake, N. Katayama, E. Nishibori, H. Sawa, R. Ishii, M. Hagiwara, F. Bridges, T. U. Ito, W. Higemoto, Y. Karaki, M. Halim, A. A. Nugroho, J. A. Rodriguez-Rivera, M. A. Green, and C. Broholm, Science **336**, 559 (2012).

17. "Quantum spin liquid in frustrated one dimensional LiCuSbO4", S. E. Dutton, M. Kumar, M. Mourigal, Z. G. Soos, J.-J. Wen, C. L. Broholm, N. H. Andersen, Q.

Huang, M. Zibri, R. Toft-Petersen, and R. J. Cava, Phys. Rev. Lett., **108**, 187206 (2012).

18. "Friedel-like Oscillations from Interstitial Iron in Superconducting Fe1+yTe0.62Se0.38", V. Thampy, J. Kang, J. A. Rodriguez-Rivera, W. Bao, A. T. Savici, J. Hu, T. J. Liu, B. Qian, D. Fobes, Z. Q. Mao, C. B. Fu, W. C. Chen, Q. Ye, R. W. Erwin, T. R. Gentile, Z. Tesanovic, and C. Broholm, Phys. Rev. Lett. **108**, 107002 (2012).

19. "Dominant ferromagnetism in the spin-1/2 half-twist ladder 334 compounds Ba3Cu3In4O12 and Ba3Cu3Sc4O12", S. E. Dutton, M. Kumar, Z. G. Soos, C. L. Broholm, and R. J. Cava, J. Phys. Cond. Matter **24**, 166001 (2012).

20. "Magnetic properties of hole-doped SCGO, SrCr8Ga4-xMxO19 (M=Zn, Mg, Cu)," S. E. Dutton, E. D. Hanson, C. L. Broholm, J. S. Slusky, and R. J. Cava, J. Phys.: Condens. Matter **23**, 386001 (2011).

21. "Helical magnetism and structural anomalies in triangular lattice alpha-SrCr2O4", S. E. Dutton, E. Climent-Pascual, P. W. Stephens, J. P. Hodges, A. Huq, C. L. Broholm, and R. J. Cava, J. Phys. Condens. Matter **23**, 246005 (2011).

22. "A wide angle neutron spin filter system using polarized ^{3}He", C.B. Fu, T. R. Gentile, G. L. Jones, W. C. Chen, R. Erwin, S. Watson, C. Broholm, J. A. Rodriguez-Rivera, J. Scherschligt, Physica B **406**, 2419-2423 (2011).

23. "Successive phase transitions and phase diagrams for the quasi-two-dimensional easy-axis triangular antiferromagnet Rb4Mn(MoO4)3", R. Ishii, S. Tanaka, K. Onuma, Y. Nambu, M. Tokunaga, T. Sakakibara, N. Kawashima, Y. Maeno, C. Broholm, D. P. Gautreaux, J. Y. Chan, and S. Nakatsuji, EPL **94**, 17001 (2011).

24. "Sensitivity of the magnetic properties of the ZnCr2O4 and MgCr2O4 spinels to nonstoichiometry", S. E. Dutton, Q. Huang, O. Tchernyshyov, C. Broholm, and R. J. Cava, Phys. Rev. B **83**, 064407 (2011).

25. "Incommensurate Magnetism in FeAs Strips: Neutron Scattering from CaFe4As3", Yusuke Nambu, Liang L. Zhao, Emilia Morosan, Kyoo Kim, Gabriel Kotliar, Pawel Zajdel, Mark Green, William Ratcliff, Jose A. Rodriguez, and Collin Broholm, Phys. Rev. Lett., **106**, 037201 (2010).

26. "Neutron scattering study of a quasi-two-dimensional spin-1/2 dimer system: Piperazinium hexachlorodicuprate under hydrostatic pressure", Tao Hong, C. Stock, I. Cabrera, C. Broholm, Y. Qiu, J. B. Leao, S. J. Poulton, and J. R. D. Copley, Phys. Rev. B **82**, 184424 (2010). (DMR 0706553)

27. "Anisotropic and quasipropagating spin excitations in superconducting $Ba(Fe_{0.926}Co_{0.074})_2As_2$",H. F. Li, C. Broholm, D. Vaknin, R. M. Fernandes, D. L. Abernathy, M. B. Stone, D. K. Pratt, W. Tian, Y. Qiu, N. Ni, S. O. Diallo, J. L. Zarestky, S. L. Bud'ko, P. C. Canfield, and R. J. McQueeney, Phys. Rev. B **82**, 140503 (2010).

28. 'Field-Induced Tomonaga-Luttinger Liquid Phase of a Two-Leg Spin-1/2 Ladder with Strong Leg Interactions", Tao Hong, Y. H. Kim, C. Hotta, Y. Takano, G. Tremelling, M. M. Turnbull, C. P. Landee, H.-J. Kang, N. B. Christensen, K. Lefmann, K. P. Schmidt, G. S. Uhrig, and C. Broholm, Phys. Rev. Lett. **105**, 137207 (2010). (DMR 0706553)

29. "The Divergent effects of static disorder and hole doping in geometrically frustrated β-$CaCr_2O_4$", S. E. Dutton, R. J. Cava, and C. Broholm , http://arxiv.org/abs/1004.1390, J. Solid State Chem. **183**, 1798-1804 (2010).

30. "Neutron-Scattering Measurement of Incommensurate Short-Range Order in Single Crystals of the S=1 Triangular Antiferromagnet $NiGa_2S_4$", C. Stock, S. Jonas, C. Broholm, S. Nakatsuji, Y. Nambu, K. Onuma, Y. Maeno, J. H. Chung, Phys. Rev. Lett. **105**, 037402 (2010). (DMR 0706553)

31. "Paramagnetic spin correlations in $CaFe_2As_2$ single crystals", S. O. Diallo, D. K. Pratt, R. M. Fernandes, W. Tian, J. L. Zarestky, M. Lumsden, T. G. Perring, C. L. Broholm, N. Ni, S. L. Bud'ko, P. C. Canfield,H. F. Li, D. Vaknin, A. Kreyssig, A. I. Goldman, and R. J. McQueeney, Phys. Rev. B **81**, 214407 (2010).

32. "ZEEMANS - a new facility to probe matter at high magnetic field through neutron scattering," A. T. Savici, G. E. Granroth, C. Broholm, Y. S. Lee, and M. D. Bird, Journal of Physics Conference Series, **251**, 012057 (2010).

33. "Incommensurate itinerant antiferromagnetic excitations and spin resonance in the FeTe0.6Se0.4 superconductor", D. N. Argyriou, A. Hiess, A. Akbari I. Eremin, M. M. Korshunov, J. Hu, B. Qian, Z. Q. Mao, Y. M. Qiu, C. Broholm, W. Bao, Phys. Rev. B **81**, 220503 (2010).

34. "From (pi,0) magnetic order to superconductivity with (pi,pi) magnetic resonance in $Fe_{1.02}Te_{1-x}Se_x$", T. J. Liu, J. Hu, B. Qian, D. Fobes, Z. Q. Mao, W. Bao, M. Reehuis, S. A. J. Kimber, K. Prokes, S. Matas, D. N. Argyriou, A. Hiess, A. Rotaru, H. Pham, L. Spinu, Y. Qiu, V. Thampy, A. T. Savici, J. A. Rodriguez, and C. Broholm, Nature Materials 9, 716-720, (2010).

35. "Control of tetrahedral coordination and superconductivity in $FeSe_{0.5}Te_{0.5}$ thin films", S. X. Huang, C. L. Chien, V. Thampy, and C. Broholm, Phys. Rev. Lett., **104**, 217002 (2010).

36. "Frustrated Magnetism and Cooperative Phase Transitions in Spinels", S.-H. Lee, H. Takagi, D. Louca, M. Matsuda, S. Ji, H. Ueda, Y. Ueda, T. Katsufuji, J. H. Chung, S. Park, S.-W. Cheong, C. Broholm, J. Phys. Soc. Japan, **79**, 011004 (2010).

37. "Neutron scattering evidence for isolated spin-1/2 ladders in $(C_5D_{12}N)_2CuBr_4$", A. T. Savici, G. E. Granroth, C. L. Broholm, D. M. Pajerowski, C. M. Brown, D. R. Talham, M. W. Meisel, K. P. Schmidt, G. S. Uhrig, and S. E. Nagler, Phys. Rev. B **80**, 094411 (2009).

38. "Coupled Magnetic and Ferroelectric Domains in Multiferroic $Ni_3V_2O_8$", I. Cabrera, M. Kenzelmann, G. Lawes, Y. Chen, W. C. Chen, R. Erwin, T. R. Gentile,J. B. Leao, J. W. Lynn, N. Rogado, R. J. Cava, C. Broholm, Phys. Rev. Lett. **103**, 087201 (2009). [22 citations] (DMR 0706553)

39. "Spin Gap and Resonance at the Nesting Wave Vector in Superconducting $FeSe_{0.4}Te_{0.6}$", Y. M. Qiu, W. Bao, Y. Zhao, C. Broholm, V. Stanev, Z. Tesanovic, Y. C. Gasparovic, S. Chang, J. Hu, B. Qian, M. H. Fang, Z. Q. Mao, Phys. Rev. Lett. 103, 067008 (2009).

40. "Spin-Lattice Order in Frustrated $ZnCr_2O_4$", S. Ji, S. H. Lee, C. Broholm, T. Y. Koo, W. Ratcliff, S. W. Cheong, and P. Zschack, Phys.Rev. Lett. **103**, 037201 (2009). [27 citations] (DMR 0706553)

41. "Itinerant Magnetic Excitations in $CaFe_2As_2$", S. O. Diallo, V. P. Antropov, T. G. Perring, C. Broholm, J. J. Pulikkotil, N. Ni, S. L. Bud'ko, P. C. Canfield, A. Kreyssig, A. I. Goldman, R. J. McQueeney, Phys. Rev. Lett. 102, 187206 (2009).

42. "Suppression of Antiferromagnetic Spin Fluctuations in the Collapsed Phase of $CaFe_2As_2$", D. K. Pratt, Y. Zhao, S. A. J. Kimber, A. Hiess, D. N. Argyriou, C. Broholm, A. Kreyssig, S. Nandi, S. L. Bud'ko, N. Ni, P. C. Canfield, R. J. McQueeney, A. I. Goldman, Phys. Rev. B **79**, 060510 (2009).

43. "Neutron Scattering Study of the Excitation Spectrum of Solid Helium at Ultra-low Temperatures", E. Blackburn, J. Goodkind, S. K. Sinha, C. Broholm, J. Copley, and R. Erwin, Pramana-J. Phys. **71**, Sp. Iss S1, 673-678 (2008).

