CURRICULUM VITAE

Jaime A. Fernandez-Baca

Neutron Scattering Division
Oak Ridge National Laboratory (ORNL)
Oak Ridge, TN 37831-6393

Phone: 865-576-8659
FAX: 865-574-6268
e-mail: jfn@ornl.gov

EDUCATION

Ph.D., Physics, 1986, University of Maryland, College Park, MD
M.S., Physics, 1982, University of Maryland, College Park, MD
B.S., Physics, 1977, Universidad Nacional de Ingenieria, Lima, Peru

RESEARCH INTEREST

Magnetic ordering and spin dynamics of complex oxides and related alloys utilizing neutron scattering techniques.

PROFESSIONAL POSITIONS

- Distinguished Research Staff, ORNL, Quantum Condensed Matter Division/Neutron Scattering Division (2013-present)
- UT-ORNL Joint Faculty Professor, Department of Physics and Astronomy (2014-present)
- Senior Research Staff, ORNL, Solid State Division/Neutron Scattering Science Division/Quantum Condensed Matter Division (1999-2013)
- Adjunct Professor, Department of Physics and Astronomy, University of Tennessee, Knoxville (2003-2013)
- Research Staff, ORNL, Solid State Division, 1990-1998
- Research Associate, ORNL, Solid State Division, 1986-1989

PROFESSIONAL ACTIVITIES

- Leader, Triple Axis Team, Neutron Scattering Division (2019-present).
- Leader, Triple Axis Spectroscopy Group, Quantum Condensed Matter Division (2006-2017).
- Author or coauthor of over 150 technical articles. H-index = 32.
- Presented 36 invited lectures at national and international technical conferences, and 30 technical seminars and tutorials at national and international academic institutions.
- Conference Organization
    - Co-organizer of two Focus Topic sessions on "Magnetoresistive manganites and related transition metal alloys," Meeting of the American Physical Society, Seattle, WA, March 2001, and on "Complex oxides, bulk materials," Meeting of the American Physical Society, Pittsburgh, PA, March 2009.
    - Organizer of six Telluride workshops on magnetoresistive oxides, Telluride, CO, 2000, 2002, 2013, 2015 , 2017 and 2019.
    - Member of the Program Committee, The Magnetism and Magnetic Materials (MMM) conference in 2010 and 2013
    - Co-organizer of the 2009 Workshop on Inelastic Neutron Scattering (WINS 2009), Oak Ridge, TN, May 1-2, 2009.
    - Member of the International Scientific Advisory Committee of the conference "Polarized Neutrons in Condensed Matter Investigations" (PNCMI 2012), Paris, France July 2012.

- Chairman of the local organizing committee, 2014 American Conference on Neutron Scattering (ACNS-2014), Knoxville, TN, June 1-5, 2014.
- Co-organizer of the symposium "Advances and Challenges in Multimodal Characterizations of Functional Materials", International Materials Research Congress (IMRC-2016) Cancun, Mexico, Aug. 14-19, 2016.
- Organizer of the invited technical session "Tribute to Herb Mook" at the International Conference on Neutron Scattering, Daejon, Korea, July 2017

- Service to the scientific community:
  - Member of the Los Alamos National Laboratory (LANL) Search Committee for the Leader of the Lujan Neutron Scattering Center (2011-2012).
  - Member of the LANL Lujan Neutron Scattering Center Materials Program Advisory Committee (MPAC), 2005-2017 (chairman of the magnetism subcommittee).
  - Member of the 2008 National Science Foundation Graduate Research Fellowship Program evaluation panel, Arlington, VA, February 8-10, 2008.
  - International Atomic Energy Agency (IAEA) Expert in the project "Human Resource Development and Nuclear Technology Support," Lima, Peru, 2004 and 2006.
  - ORNL program manager of the U. S. Japan Cooperative Program on Neutron Scattering (ISSP-ORNL and JAEA-ORNL programs), since 1994.
  - Elected member of the Executive Committee of the Neutron Scattering Society of America (Membership Secretary) 2009-2012

PROFESSIONAL SOCIETIES

- Fellow, American Physical Society
- Fellow, Neutron Scattering Society of America

HONORS AND AWARDS

- Fellow of the Neutron Scattering Society of America, March 2016
- Fellow of the American Physical Society, October 2015
- *The Neutron Scattering Society of America* Exceptional Service Award, June 2014.
- *The US. DOE Office of Science* Outstanding Mentor Award, February 2008.
- The Ralph Myers Teaching Award, *University of Maryland*, College Park, Maryland (September 1984).
- *International Atomic Energy Agency (IAEA)* fellowship (July 1979 - June 1981).