44. "Anisotropic Three Dimensional Magnetism in $CaFe_2As_2$", R. J. McQueeney, S. O. Diallo, V. P. Antropov, G. D. Samolyuk, C. Broholm, S. Ni N, S. Nandi, M. Yethiraj, J. L. Zarestky, J. J. Pulikkotil, A. Kreyssig, M. D. Lumsden, B. N. Harmon, P. C. Canfield, A. I. Goldman, Phys. Rev. Lett. **101**, 227205 (2008).

45. "Magnetically Induced Ferroelectricity in the Buckled Kagome Antiferromagnet $Ni_3V_2O_8$", G. Lawes, M. Kenzelmann, and C. Broholm, J. Phys. Cond. Matter, **20**, 434205 (2008).

46. "MACS - A New High Intensity Cold Neutron Spectrometer at NIST", J. A. Rodriguez, D. M. Adler, P. C. Brand, C. Broholm, J. C. Cook, C. Brocker, R. Hammond, Z. Huang, P. Hundertmark, J.W. Lynn, N. C. Maliszewskyj, J. Moyer, J. Orndorff, D. Pierce, T. D. Pike, G. Scharfstein, S. A. Smee, and R. Vilaseca, Measurement Science and Technology, **19**, 034023 (2008).

47. "From Cooperative Paramagnetism to Neel order in $Y_2Ru_2O_7$", J. van Duijn, N. Hur, J. W. Taylor, Y. Qiu, Q. Z. Huang, S.-W. Cheong, C. Broholm, and T. G. Perring, Phys. Rev. B Rapid Communications, **77**, 020405 (2008).

48. "Spin Resonance in the d-wave Superconductor $CeCoIn_5$", C. Stock, C. Broholm, J. Hudis, H. J. Kang, and C. Petrovic, Phys. Rev. Lett. 100, 087001 (2008).

49. "Evidence for Decay of Spin Waves above the Pseudogap of Under-doped $YBa_2Cu_3O_{6.5}$", C. Stock, R. A. Cowley, W. J. L. Buyers, R. Coldea, C. Broholm, C. D. Frost, R. J. Birgeneau, R. Liang, D. Bonn, and W. N. Hardy, Phys. Rev. B **75**, 172510 (2007).

50. "Coherent Behaviour without Magnetic Order of the Triangular Lattice Antiferromagnet $NiGa_2S_4$", S. Nakatsuji, Y. Nambu, K. Onuma, S. Jonas, C. Broholm, and Y. Maeno, J. Phys. Cond. Matter **19**, 145232 (2007).

51. "Single Crystal Growth of $YbRh_2Si_2$ using Zn Flux", R. W. Hu, J. Hudis, C. Stock, C. Broholm, and C. Petrovic, J. Crystal Growth **304**, 114 (2007).

52. "Mesoscopic Phase Coherence in a Quantum Spin Fluid", Guangyong Xu, C. Broholm, Yeong-Ah Soh, G. Aeppli, J. F. DiTusa, Ying Chen, M. Kenzelmann, C. D. Frost, T. Ito, K. Oka, H. Takagi, Science **317**, 1049 (2007).

53. "Crystal Distortions in Geometrically frustrated ACr_2O_4 (A=Zn, Cd)", S.-H. Lee, G. Gasparovic, C. Broholm, M. Matsuda, J. H. Chung, Y. J. Km, H. Ueda, G. Xu, P. Zschack, K. Kakurai, H. Takagi, W. Ratcliff, T. H. Kim, and S.-W. Cheong, J. Phys. Cond. Matter **19**, 145259 (2007).

54. "Absence of low temperature anomaly in the Debye-Waller factor of solid ^{4}He", E. Blackburn, J. M. Goodkind, S. K. Sinha, J. Hudis, C. Broholm, J. van Duijn, C. D. Frost, O. Kirichek, and R. B. E. Down, Phys. Rev. B **76**, 024523 (2007).

55. "Direct transition from a disordered to a multiferroic phase on a triangular lattice", M. Kenzelmann, G. Lawes, A.B. Harris, G. Gasparovic, C. Broholm, A.P. Ramirez, G.A. Jorge, M. Jaime, S. Park, Q. Huang, A.Ya. Shapiro, and L.A. Demianets, Phys. Rev. Lett. 98, 267205 (2007).

56. "Phase diagram and spin Hamiltonian of weakly-coupled anisotropic S = 1/2 chains in CuCl2.2((CD3)2SO)", Y. Chen, M. B. Stone, M. Kenzelmann, C. D. Batista, D. H. Reich, and C. Broholm, Phys. Rev. B **75**, 214409 (2007).

57. "Field-driven phase transitions in a quasi-two-dimensional quantum antiferromagnet", M. B. Stone, C. Broholm, D. H. Reich, P. Schiffer, O. Tchernyshyov, P. Vorderwisch, and N. Harrison, New Journal of Physics, **9** , 31 (2007).

58. "Quantum phase transitions in magnetism and superconductivity: Emergent spin topology seen with neutrons", W. J. L. Buyers, C. Stock, Z. Yamani, R. J. Birgeneau, R. Liang, D. Bonn, W. N. Hardy, C. Broholm, R. A. Cowley, R. Coldea, PHYSICA B-CONDENSED MATTER **385** 11-15 Part 1 Sp. Iss. SI, (2006).

59. "Magnetic and transport properties of $RCoIn_5$ R=(Pr, Nd) and $RCoGa_5$ R=(Tb-Tm)", J. Hudis, R. Hu. C. Broholm, V. Mitrovic, and C. Petrovic, J. Magn. Magn. Matter. **307**, 301-307 (2006).

60. "Quantum Criticality in an Organic Magnet", M. B. Stone, C. Broholm, D. H. Reich, O. Tchernyshyov, P. Vorderwisch, and N. Harrison, Phys. Rev. Lett. **96**, 257203 (2006).

61. "Central mode and spin confinement near the boundary of the superconducting phase in YBa2Cu3O6.353 (TC=18 K)", C. Stock, W. J. L. Buyers, Z. Yamani, C. L. Broholm, J.-H. Chung, Z. Tun, R. Liang, D. Bonn, W. N. Hardy, and R. J. Birgeneau, Phys. Rev. B **73**, 100504(R) (2006).

62. "Neutron scattering from a coordination polymer quantum paramagnet", T. Hong, M. M. Turnbull, C. P. Lande, K. P. Schmidt, G. S. Uhrig, Y. Qiu, C. Broholm, and D. H. Reich, Phys. Rev. B **74**, 094434 (2006).

63. "Field dependence of magnetic ordering in Kagome-staircase compound $Ni_3V_2O_8$, M. Kenzelmann, A. B. Harris, A. Aharony, O. Entin-Wohlman, T. Yildirim, Q. Huang, S. Park, G. Lawes, C. Broholm, N. Rogado, R. J. Cava, K. H. Kim, G. Jorge, and A. P. Ramirez, Phys. Rev. B **74**, 014429, (2006).

64. "Quasiparticle breakdown in a quantum spin liquid", Matthew B. Stone, Igor A. Zaliznyak, Tao Hong, Collin L. Broholm, and Daniel H. Reich, Nature **440**, 187-190 (2006).

65. "Crystalline electric field levels and magnetic properties of the metallic pyrochlore compound $Pr_2Ir_2O_7$", Y. Machida, S. Nakatsuji, H. Tonomura, T. Tayama, T. Sakakibara, J. van Duijn, C. Broholm, Y. Maeno, J. Phys. Chem. Sol. **66**, 1435 (2005).

66. "Inversion Symmetry Breaking Magnetic Structures in Multiferroic Oxides" M. Kenzelmann, A.B. Harris, G. Lawes, J. Schefer, C. Broholm, A.P. Ramirez, A. Aharony, and O. Entin-Wohlman, Swiss Neutron News **27**, 10 (2005).

67. "Magnetic Inversion Symmetry Breaking and Ferroelectricity in $TbMnO_3$" M. Kenzelmann, A. B. Harris, S. Jonas, C. Broholm, J. Schefer, S. B. Kim, C. L. Zhang, S.-W. Cheong, O. P. Vajk, and J. W. Lynn, Phys. Rev. Lett. 95, 087206 (2005).

68. "Magnetically Driven Ferroelectric Order in $Ni_3V_2O_8$", G. Lawes, A. B. Harris, T. Kimura, N. Rogado, R. J. Cava, A. Aharony, O. Entin-Wohlman, T. Yildirim, M. Kenzelmann, C. Broholm, and A. P. Ramirez, Phys. Rev. Lett. 95, 087205 (2005).

69. "Spin Disorder on a Triangular Lattice", Satoru Nakatsuji, Yusuke Nambu, Hiroshi Tonomura, Osamu Sakai, Seth Jonas, Collin Broholm, Hirokazu Tsunetsugu, Yiming Qiu, and Yoshiteru Maeno, Science 309, 1697 (2005).

70. "Spin Trimer Antiferromagnetism in $La_4Cu_3MoO_{12}$", Y. Qiu, C. Broholm, S. Ishiwata, M. Azuma, M. Takano, R. Bewley, and W. J. L. Buyers, Phys. Rev. B **71**, 214439 (2005).

71. "Inhomogeneous Level Splitting in $Pr_xBi_{2-x}Ru_2O_7$", J. van Duijn, K. H. Kim, N. Hur, D. Adroja, M. A. Adams, Q. Z. Huang, M. Jaime, S.-W. Cheong, C. Broholm, and T. G. Perring, Phys. Rev. Lett. **94**, 177201 (2005).

72. "S=1/2 Chain in a Staggered Field: Bound-spinon state and the Effects of a Discrete Lattice", M. Kenzelmann, C. D. Batista, Y. Chen, C. Broholm, D. H. Reich, S. Park, and Y. Qiu, Phys. Rev. B **71**, 094411 (2005).

73. "Specific heat at the magnetic order transitions in RbFe $(MoO_4)_2$", G. A. Jorge, C. Capan, F. Ronning, M. Jaime, M. Kenzelmann, G. Gasparovic, C. Broholm, A. Y. Shapiro, L. A. Demianets, Physica B Cond. Matter **354**, 297-299 (2004).

74. "Competing Phases on a "Kagome Staircase", G. Lawes, M. Kenzelmann, N. Rogado, K. H. Kim, G. A. Jorge, R. J. Cava, A. Aharony, O. Entin-Wohlman, A. B. Harris, T. Yildirim, Q. Z. Huang, S. Park, C. Broholm, and A. P. Ramirez, Phys. Rev. Lett. **93**, 247201 (2004).

75. "Spinons, Solitons, and Breathers in Spin-1/2 Chains", C. Broholm, Y. Chen, M. Kenzelmann, C. P. Landee, K. Lefmann, Y. Qiu, D. H. Reich, C. Richel, M. B. Stone, and M. M. Turnbull, Annual Report of the NIST Center for Neutron Research (2003). NIST Special Publication 1006.

76. "Spinons in the strongly correlated copper oxide chains in $SrCuO_2$", I. A. Zaliznyak, H. Woo, T. G. Perring, C. Broholm, C. D. Frost, and H. Takagi, Phys. Rev. Lett. **93**, 087202 (2004).

77. "Spinons in a strongly correlated copper oxide chain," H. Woo, I. Zaliznyak, T. G. Perring, C. Broholm, C. Frost, and H. Takagi, Physica B-Condensed Matter, **350**, E249-E252 (2004)

78. "Bound Spinons in an antiferromagnetic S=1/2 chain with a staggered field", M. Kenzelmann, Y. Chien, C. Broholm, D. H. Reich, and Y. Qiu, Phys. Rev. Lett. **93**, 017204 (2004).

79. "Dynamic Correlations in Quantum Magnets", C. Broholm and G. Aeppli, Chapter in "Strong Interactions in Low Dimensions (Physics and Chemistry of Materials With Low Dimensional Structures)", D. Baeriswyl and L. Degiorgi, Eds. Kluwer ISBN: 1402017987 (2004).

80. "Spinons, Solitons, and Breathers in Spin-1/2 Chains", C. Broholm, C. Broholm, Y. Chen, M. Kenzelmann, C. P. Landee, K. Lefmann, Y. Qiu, D. H. Reich, C. Rischel, M. B. Stone, and M. M. Turnbull, Annual Report of the NIST Center for Neutron Research (2003). NIST Special Publication 1006. Accessible at http://www.ncnr.nist.gov/AnnualReport/FY2003_html/index.html .

81. "Extended quantum critical phase in a magnetized spin-1/2 antiferromagnetic chain", M. B. Stone, D. H. Reich, C. Broholm, K. Lefmann, C. Rischel, C. P. Landee, and M. M. Turnbull, Phys. Rev. Lett. **91**, 037205 (2003).

82. "Massive triplet excitations in a magnetized anisotropic Haldane spin chain", A. Zheludev, Z. Honda, C. Broholm, K. Katsumata, S. M. Shapiro, A. Kolezhuk, S. Park, and Y. Qiu. Phys. Rev. B **68**, 134438 (2003).

83. "Neutron scattering study of two-magnon states in the quantum magnet copper nitrate", D. A. Tennant, C. Broholm, D. H. Reich, S. E. Nagler, G. E. Granroth, T. Barnes, K. Damle, G. Xu, Y. Chen, and B. C. Sales, Phys. Rev. B **67**, 054414, (2003).

84. "Structure of end states for a Haldane spin chain", M. Kenzelmann, G. Xu, I. A. Zaliznyak, C. Broholm, J. F. DiTusa, G. Aeppli, T. Ito, K. Oka, and H. Takagi. Phys. Rev. Lett. **90**, 087202 (2003).

85. "MACS Low Background Doubly Focusing Neutron Monochromator", S. A. Smee, J. D. Orndorff, G. A. Scharfstein, Y. Qui, P. C. Brand, C. L. Broholm, and D. K. Anand, Appl. Phys. A **75**, 1-3 (2002).

86. "Spin and Lattice Excitations in the Heavy Fermion Superconductor UNi_2Al_3", B. D. Gaulin, M. Mao, C. R. Wiebe, Y. Qiu, S. M. Shapiro, C. Broholm, S.-H. Lee, and J. D. Garrett, Phys. Rev. B **66**, 174520 (2002).

87. "Emergent Excitations in a Geometrically Frustrated Magnet", S.-H. Lee, C. Broholm, W. Ratcliff II, G. Gasparovic, Q. Huang, T. H. Kim, and S.-W. Cheong, Nature 418, 856 (2002).

88. "Future Probes in Materials Science" J. W. Allen, M. Aronson, G. S. Boebinger, C. Broholm, S. Lance Cooper, J. E. Crow, P. C. Hammel, G. Lander, Physica B **318**, 12-23 (2002).

89. "Spin Trimer Antiferromagnetism in $La_4Cu_3MoO_{12}$", Y. Qiu, C. Broholm, S. Ishiwata, M. Azuma, M. Takano, R. Bewley, and W. J. L. Buyers, submitted to Phys. Rev. B (2002).

90. "Magnetized States of Quantum Spin Chains", C. Broholm, G. Aeppli, Y. Chen, D. C. Dender, M. Enderle, P. R. Hammar, Z. Honda, K. Katsumata, C. P. Landee, M. Oshikawa, L. P. Regnault, D. H. Reich, S. M. Shapiro, M. Sieling, M. B. Stone, M. M. Turnbull, I. Zaliznyak, and A. Zheludev, p 211-234 in "High Magnetic Fields – applications in condensed matter physics and spectroscopy" C. Berthier, L. P. Lévy, and G. Martinez, Eds. Springer Verlag (2002).

91. "Freezing of Spin-Correlated Nano-Clusters in a Geometrically Frustrated Magnet", W. Ratcliff II, S.-H. Lee, C. Broholm, S.-W. Cheong, Q. Huang, Phys. Rev. B. **65**, 220406(R) (2002).

92. "Quasi-elastic neutron scattering in the high-field phase of a Haldane antiferromagnet", A. Zheludev, Z. Honda, Y. Chen, C. L. Broholm, K. Katsumata, S. M. Shapiro, Phys. Rev. Lett. **88**, 077206 (2002).

93. "Frustrated Three-Dimensional Quantum Spin Liquid in CuHpCl" M. B. Stone, J. Rittner, Y. Chen, H. Yardimci, D. H. Reich, C. Broholm, D. V. Ferraris, and T. Lectka, Phys. Rev. B **65**, 064423 (2002).

94. "Frustration Induced Quantum Disordered Phase in Two Dimensional Heisenberg Antiferromagnet Piperazinium Hexachlordicuprate", M. B. Stone, I. A. Zaliznyak, Daniel H. Reich, and C. Broholm, Phys. Rev. B **64**, 144405 (2001).

95. "Spin fluctuations in a magnetically frustrated metal **LiV_2O_4** " S.-H. Lee, Y. Qiu, C. Broholm, Y. Ueda, and J. J. Rush, Phys. Rev. Lett. **86**, 5554-5557 (2001).

96. "An Elastic, Low Background Vertical Focusing Element For a Doubly Focusing Neutron Monochromator" S. A. Smee, P. C. Brand, D. D. Barry, C. Broholm, and D. K. Anand, Nucl. Instrum. Meth. A **466**, 513-526 (2001).

97. "Haldane-gap excitations in the low-H_c 1-dimensional quantum antiferromagnet NDMAP.", A. Zheludev, Y. Chen, C. L. Broholm, Z. Honda, K. Katsumata, Phys. Rev. B **63**, 104410 (2001).

98. "Field-induced three- and two-dimensional freezing in a quantum spin liquid" Y. Chen, Z. Honda, A. Zheludev, C. Broholm, K. Katsumata, and S. M. Shapiro Phys. Rev. Lett. **86**, 1618 (2001).

99. "High-field spin dynamics of antiferromagnetic quantum spin chains" M. Enderle, L. P. Regnault, C. Broholm, D. H. Reich, I. Zaliznyak, M. Sieling, H. Ronnow, and D. F. McMorrow Physica B **276** 560-561 (2000).

100. "Geometrical frustration, spin ice and negative thermal expansion - the physics of underconstraint" A. P. Ramirez, C. Broholm, R. J. Cava, and G. R. Kowach Physica B **280** 290-295 (2000).

101. "Holes in a Quantum Spin Liquid", Guangyong Xu, G. Aeppli, P. Bischer, C. Broholm, J. F. DiTusa, C. D. Frost, T. Ito, K. Oka, H. Takagi, and M. Treacy, Science **289**, 419-422 (2000).

102. "Local spin resonance and spin-Peirls like phase transition in the geometrically frustrated antiferromagnet $ZnCr_2O_4$", S.-H. Lee, C. Broholm, S-W. Cheong, T.H. Kim, and W. Ratcliff II, Phys. Rev. Lett. 84, 3718 (2000).

103. "Triplet waves in a quantum spin liquid", G. Xu, C. Broholm, D. H. Reich, and M. A. Adams, Phys. Rev. Lett. **84**, 4465 (2000).

104. "Anisotropic spin freezing in the S=1/2 zigzag chain compound $SrCuO_2$" I. A. Zaliznyak, C. Broholm, M. Kibune, M. Nohara, and H. Takagi, cond-mat/9812440, Phys. Rev. Lett. **83** 5370-3 (1999).

105. "Neutron Scattering and the Search for Mechanisms of Superconductivity" G. Aeppli, D. J. Bishop, C. Broholm, E. Bucher, S.-W. Cheong, P. Dai, Z. Fisk, S. M. Hayden, R. Kleiman, T. E. Mason, H. A. Mook, T. G. Perring, and A. Schroeder, Physica C **317-318**, 9-17 (1999).

106. "Characterization of a Quasi-One-Dimensional Spin-1/2 Magnet which is Gapless and Paramagnetic for $g\mu_B H \leq J$ and $k_B T << J$", P. R. Hammar, M Stone, D. H. Reich, C. Broholm, P. J. Gibson, M. M. Turnbull, C. P. Landee, and M. Oshikawa, Phys. Rev. B **59**, 1008 (1999).

107. "Glassy Statics and Dynamics in the Chemically Ordered Pyrochlore Antiferromagnet $Y_2Mo_2O_7$", J. S. Gardner, B.D. Gaulin, S.-H. Lee, C. Broholm, N. P. Raju, and J. E.Greedan, Phys. Rev. Lett. **83**, 211 (1999).

108. "Phonon Density of States and Negative Thermal Expansion in ZrW_2O_8" G. Ernst, C. Broholm, G. Kowach, and A. P. Ramirez, Nature **396** 147-149 (1998).

109. "Short-Range Spin Correlations in a Geometrically Frustrated Magnet, $SrCr_{9p}Ga_{12\ 9p}O_{19}$" S.-H. Lee, C. Broholm, G. Aeppli, and S.-W. Cheong, Proceedings of the International Conference on Cold Neutron Utilization, South Korea, December (1997).

110. "Tuning the Spin Hamiltonian of the S=1 one dimensional antiferromagnet NENP by external pressure" I. A. Zaliznyak, C. Broholm, D. H. Reich, and D. Dender, Phys. Rev. B **57**, 5200 (1998).

111. "Magnetic Correlations in a Classic Mott System: Pure and doped V_2O_3" W. Bao, C. Broholm, G. Aeppli, S. A. Carter, P. Dai, C.D. Frost, J. M. Honig, and P. Metcalf, J. Magn. Magn. Mater **177-181**, 283 (1998).

112. "Magnetic Correlations and Quantum Criticality in the Insulating Antiferromagnetic, Insulating Spin Liquid, renormalized Fermi Liquid, and Metallic Antiferromagnetic Phases of the Mott System V_2O_3" W. Bao, C. Broholm, G. Aeppli, S. A. Carter, P. Dai, T. F. Rosenbaum, J. M. Honig, P. Metcalf, and S. F. Trevino, Phys. Rev. B **58**, 12727 (1998).

113. "Spin gap in a quasi-one-dimensional S = 1/2 antiferromagnet: Cu_2(1,4-Diazacycloheptane)$_2Cl_4$" P. R. Hammar, D. H. Reich, C. Broholm, and F. Trouw Phys. Rev. B **57**, 7846 (1998).

114. "Neutron Scattering Studies of Non-Metallic Low-dimensional Quantum Antiferromagnets", C. Broholm, Daniel H. Reich, G. Aeppli, S.-H. Lee, D. Dender, P. Hammar, Guangyong Xu, J. F. DiTusa, and A. P. Ramirez, p. 77-105

in "Dynamical Properties of Unconventional Magnetic Systems" edited by A. T. Skjeltorp and D. Sherrington, NATO ASI Series, Series E: Applied Sciences vol. **349**, Kluwer Academic Publishers, Boston (1998).

115. "Two Routes to Metallic Behavior for a Kondo Insulator" A. Schröder, G. Aeppli, T. E. Mason, E. Bucher, C. Broholm, and K. N. Clausen, cond-mat/9611132, submitted to Phys. Rev. Lett. November (1996).

116. "Direct Observation of Field-Induced Incommensurate Soft Modes in a One-Dimensional S=1/2 Antiferromagnet" D. C. Dender, P. R. Hammar, Daniel H. Reich, C. Broholm, and G. Aeppli, Phys. Rev. Lett. 79, 1750 (1997).

117. "Less than 50% Sublattice Polarization in an Insulating S=3/2 Kagomé Antiferromagnet at T ≈ 0" S.-H. Lee, C. Broholm, M. F. Collins, L. Heller , A. P. Ramirez, C. Kloc, E. Bucher , and R. W. Erwin, Phys. Rev. B **56**, 8091 (1997).

118. "Magnetic Coherence in the Transition Metal Oxides", G. Aeppli, C. Broholm, J. F. DiTusa, S. M. Hayden, T. Ito, S.-H. Lee, T. E. Mason, H. A. Mook, K. Oka, T. G. Perring, A. Schröder, H. Takagi, and G. Xu, Physica B **237-238**, 30-35 (1997).

119. "Small Angle Neutron Scattering Studies of the Vortex Lattice in the UPt_3 Mixed State: Direct Structural Evidence for the B ➔C Transition", U. Yaron, P. L. Gammel, G. S. Boebinger, G. Aeppli, P. Schiffer, E. Bucher, D. J. Bishop, C. Broholm, and K. Mortensen, Phys. Rev. Lett. **78**, 3185 (1997).

120. "Dramatic Switching of Magnetic Exchange in a Classical Transition Metal Oxide : Evidence for Orbital Ordering" W. Bao, C. Broholm, G. Aeppli, P. Dai, J. M. Honig, and P. Metcalf, Phys. Rev. Lett. **78**, 507 (1997).

121. "Itinerant Antiferromagnetism in the Mott Compound $V_{1.973}O_3$", W. Bao, C. Broholm, J. M. Honig, P. Metcalf, and S. F. Trevino, Phys. Rev. B **54** R3726 (1996).

122. "Y_2BaNiO_5: A nearly ideal realization of the S=1 Heisenberg chain with antiferromagnetic interactions" Guangyong Xu, J. F. DiTusa, T. Ito, H. Takagi, K. Oka, C. Broholm and G. Aeppli, Phys. Rev. B **54**, R6827 (1996).

123. "Spin-Glass and Non-Spin-Glass Features of a Geometrically Frustrated Magnet" S. H. Lee, C. Broholm, G. Aeppli, A. P. Ramirez, T. G. Perring, C. Carlile, M. Adams, and B. Hessen, Europhys. Lett., **35**, (1996).

124. "Isolated Spin Pairs and Two Dimensional Magnetism in $SrCr_{9p}Ga_{12-9p}O_{19}$", S.-H. Lee, C. Broholm, G. Aeppli, T. G. Perring, and B. Hessen, Phys. Rev. Lett. **76**, 4424 (1996).

125. "Strong Magnetic Fluctuations in Transition Metal Oxides" C. Broholm, G. Aeppli, S.-H. Lee, W. Bao, and J. F. DiTusa, J. Appl. Phys. **79**, 5023 (1996).

126. ”Magnetic Properties of a quasi-one-dimensional S=1/2 1D Antiferromagnet: Copper Benzoate”, D. Dender, D. Davidović, D. Reich, C. Broholm, K. Lefmann, and G. Aeppli, Phys. Rev. B **53**, 2583 (1996).

127. ”Proposal for a Doubly Focusing Cold Neutron Spectrometer at NIST”, C. Broholm, Nucl. Instr. and Meth. in Physics Res. A **369**, 169 (1996).

128. ”Antiferromagnetism and Its Relation to the Superconducting Phases of UPt_3”, E. D. Isaacs, P. Zschack, C. Broholm, C. Burnes, G. Aeppli, A. P. Ramirez, T. T. M. Palstra, R. W. Erwin, N. Stücheli , and E. Bucher, Phys. Rev. Lett., **75**, 1178 (1995).

129. ”Spin Correlations at Finite Temperature in a S=1 One-Dimensional Antiferromagnet”, S. Ma, D. H. Reich, C. Broholm, B. J. Sternlieb and R. W. Erwin, Phys. Rev. B**51**, 3289 (1995).

130. ”Magnetic Freezing and Fluctuations in the Kagomé Compound $SrCr_8Ga_4O_19$” G. Aeppli, S. H. Lee, C. Broholm, T. G. Perring, M. Addams, C. Carlile, A. D. Taylor and B. Hessen. Physica B **213-214**, 142-145 (1995).

131. ”Magnetic Correlations in Doped Transition Metal Oxides” G. Aeppli, W. Bao, C. Broholm, S-W. Cheong, P. Dai, S. M. Hayden, T. E. Mason, H. A. Mook, T. G. Perring and J. F. DiTusa, Springer Series in Solid State Sciences, Ed. A. Fujimori and Y. Tokura, vol **119**, 205-212 (1995).

132. ”Simple High Pressure Cell for Neutron Scattering”, W. Bao, C. Broholm and S. F. Trevino, Rev. Sci. Instr. **66**, 1260 (1994).

133. ”Magnetic And Charge Dynamics in a Doped One-Dimensional Transition Metal Oxide”, J. F. DiTusa, S-W. Cheong, J.-H. Park, G. Aeppli, C. Broholm, and C. T. Chen, Phys. Rev. Lett., **73**, 1857 (1994).

134. ”One Dimensional Spin Fluctuations in a Transition Metal Oxide”, J. F. Ditusa, S-W. Cheong, C. Broholm, G. Aeppli, L. W. Rupp, Jr. and B. Batlogg, Proceedings of the LT20 meeting in Eugene, Oregon, August 1993, Physica B**194-196**, 181, (1994).

135. “Magnetic Correlations in Heavy Fermion Systems: Neutron Scattering from Single Crystals”, G. Aeppli and C. Broholm, Handbook on the Physics and Chemistry of Rare Earths Vol. **19**, Chapter 131, p. 123-175 Elsevier (1994).

136. ”Report from Condensed Matter Physics Working Group”, J. Axe, C. Broholm, D. R. Harshman, S. M. Hayden, H. Mook, S. Nagler, R. Osborn and P. Sokol, to be published in Proceedings of the Workshop on Scientific Opportunities at Future Spallation Neutron Sources, Argonne National Lab, May 1993, Published February 1994.

137. "Antiferromagnetism in One Dimension", C. Broholm, in Neutron Standard, August 1993, A publication of NIST.

138. "Incommensurate Spin-Density-Wave in Metallic $V_{2-y}O_3$", Wei Bao, C. Broholm, S.A. Carter, T. F. Rosenbaum, G. Aeppli, P. Metcalf, J. M. Honig, J. Spalek and S. F. Trevino, Phys. Rev. Lett., **71**, 766 (1993).

139. "Dominance of Long-lived Excitations in the Antiferromagnetic Spin-1 Chain NENP", S. Ma, C. Broholm, D.H. Reich, B.J. Sternlieb and R.W. Erwin, Phys. Rev. Lett., **69**, 3571 (1992).

140. "Neutron Diffraction from the Vortex Lattice in the Heavy-Fermion Superconductor UPt_3", R.N. Kleiman, C. Broholm, G. Aeppli, E. Bucher, N. Stucheli, D.J. Bishop, K.N. Clausen, K. Mortensen, J.S. Pedersen and B. Howard, Phys. Rev. Lett., **69**, 3120 (1992).

141. "Spin Gap and Antiferromagnetic Correlations in the Kondo Insulator CeNiSn", T.E. Mason, G. Aeppli, A.P. Ramirez, K.N. Clausen, C. Broholm, N. Stucheli, E. Bucher and T.T.M. Palstra, Phys. Rev. Lett., **69**, 490 (1992).

142. "A Strongly Fluctuating Quasi-Two-Dimensional Insulator (invited)", C. Broholm, G.Aeppli, G.P. Espinosa and A.S. Cooper, Proc. 35th Annual Conference on Magnetism and Magnetic Materials, J. Magn. Magn. Mat., **69**, 4968 (1991).

143. "Antiferromagnetic Correlations, Coherence, and Superconductivity in UPt_3", G. Aeppli, C. Broholm, E. Bucher, and D. J. Bishop, Physica B **171**, 278-282 (1991).

144. "Magnetic Excitations in the Heavy-Fermion Superconductor URu_2Si_2", C. Broholm, H. Lin, P.T. Matthews, T.E. Mason, W.J.L. Buyers, M.F. Collins, A.A. Menovsky, J.A. Mydosh and J.K. Kjems, Phys. Rev., **43**, 12809 (1991).

145. "Anisotropic Temperature Dependence of the Magnetic Field Penetration Depth in UPt_3", C. Broholm, G. Aeppli, R.N. Kleiman, D.R. Harshman, D.J. Bishop, E. Bucher, D.Ll Williams, E.J. Ansaldo, R.H. Heffner, Phys. Rev. Lett., **65**, 2062 (1990).

146. "Broken Spin Rotation Symmetry Without Magnetic Bragg Peaks in Kagomé Antiferromagnets", G. Aeppli, C. Broholm, A.P. Ramirez, G.P. Espinosa and A.S. Cooper, Proceedings of the Yamada Conference on Magnetic Phase Transitions, J. Magn. Magn. Mater. **90-91**, 255 (1990). Osaka (1990).

147. "Antiferromagnetic Fluctuations and Short Range Order in a Kagomé Lattice", C. Broholm, G. Aeppli, G.P. Espinosa and A.S. Cooper, Phys. Rev. Lett., **65**, 3173 (1990).

148. "Magnetic Order in the Different Superconducting States of UPt_3", G. Aeppli, D. Bishop, C. Broholm, E. Bucher, K. Siemensmeyer, M. Steiner and N. Stusser, Phys. Rev. Lett., 63, 676 (1989).

149. "Oxidation Kinetics in Oxygen Deficient $YBa_2Cu_3O_{7-x}$ Studied by Neutron Powder Diffraction" J. Als-Nielsen, N. H. Andersen, C. Broholm, K. N. Clausen, B. Lebech, M. Nielsen, ad H. F. Poulsen, IEEE Trans. Mag. **25**, 2254-2261 (1989).

150. "Magnetic Fluctuations in Heavy Fermion Systems -A Neutron Scattering Study of UPt_3, U_2Zn_{17} and URu_2Si_2", C. Broholm, Ph. D. Thesis Risø-M-2731 (1988). Available on request to Risø National Laboratory, DK-4000 Roskilde, Denmark.

151. "Magnetic moments and Pu form factor in $PuFe_2$" M.Wulff , G. H. Lander, J. Rebizant, J. C. Spirlet, B. Lebech, C. Broholm, and P. J. Brown, Phys. Rev. B **37**, 5577-85 (1988).

152. "Heavy Fermion Antiferromagnets" J. K. Kjems and C. Broholm J. Magn. Magn. Materials **76-77**, 371 (1988).

153. "Magnetic Correlations in UPt_3 and $U_{1-x}Th_xPt_3$", J. Magn. Magn. Materials **76-77**, 385-390 (1988).

154. "Superconductivity of Heavy-Electron Uranium-Compounds", Z. Fisk, H. Borges, M. Mcelfresh, J. L. Smith, J. D. Thompson, H. R. Ott, G. Aeppli, E. Bucher, S. E. Lambert, M. B. Maple, C. Broholm, J. K. Kjems , Physica C **153**: 1728-1733 (1988).

155. "Magnetic Order and Fluctuations in Superconducting UPt_3", G. Aeppli, E. Bucher, C. Broholm, J. K. Kjems, J. Baumann and J. Hufnagl, Phys. Rev. Lett., 60, 615 (1988).

156. "Magnetic Excitations and Ordering in the Heavy Electron Superconductor URu_2Si_2", C. Broholm, J. K. Kjems, W. J. L. Buyers, P. Matthews, T. T. M. Palstra, A. A. Menovsky, J. A. Mydosh, Phys. Rev. Lett., 58, 1467-1470 (1987).

157. "Neutron Scattering from Heavy Fermion Systems", C. Broholm, J. K. Kjems, G. Aeppli, E. Bucher and W. J. L. Buyers, in: Proceedings on the International Workshop on Magnetic Excitations and Fluctuations II, Springer-Verlag, Berlin (1987).

158. "Spin Fluctuations in the Antiferromagnetic Heavy Fermion System U_2Zn_{17}", C. Broholm, J. K. Kjems, G. Aeppli, Z. Fisk, J. L. Smith, S. M. Shapiro, G. Shirane, H. R. Ott, Phys. Rev. Lett., **58**, 917-920 (1987).

159. ”Commensurate-Commensurate Magnetic Phase Transitions in CeSb”, B. L. Lebech, C. Broholm, and K. N. Clausen, J. Magn. Magn. Mat., **54-57**, 505-506 (1986).

Invited Talks at International Meetings

Viewgraphs for recent talks are available at http://www.pha.jhu.edu/~broholm/homepage/

1. "Exciton in the Topological Kondo Insulator SmB_6," Yukawa Workshop on Novel Quantum States in Condensed Matter 2014, Yukawa Institute for Theoretical Physics, Kyoto, Japan, November 19, 2014.
2. "Magnetic Excitations in SmB_6," Twenty-Third Congress and General Assembly of the International Union of Crystallography, Montreal, Canada, August 12, 2014.
3. "Metastability & Incommensurability in frustrated magnets," 2014 Conference on Highly Frustrated Magnetism, Cambridge, United Kingdom, July 7, 2014.
4. "Unraveling the Complex Dynamics of Frustrated Magnets with Neutrons," Tutorial at the 2014 Conference on Highly Frustrated Magnetism, Cambridge, United Kingdom, July 6, 2014.
5. "Magnetic Excitations in SmB_6," Workshop on Quantum Magnetism at the Aspen Center for Physics, Aspen, Colorado, June 2014.
6. "Molecular Quantum Magnetism in $LiZn_2Mo_3O_8$," Spring meeting of the German Physical Society, Dresden, Germany, March 31, 2014.
7. "Magnetic Excitations in SmB_6", International Workshop on Topological Materials Out of Equilibrium, MPIPKS, Dresden Germany, March 2014.
8. "Excitons in Kondo Lattices," Aspen Center for Physics 2014 Winter Conference "Beyond Quasiparticles: New Paradigms for Quantum Fluids," January 12 - 18, (2014).
9. "Neutron scattering from short range ordered quantum spin systems", Advances in quantum Magnets – dynamics, Workshop at Kolymbari, Crete, Greece September 15, (2013).
10. "Neutron Scattering & Frustrated Magnetism", International Materials Conference, Cancun, Mexico, August 14 (2013).
11. "Entangled Magnetism," C. Broholm, International Workshop on "New states of matter and their excitations," Berlin, Germany April 22-24, (2013).
12. "Entangled magnetism: synthesis, detection, and potential applications," C. Broholm, Symposium on Industrial Physics, March Meeting of the American Physical Society, Baltimore, MD March (2013).
13. "Incommensurate correlations & mesoscopic spin resonance in YbRh2Si2," March Meeting of the American Physical Society, Baltimore, MD March (2013)
14. "Incommensurate correlations & mesoscopic spin resonance in YbRh2Si2," second workshop on "Heavy Fermions and Quantum Phase Transitions" at the

Institute of Physics, Chinese Academy of Sciences in Beijing from November 11 (2012).

15. "Quantum fluctuations in exchange based spin-ice," International Workshop on Exotic Phases of Strongly Correlated Electron Systems, Kavli Institute for Theoretical Physics, Santa Barbara, California, October 10 (2012).

16. "Multichannel Cold Neutron Spectroscopy on MACS," Tenth International Conference on Quasielastic Neutron Scattering and Workshop on Inelastic Neutron Scattering Instrumentation, Nikko, Japan October 2 (2012).

17. "Incommensurate correlations & mesoscopic spin resonance in YbRh2Si2," Workshop on Frontiers in Quantum Materials Fields Institute Center for Quantum Materials, University of Toronto, Toronto, Canada, September 25 (2012).

18. "Incommensurate correlations & mesoscopic spin resonance in YbRh2Si2," Innovations in Strongly Correlated Electronic Systems: School and Workshop, Trieste, Italy August 15 (2012).

19. "Friedel-like Oscillations in Superconducting $Fe_{1+y}Te_{0.62}Se_{0.38}$," Materials and Mechanisms of Superconductivity, M2S, Washington DC, July 30 (2012).

20. "Spin-orbital short-range order on a honeycomb-based lattice," International Conference on Magnetism, Busan, South Korea, July 9, (2012).

21. "Quantum fluctuations in exchange based spin-ice," International Conference on Highly Frustrated Magnetism, Hamilton, Ontario, Canada, June 8 (2012).

22. "Spin-orbital short-range order on a honeycomb-based lattice," Meeting of the Canadian Institute for Advanced Research, Quantum Materials Program, Toronto, Canada, May 19 (2012).

23. "Scientific progress & opportunities using advanced neutron sources & instrumentation", International Workshop on instrumentation for the European Spallation Neutron Source, Abingdon, United Kingdom, February 24 (2012).

24. "Field Dependent Spin Resonance in $CeCoIn_5$", International Conference on Low Temperature Physics, Beijing, China August 13, (2011).

25. "Magnetic Excitations in the different phases of URu_2Si_2", Japanese conference on heavy Fermion Physics, Institute for Solid State Physics, Kashiwa, Japan, June 23, (2011).

26. "Continuum scattering in the triangular lattice s=1 antiferromagnet $NiGa_2S_4$", International Conference on Novel Phenomena in Frustrated Systems, Santa Fe, NM, May (2011).

27. "Neutron Scattering from Magnetized Quantum Magnets", International Meeting on new Opportunities for Neutron Scattering at High Magnetic Fields, Helmholtz Zentrum, Berlin, Germany, March 31, (2011).

28. “Continuum scattering in the triangular lattice s=1 antiferromagnet $NiGa_2S_4$”, C. Broholm, International Conference on Frustration in Condensed Matter (ICFCM), Sendai, JAPAN, Jan. 11-14, (2011).

29. "Five Neutron Experiments that Advanced Hard Condensed Matter", New Opportunities in Hard Condensed Matter through Neutron Scattering, Oak Ridge NL, TN, December 16-18, (2010).

30. “Magnetic Fluctuations in Iron Superconductors”, The 23rd General Conference of the Condensed Matter Division. of the European Physical Society, August 31 (2010).

31. “The Edge of Magnetism”, C. Broholm, the American Conference on Neutron Scattering, Ottawa, Canada, June 26, (2010).

32. "Magnetic Neutron Scattering", C. Broholm, Tutorial at the American Conference on Neutron Scattering, Ottawa, Canada, June 26, (2010).

33. “Frustration and iron based superconductivity”, International Conference on Spectroscopy in Novel Superconductors, Shanghai, China, May (2010).

34. “Frustration and iron based superconductivity”, CIFAR meeting Montreal, Canada, May (2010).

35. “Spin Resonance in Superconductors near Magnetic Instabilities”, ninth International Conference on Materials and Mechanisms of Superconductivity, Tokyo, Japan, September 9, (2009).

36. “Ferroelectricity in Frustrated Magnets”, Euro-Japan Frustration 2009, Lyon, France, May 13, (2009).

37. “Quantum Critical Spin Fluctuations in $YbRh_2Si_2$”, C. Broholm, International Workshop on Quantum Critical Phenomena and Novel Phases in Super-clean Materials, Hawaii Imin International Conference Center , Honolulu, Hawaii, January 13 (2009).

38. “Ferroelectricity out of Magnetic Frustration”, 2nd International Symposium on Anomalous Quantum Materials (ISAQM2008) and the 7th Asia-Pacific Workshop, Tokyo, Japan November 9 (2008).

39. “Surprises on Triangular Lattices”, 3rd International Workshop on Ordering Phenomena in Transition Metal Oxides, Augsburg, Germany, October 6 (2008).

40. “Probing Frustration through Neutron Scattering”, Tutorial at the International Conference on Highly Frustrated Magnetism, Braunschweig, September 7 (2008).

41. “Spin fluctuations and Superconductivity in $CeCoIn_5$”, Workshop on Strongly Correlated Electron Superconductivity, The Inn at Aspen, CO, August 27 (2008).

42. “Exploring Quantum Magnetism Through Neutron Scattering”, C. Broholm, International Conference on Neutron Scattering, Knoxville, Tennessee, May 4-7, (2009).

43. “Neutron Scattering from Magnetically Frustrated Ruthenium Pyrochlores”, Invited talk at the March meeting of the American Physical Society, New Orleans, Louisiana, March 10, (2008).

44. "Spin Resonance in the d-wave Superconductor $CeCoIn_5$", The 1st Korea University - KAERI Joint International Workshop On Condensed Matter Physics and Neutron Scattering, Seoul, South Korea December 21, (2007).

45. "Magnetism and Ferroelectricity on a Kagome Staircase", Workshop on Motterials, Kavli Institute for Theoretical Physics, Santa Barbara, CA, September 5 (2007).

46. "Spin Resonance in the d-wave Superconductor $CeCoIn_5$", International Conference on Crystal Growth, Salt Lake City, UT, August 31 (2007).

47. "Neutron Scattering from Frustrated Magnets", Workshop on Frustrated Magnetism, International Center for Theoretical Physics, Trieste Italy, August 10 (2007).

48. "Scattering Neutrons from Magnons, Spinons, Solitons, and Breathers", Physics and Mathematics of Interacting Quantum Systems in Low Dimensions, Workshop in Honor of Prof. Minoru Takahashi, Media Hall, Kashiwa Library, University of Tokyo, April 25, (2007).

49. "Cold Neutron Spectroscopy on MACS", Invited talk at US-Japan Workshop on Neutron Scattering Instrumentation, SNS, March 1 (2007).

50. "Ferro-electricity in Frustrated Magnets", Invited talk at the International Materials Research Conference, Cancun Mexico, August 22, (2006).

51. Science and Technology with Neutrons", Tutorial at the International Materials Research Conference, Cancun Mexico, August 20, (2006).

52. "Ferro-electricity in Frustrated Magnets", Annual meeting of the Center for Nanophase Materials Science, Oak Ridge, Tennessee, June 14 (2006).

53. "Spinons Solitons and Breathers in Quasi-one-dimensional Magnets, Invited talk at the March meeting of the American Physical Society, Baltimore, MD March 16 (2006)."

54. "Spin Correlations in Magnets Close to Quantum Criticality", International Conference on Spin- and charge-correlations in molecule-based materials Physical properties, Chemistry and material aspects, Konigstein, Germany, October 19 (2005).

55. "Science and Technology with Neutrons", Tutorial at the International Materials Research Conference, Cancun Mexico, August 21, (2005).

56. "Quasi Particle Breakdown in a Two-Dimensional Spin Liquid", Workshop on Theoretical and Experimental Magnetism, Coseners House, Abingdon, UK August 3, (2005).

57. "Frustrated Magnetism in 2D", Workshop on Strongly Correlated Electron Systems, University of Kentucky, April 24-26, (2005).

58. "Glassy Phases in Two Dimensional Quantum Magnets" and "Phase diagram for a 2D spin-1/2 system with a singlet ground state", Workshop on Quantum Critical Phenomena, Kavli Institute for Theoretical Physics, March 29 and April 1, (2005).

59. "From Spin to Quantum Order in Coordination Polymer Magnets", Annual Meeting of the German Physical Society, Berlin, Germany, March 7, (2005).

60. "Frustrated Magnetism in two dimensions", Princeton Center for Complex Materials, workshop on strongly correlated electron systems, January 28 (2005).

61. "Quantum Magnetism with Time of Flight Neutron Scattering", Annual meeting of the Canadian Institute for Neutron Scattering, Nova Scotia, Canada September 24-25, (2004).

62. "Level Splitting in Frustrated non-Kramers Doublet Systems", International Workshop on Frustrated Magnetism, Montauk Yacht Club, Long Island, NY September 13-17 (2004).

63. "Frustrated Magnetism and Heavy Fermions", at conference on Strongly Correlated Electron Systems, Karlsruhe, Germany, July 29 (2004).

64. "Spin-1/2 Chains in Uniform and Staggered Fields", at conference on "Transport and Magnetism from the thermodynamic to the Nano-Scale" honoring Amnon Aharony on his 60th birthday, Eilat, Israel January 2-6 (2004).

65. "Structure and Dynamics of Spin Polarons Induced by Doping a Spin-1 Chain", The 3rd International Workshop on Novel Quantum Phenomena in Transition Metal Oxides and The 1st Asia-Pacific Workshop on Strongly Correlated Electron Systems, Sendai, Japan, November 8, (2003).

66. "Satisfied Simplexes in Frustrated Magnets", International Conference on Pulsed Neutron Scattering, Tsukuba, Japan October 27 (2003).

67. "Frustration and Field-driven Quantum Criticality", Workshop on Quantum Critical Phenomena and High Temperature Superconductivity", Institute of Theoretical Physics (ITP) & Interdisciplinary Center of Theoretical Studies (ICTS) Beijing, China October 25 (2003).

68. "Quantum Critical Spin-1/2 Chains", Workshop on Quantum Critical Phenomena and High Temperature Superconductivity", Institute of Theoretical Physics (ITP) & Interdisciplinary Center of Theoretical Studies (ICTS)
Beijing, China October 24 (2003).

69. "Quantum Coherence in Magnets", 24th Risø International Symposium on Materials Science, Roskilde, Denmark, September 10 (2003).

70. "The Frustrated Magnetism of $ZnCr_2O_4$", International Highly Frustrated Magnetism, ILL, Grenoble, France August 26 (2003).

71. "Composite Spin in Fluctuating Magnets", International Workshop on Theory Modeling and Neutron Scattering, NIST, August 12 (2003).

72. "Spin 1/2 Chains in Uniform and Staggered Fields", International Workshop on Strongly correlated transition metal compounds, Cologne, Germany, August 5 (2003).

73. "Current and Future Neutron Scattering Instrumentation", at workshop on Neutrons In solid state Chemistry and the Earth Sciences Today and Tomorrow, Oak Ridge, Tennessee, March 13, (2003).

74. "Structure and Dynamics of Spin Polarons induced by Doping a Haldane Spin-1 Chain", Invited talk at March meeting of the American Physical Society, Austin, Texas, March 5, (2003).

75. "Spin Liquids in Frustrated Magnets - are they Stable in Real Materials?" Aspen Winter Conference on "Complex Quantum Order", February 9 (2003).

76. "Spin Peierls Effect in Frustrated Magnets", Workshop on Single Crystal Neutron Spectroscopy, Institute Laue Langevin, Grenoble, France, December 12 (2002).

77. "Doubly Focusing Monochromator for MACS", American Conference on Neutron Scattering, Knoxville, Tennessee, June 24 (2002).

78. "Frustrated Quantum Antiferromagnets", Physics of Frustration from Proteins to Pyrochlores, Santa Fe, NM June 19 (2002).

79. "Two and Three Dimensional Spin Systems with an Isolated Singlet Ground State", International conference on mSR, Williamsburg, VA June 4 (2002).

80. "Magnetized Quantum Spin Chains", Invited talk at European Condensed Matter Conference CMD-19. Bristol, UK April (2002).

81. “Spin Correlations in Magnetized Haldane Chains “, Invited talk at conference on “Physical Properties at High Magnetic Fields IV”, Santa Fe, New Mexico, October 24, (2001).

82. “Past and Future Insights from Neutron Scattering” Invited panel presentation at workshop on “Future of Materials Physics”, Los Alamos, NM August (2001).

83. “Quantum Magnets in High Magnetic Fields”, summer school on “Trends in High Magnetic Fields”, Cargese Corsica, May 7 (2001).

84. “Condensed Matter Physics with Neutrons”, March Meeting of the American Physical Society, Seattle, Washington March (2001).

85. “Finite Temperature Spin Correlations in Quantum Magnets with a Spin Gap” International Conference on Magnetism 2000, Recife, Brazil, August (2000).

86. “Solving Impurity Structures Using Inelastic Neutron Scattering” Annual meeting of the American Crystallographic Association St. Paul Minnesota, July 24 (2000).

87. “Magnetic Neutron Scattering”, talk at workshop on neutron scattering at Chalk River Nuclear Laboratories, Canada June 20 (2000).

88. “Neutron Scattering Studies of Frustrated Magnets”, Workshop on Highly Frustrated Magnetism 2000, Waterloo University, Canada, June 11 (2000).

89. “Impurities and Finite Temperature Effects in a one-Dimensional spin-1 Antiferromagnet”, Workshop on “Magnetic Excitations in Strongly Correlated Electron systems” CURREAC, Japan August 20 (1999).

90. “Neutron Scattering from Geometrically Frustrated Antiferromagnets” International Conference on Low temperature Physics, Helsinki, Finland August 7 (1999).

91. “Magnetism Close to the Metal Insulator Transition in V_2O_3” Workshop on Exotic Oxides, Brookhaven National Laboratory, March 18-20 (1999).

92. “High Field Neutron Scattering Experiments on Quantum Spin Systems” Workshop on Opportunities for Neutron Scattering at 30 T, Los Alamos National Laboratory, Los Alamos, NM January 14-15 (1999).

93. “Excitations in an Alternating Spin-1/2 Chain”, Conference on “The dynamics of single crystals measured by time-of-flight neutron scattering techniques” held at the Coseners house of the ISIS facility, Abingdon, UK December 4 (1998).

94. “Temperature and Doping E ects on Dynamics of Gapped Spin Chains” Gordon Research Conference on Correlated Electron Systems Plymouth, NH July 19-24 (1998).

95. “High Sensitivity Spectroscopy at Reactor Neutron Sources” Workshop on Inelastic Scattering Probes of Condensed Matter University of Chicago May 13-15 (1998).

96. “The Metal Insulator Transition in V_2O_3”, Workshop on Probing Frontiers in Matter with Neutron Scattering held at Los Alamos National Laboratory December 12-14 (1997).

97. “Neutron Scattering Studies of Metallic and Insulating Phases of V_2O_3” International Conference on Neutron Scattering, Toronto August (1997).

98. "Triple Axis Neutron Spectrometry" Workshop on High Resolution Cold Neutron Neutron Spectroscopy, National Institute of Standards and Technology, August 13 (1997).

99. "Neutron Scattering Studies of Non-Metallic Low-dimensional Quantum Antiferromagnets", NATO-ASI School on dynamical properties of unconventional magnetic systems, Geilo, Norway April (1997).

100. "Magnetic Field Effects in One Dimensional S=1/2 Systems", March Meeting of the American Physical Society, Kansas City, March 18 (1997).

101. "Scattering Studies of Low Dimensional Magnets" Miniworkshop on "Disorder and Interactions in Quantum Systems and their Classical Analogs", International Center for Theoretical Physics Trieste, Italy July 8 (1996).

102. "Strong Magnetic Fluctuations in Transition Metal Oxides" Symposium on Neutron Scattering in honor of the (1994) Physics Nobel Laurates, MMM95 Philadelphia November (1995).

103. "Neutron Scattering Studies of Magnetism and Superconductivity in UPt_3", The International Conference on Strongly Correlated Electron Systems, Amsterdam August (1994).

104. "Spin Correlations Close to the Metal Insulator Transitions in $V_{2-y}O_3$", March Meeting of the American Physical Society Pittsburgh, PA March (1994).

105. "Incommensurate Spin Correlations Close to the Metal Insulator Transitions in $V_{2-y}O_3$", Conference on Strongly Correlated Electron Systems, San Diego, CA, August (1993).

106. "Incommensurate Spin Correlations Close to the Metal Insulator Transitions in $V_{2-y}O_3$", ICTP, Trieste, Italy, June (1993).

107. "Incommensurate Spin Correlations Close to the Metal Insulator Transition in $V_{2-y}O_3$", National Institute of Standards and Technology Internal Review, May (1993).

108. "Dynamic Correlations in S=1 and S=1/2 Antiferromagnets", Institute for Theoretical Physics. University of California Santa Barbara, June (1992).

109. "Vortex Lattice and Antiferromagnetism of Superconducting UPt3", 1992 Aspen Winter Conference, January (1992).

110. "Neutron Scattering in a Quasi-2D Kagomé Magnet", The 1991 March Meeting of the American Physical Society, Cincinnati, OH, March (1991).

111. "A Strongly Fluctuating Quasi-Two-Dimensional Insulator", 35th Annual Conference on Magnetism and Magnetic Materials, San Diego, CA, October (1990).

112. “Neutron Scattering From Heavy Fermion Systems”, Workshop on Magnetic Excitations and Fluctuations II, Turin, Italy, May (1987).

Seminars and Colloquia

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1. "Impacts of MACS on Quantum Materials Research," Presentation to NSF panel evaluating the renewal proposal for the Center for High Resolution Neutron Scattering at the NIST Center for Neutron Research. Gaithersburg, MD January 14, 2015.
2. "Strange Magnetism Exposed by Neutrons," Colloquium, Department of Physics, Indiana University, Bloomington, Indiana, December 3, 2014.
3. "Interacting Electrons on the Pyrochlore Lattice," Special Lecture Series, Institute for Solid State Physics, University of Tokyo, Kashiwanoha, Japan November 13, 2014.
4. "Anomalous Correlated States of Matter in Frustrated Magnets," Frontiers in Condensed Matter Physics, Johns Hopkins University, Simulcast to Columbia, Rice University, Harvard, and Brookhaven National Laboratory, October 14, 2014.
5. "Magnetic Neutron Scattering and 1D Quantum Magnetism," Frontiers in Condensed Matter Physics, Columbia University, Simulcast to Rice, Johns Hopkins, Harvard, and Brookhaven National Laboratory, October 7, 2014.
6. "Neutron Scattering from Corner-sharing Simplexes," Symposium for Chris Henley's 59th Birthday, Cornell University, Ithaca, New York, September 12, 2014.
7. "The high field frontier and quantum matter," Workshop on Neutron Scattering in High Magnetic Fields, ORNL, September 4-5, 2014.
8. "Impacts of Neutron Scattering on Hard Condensed Matter Physics," NIST Center for Neutron Scattering Workshop on Neutron Measurements for Materials Design and Characterization, the Bolger Center, Potomac, MD, August 21-22, 2014.
9. "Exploring Quantum Materials with Neutrons," Neutron Scattering Principal Investigators' Meeting Materials Sciences and Engineering Division Office of Basic Energy Sciences U. S. Department of Energy, July 29-30, 2014.
10. "Multichannel Cold Neutron Spectroscopy on MACS," Workshop on inelastic neutron scattering techniques at ORNL, June 5-6, 2014.
11. "Entangled Magnetism," C. Broholm, Colloquium, Department of Physics, University of Missouri, November 11, (2013).

12. "Quantum fluctuations in spin-ice-like $Pr_2Zr_2O_7$", Chez Pierre Seminar at MIT, October 7 (2013).
13. "Magnetic Neutron Scattering", Summer School on Neutron and X-ray Scattering, Oak Ridge National Laboratory, August 23 (2013).
14. "Entangled Magnetism", NIST summer school on neutron scattering, National Institute of Standards and Technology, June 19 (2013).
15. "Invitation to Neutron Scattering", Neutrons for Novices workshop at Oak Ridge National Laboratories, June 18 (2013).
16. "Neutron Scattering & Hard CMP: Enhanced impact", seminar presentation at Strategic planning workshop, Oak Ridge National Laboratory, June 18 (2013).
17. "Entangled Magnetism", Chalk River summer school on neutron scattering, Chalk River, Ontario, Canada, June 7 (2013).
18. "Magnetic Neutron Scattering" Chalk River summer school on neutron scattering, Chalk River, Ontario, Canada, June 6 (2013).
19. "Entangled Magnetism", Colloquium, Oak Ridge National Laboratory, May 6 (2013).
20. "Continuum Excitations in Crystalline Magnets," C. Broholm, Seminar, Department of Physics, Princeton University, March 4 (2013).
21. Colloquium, Department of Physics and Astronomy, Georgia Institute of Technology, February 18 (2013).
22. "Quantum Correlated Materials," DoE program manager visit to Institute for Quantum Matter, December 3 (2012).
23. "Quantum fluctuations in exchange based spin-ice", German-ORNL collaborative meeting, Oak Ridge National Laboratory, September 13, (2012).
24. "Hard Condensed Matter: Synthesis & Spectroscopy," Department of Physics and Astronomy, Johns Hopkins University, Fall 2012 Research Jamboree, August 30 (2012).
25. "Magneto-elasticity in frustrated magnets," DoE Review of the Neutron Scattering Science Division of Oak Ridge National Laboratory, Oak Ridge, TN August 28 (2012).
26. "Quantum Correlated Materials & Phenomena," Neutron Scattering Principal Investigators' Meeting, Gaithersburg Marriott Washingtonian Center Gaithersburg, Maryland, July 22-25 (2012).

27. "Neutron Scattering at High Magnetic Fields," Presentation to National Research Council committee on opportunities in high magnetic field research, May 17 (2012).

28. "Fractionalized quasi-particles in frustrated quantum magnets," Distinguished Lecture in Quantum Magnetism, Department of Physics, Rice University, April 18 (2012).

29. "Spin correlations in unconventional superconductors," JHU-Nanjing meeting at Johns Hopkins University, March 5 (2012).

30. "The Edge of Magnetism," Colloquium, Department of Physics and Astronomy, University of Florida, November 10 (2011).

31. "The Edge of Magnetism", Summer School on Cold Atoms and Magnetism, Department of Physics, Princeton University, Princeton, NJ, August 10, (2011).

32. "Magnetic Neutron Scattering", Summer School on Cold Atoms and Magnetism, Department of Physics, Princeton University, Princeton, NJ, August 10, (2011).

33. Lecture series on neutron scattering science and instrumentation, 8 x 50 min. lectures at the Institute for Solid State Physics, University of Tokyo, Kashiwa Campus, June-July (2011).

34. "Physics and Sports", Ryuki Keisei University High School, Kashiwa, Japan, July 26, (2011).

35. "The Edge of Magnetism", Japanese Atomic Energy Agency, Ibaraki, Japan, June (2011).

36. "Overview and Status of the MACS Instrument", Japanese Atomic Energy Agency, Ibaraki, Japan, June (2011).

37. "Continuum Scattering in the Triangular Lattice Antiferromagnet $NiGa_2S_4$", Tokyo Institute of Technology, June 2, (2011).

38. "Attempts at Magnetism on the Kagome Lattice", Colloquium, Institute for Solid State Physics, University of Tokyo, Kashiwa Campus, May 11 (2011).

39. "The Edge of Magnetism", Seminar, Department of Materials Science, Caltech, Los Angeles, CA, April 26, (2011).

40. "The Edge of Magnetism", University of Minnesota, Minneapolis-San Paul, Minnesota, April 13, (2011).

41. "Recent Results from MACS", talk to NSF panel evaluating the NIST Center for Neutron Research, October 26, (2010).

42. “MACS: A new High Flux Multi-Detector Neutron Spectrometer at NIST”, talk to NRC evaluation panel at the NIST Center for Neutron Research, March 29, (2010)

43. “When Magnets Superconduct”, Seminar at ETH, Zurich, Switzerland, February 19, 2010.

44. “MACS: A new High Flux Multi-Detector Neutron Spectrometer at NIST”, Paul Scherer Institute, Switzerland, February 18, 2010.

45. “When Magnets Superconduct”, Colloquium in Department of Physics and Astronomy, University of Utah, January 14, 2010.

46. “Magnetism Exposed – an Evolving View from Neutron Scattering”, C. Broholm, Symposium in honor of Dr. Dir. Michel Steiner, Helmholtz-Zentrum Berlin für Materialien und Energie, June 2-3, 2009.

47. “Surprises on Triangular Lattices”, Condensed Matter Seminar, MIT, Boston, MA, November 3 (2008).

48. "Spin Resonance in the d-wave Superconductor $CeCoIn_5$", Materials Science Colloquium, Argonne National Laboratory, Chicago, Illinois, March 27 (2008).

49. “Scattering neutrons from magnons, spinons, solitons, and breathers”, Colloquium, Department of Physics and Astronomy, University of Tennessee, Knoxville, Tennessee, February 25, (2008).

50. "Spin Resonance in the d-wave Superconductor $CeCoIn_5$", Condensed Matter Science Distinguished Lecture, Brookhaven National Laboratory, November 8 (2007).

51. "Spin Resonance in the d-wave Superconductor $CeCoIn_5$", Rutgers University, New Brunswick, New Jersey, October 30 (2007).

52. "Quantum magnets confined to the nano-scale", University of Austin, workshop on strongly correlated electrons, October 12 (2007).

53. "Applying Spin", Annual meeting of the SNS and HFIR Users Group, Oak Ridge, TN, October 8 (2007).

54. "Ferroelectricity in Frustrated Magnets", Max Planck Institute for the Chemical Physics of Solids, Dresden July 19 (2007).

55. "Spin Resonance in the d-wave Superconductor $CeCoIn_5$", Max Planck Institute for the Chemical Physics of Solids, Dresden July 19 (2007).

56. "Scattering Neutrons from Magnons, Spinons, Solitons, and Breathers", NIST Summer school on neutron scattering, June 28 (2007).

57. "Ferroelectricity in Frustrated Magnets", Institute for Solid State Physics, Kashiwa Campus, University of Tokyo, May 22, (2007).

58. "Ferroelectricity in Frustrated Magnets", National High Magnetic Field Laboratory, February 23, (2007).

59. "Ferroelectricity in Frustrated Magnets", Princeton University, December 4, (2006).

60. "Ferroelectricity in Frustrated Magnets", MRSEC workshop presentation at the University of Maryland November 17, (2006).

61. "Ferroelectricity in Frustrated Magnets", Condensed Matter Physics Colloquium at Louisiana State University, November 16, (2006).

62. "Ferroelectricity in Frustrated Magnets", Condensed Matter Physics Seminar at the University of Virginia, October 5, (2006).

63. "Science with Intense Polarized Neutrons", NIST Expansion Initiative meeting, Bethesda, MD July 17 (2006).

64. "Neutron Scattering, Correlation Functions, & Linear Response Functions", Summer School on Neutron Scattering, Deep River, Ontario, Canada, June 6 (2006).

65. "Spinons, Solitons and Breathers in Quasi-One-Dimensional Magnet", Symposium for W. J. L . Buyers, Deep River, Ontario, Canada June 4 (2006).

66. "Science with Intense Polarized Neutrons", Invited talk at NIST Center for Neutron Research Expansion Meeting, Baltimore, MD March 14 (2006).

67. "Magnetic Surprises on a Triangular Lattice", Condensed Matter Physics Seminar, Rutgers University, November 15 (2005).

68. "Frustrated Quantum Magnetism", Presentation to the Faculty of the Department of Physics and Astronomy, Johns Hopkins University, April 28 (2005).

69. "Cold Neutron Spectroscopy on MACS", talk presented to NSF panel evaluating the renewal proposal for the Center for High Resolution Neutron Scattering at NIST. January 5 (2005).

70. "Inhomogeneous Level Splitting in $Pr_{1-x}Bi_xRu_2O_7$", Paul Scherrer Institute, Switzerland, December 3, (2004).

71. "Spinons, Solitons, and Breathers in Quasi-One-Dimensional Magnets", Department of Physics and Astronomy, Temple University, October 11 (2004).

72. "Striving for Excellence with MACS", Presentation to the director of the Materials Science and Engineering Laboratory, NIST, June 17 (2004).

73. "Spinons, Solitons, and Breathers in Quasi-One-Dimensional Magnets", Department of Physics and Astronomy, Johns Hopkins University, April 8, (2004).

74. "Spinons, Solitons, and Breathers in Quasi-One-Dimensional Magnets", Dartmouth College, Hanover, New Hampshire, Jan 30, (2004).

75. "Spin-1/2 chains in Uniform and Staggered Fields", Braunschweig Technical University, Braunschweig, Germany, Jan 19, (2004).

76. "Quantum Coherence in Magnets", Colloquium in the Department of Physics, University of Virginia, November 21 (2003).

77. "Satisfied Simplexes in Frustrated Magnets", Department of Physics, Kyoto University, Kyoto Japan, October 30 (2003).

78. "Composite Spin in Fluctuating magnets", Colloquium in the department of Physics and Astronomy, Kent State University, April 17 (2003).

79. "Realizing Neutron Vision - a compact digital camera for radiography", talk to JHU senior project engineering students, September 20, (2002).

80. "MACS concept presentation", NIST Center for Neutron Research, September 24 (2002).

81. "Two and Three Dimensional Spin Systems with an Isolated Singlet Ground State", ISIS meeting on neutron spectroscopy and MERLIN, June 11 (2002).

82. "Experimental Planning, Visualization, and Analysis for Condensed Matter Physicists", ARCS software workshop, Caltech, March 15 (2002).

83. "Quantum Phase Transition in a Two-Dimensional Frustrated Magnet", Seminar, AECL, Chalk River, Canada February 15 (2002).

84. "Building MACS", NIST Center for Neutron Research for NSF site visit. January 8, (2002).

85. "Quantum Phase Transition in a Two-Dimensional Frustrated Magnet", Seminar, National High Magnetic Field Laboratory, Tallahassee, Florida, December 14, (2001).

86. "Quantum Phase Transition in a Two-Dimensional Frustrated Magnet", Seminar, Yale University, November 29, (2001).

87. "Magnets without direction", Colloquium, Department of Physics and Astronomy, Rutgers University, October 17, (2001).

88. "Magnets without direction", Colloquium, Department of Physics, Georgetown University, September 27, (2001).

89. "Holes in a Quantum Spin Liquid", Condensed Matter Seminar Princeton University, March 2 (2001).

90. "Resolving a Magnetic Quandary", Condensed Matter seminar NEC Research Institute, November 3 (2000).

91. “One Dimensional Magnetic Systems”, Solid State Sciences Advisory Committee to the National Academy of Sciences, NIST Center for Neutron Research, Gaithersburg, MD June 26 (2000).

92. “Holes in a Quantum Spin Liquid”, Condensed Matter Seminar Johns Hopkins University, April 26 (2000).

93. “Holes in a Quantum Spin Liquid”, Colloquium Waterloo University, Canada April 13 (2000).

94. “Holes in a Quantum Spin Liquid”, Colloquium McMaster University, Canada April 12 (2000).

95. “Impurities and finite temperature effects in a one-dimensional spin-1 antiferromagnet”, National High Magnetic Field Laboratory, November 19 (1999).

96. “Inelastic Neutron Scattering: Science and Instrumentation”, Presentation to a panel organized by the National Research Council about facilities for Materials Research. National Academy of Sciences, Washington DC January 11 1999.

97. “Excitations in an Alternating Spin-1/2 Chain”, Theoretical Physics Department of Oxford University December 3 (1998).

98. “Magnetized States of Quantum Spin Chains”, Workshop on Applications of Polarized X-rays, Advanced Photon Source, Argonne National Laboratory, September 28-29 (1998).

99. “Proposal for a High Intensity Chopper Spectrometer at LANSCE” Los Alamos National Laboratory, March 23 (1998).

100. “Field induced incommensurate spin correlations in a spin 1/2 antiferromagnetic chain”, University of British Columbia, March 13, (1997).

101. “Fluctuating Magnetism in Quantum Spin Chains” Los Alamos National Laboratory August (1996).

102. “Magnetic Fluctuations in Low Dimensional Magnets” Los Alamos National Laboratory December (1995).

103. “How Neutron Beams Probe Structural and Dynamical Properties of Solids” Society of Physics students, Johns Hopkins University, March 31 (1995).

104. “From Radio-waves to Neutron Waves”, 3 times at Baltimore Polytechnic Institute January 10 (1995).

105. “Spin Correlations Close to the Metal Insulator Transition in $V_{2-y}O_3$” University of Toronto February (1994).

106. “Neutron Scattering from Kagomé Antiferromagnets”, Rutgers University, October (1993).

107. "Dynamic Correlations in One Dimensional Antiferromagnets", AT&T Bell Laboratories General Physics Colloquium, October (1992).

108. "Spin Correlations in One Dimensional Antiferromagnets", Towson State University, October (1992).

109. "Dynamic Correlations in Quantum Antiferromagnetic Spin Chains", The Ohio State University, May (1992).

110. "Dynamic Correlations in Quantum Antiferromagnetic Spin Chains", University of Chicago, May (1992).

111. "Neutron Scattering Studies of Magnets with Strong Fluctuations", National Institute of Standards and Technology, December (1991).

112. "Superconductivity of UPt3 Studied by Neutron Diffraction and μ^+SR", Colloqium The Johns Hopkins University, January (1991).

113. "Superconductivity of UPt3 Studied by Neutron Scattering and μ^+SR", March meeting of the American Physical Society, San Diego, CA (1991).

114. "Superconductivity of UPt3 Studied by SANS and μ^+SR", The Johns Hopkins University, MD, February (1991).

115. "Superconductivity of UPt3 Studied by Neutron Scattering Techniques", AT&T Bell Laboratories, October (1990).

116. "Superconductivity of UPt3 Studied by Neutron Scattering and μ^+SR", National Institute of Standards and Technology, April (1990).

117. "Magnetic Fluctuations and Short-Range Order in Frustrated $SrCr_{8-x}Ga_{4-x}O_{19}$", Rutgers University, NJ March (1990).

118. "Magnetic Penetration Depth and Pairing State of UPt3", American Physical Society, Anaheim, CA, March (1990).

119. "Frustration in FCC Antiferromagnets Studied by Neutron Scattering", American Physical Society, Anaheim, CA, March (1990).

120. "Magnetic Fluctuations and short range order in a Kagomé Lattice", 34th Annual Conference on Magnetism and Magnetic Materials, Boston, MA, November (1989).

121. "Magnetic Fluctuations in Heavy Fermion Systems", Escuela Superior de Fisica y Matematica, Mexico, D.F., Mexico Fall (1989).

122. "Magnetic Fluctuations in Frustrated Antiferromagnets", AT&T Bell Laboratories, Fall (1989).

123. "Spin Correlations in FCC Antiferromagnets", Risø National Laboratory, Denmark, Spring (1989).

124. “Magnetic Fluctuations in Heavy Fermion Systems”, Risø National Laboratory, Denmark, Fall (1988).

125. “Magnetism of Heavy Fermion Systems”, Copenhagen University, September (1988).

126. “Magnetic Fluctuations in U_2Zn_{17}”, Meeting of the Danish Physical Society (1987).