CURRICULUM VITAE

Jaime A. Fernandez-Baca

INVITED TALKS

- "Materials research at the neutron scattering facilities at ORNL", plenary talk at the Joint International Conference on Nuclear Science and Technology Application 2017 (ICONSTA 2017) and Materials Research Society-Indonesia Conference and Congress 2017 (MRS-INA C&C 2017), Yogyakarta, Indonesia, Oct 8-12, 2017.
- "Evidence of electronic soft phases in a molecular multiferroic", Joint International Conference on Nuclear Science and Technology Application 2017 (ICONSTA 2017) and Materials Research Society-Indonesia Conference and Congress 2017 (MRS-INA C&C 2017), Yogyakarta, Indonesia, Oct 8-12, 2017.
- "Evidence of electronically-soft phases in a molecular multiferroic", *Workshop on Competing Interactions and Colossal Responses in Transition Metal Oxides*, Telluride, CO, June 26-30, 2017
- "Spin dynamics of multiferroic materials studied by neutron scattering", *Telluride Workshop on Competing Interactions and Colossal Responses in Transition Metal Compounds*, Telluride, CO, June 8-12, 2015.
- "Spin dynamics of multiferroic materials studied by neutron scattering, *International Conference on Complex Oxides*, Protaras, Cyprus, May 19-23, 2014.
- "Revisiting the magnetism of $LaCoO_3$," Telluride Workshop on Competing Interactions and Colossal Responses in Transition Metal Compounds, Telluride, CO, July 15-19, 2013.
- "Neutron scattering studies of Multiferroic materials," *International Symposium on Neutron Scattering*, Mumbai, India, January 14-17, 2013.
- "Neutron scattering at the SNS and HFIR at ORNL," Louisiana Alliance for Simulation-Guided Materials Applications (LA-SiGMA) Seminar Series, Louisiana State University, Baton Rouge, LA, October 17, 2012.
- "Long-range magnetic interactions in multiferroic $MnWO_4$," WE.-Heraeus Seminar, "New Routes to Single Phase Multiferroics" Physikzentrum Bad Honnef, Germany April 23-25, 2012.
- "Neutron scattering studies of multiferroic materials," Joint meeting of the National Societies of Black and Hispanic Physicists, Austin, TX, September 22-24, 2011.
- "Long-range interactions in multiferroic materials," Workshop on Competing Interactions and Colossal Responses in Transition Metal Compounds, Telluride, CO July 18-22, 2011.
- "Opportunities in neutron science," 2010 Meeting of the American Physical Society, Portland, Oregon, March 15-19, 2010.
- "Neutron scattering studies of the magnetic interactions in the geometrically frustrated triangular lattice antiferromagnet $CuFeO_2$," VI International Symposium on Radiation Physics, Neutrons and Ionizing Radiations and Application, Zacatecas, Mexico, March 7-10, 2010.
- "Spin dynamics of the multiferroic systems $CuFeO_2$ and $MnWO_4$," Workshop on Competing Interactions and Colossal Responses in Transition Metal Compounds, Telluride, CO, August 10-14, 2009.
- "In-situ time-resolved analyses of microstructure in advanced materials under high magnetic fields using neutron scattering," TMS Annual Meeting, San Francisco, CA, February 15-19, 2009.

CURRICULUM VITAE

Jaime A. Fernandez-Baca

- "Spin and charge/orbital ordering in nearly half-doped manganites," Meeting of the American Crystallographic Association, Knoxville, TN. June 2, 2008.
- "Magnetic interactions in the geometrically frustrated triangular lattice antiferromagnet $CuFeO_2$," 6th Workshop on Orbital Physics and Novel Phenomena in Transition Metal Oxides, Stuttgart, Germany, October 10-11, 2007.
- "Spontaneous spin-lattice coupling in the geometrically frustrated triangular lattice antiferromagnet $CuFeO_2$," Meeting of the American Physical Society, Denver, CO, March 2007.
- "Spin-lattice coupling in the geometrically frustrated triangular lattice antiferromagnet $CuFeO_2$," XV International Materials Research Congress, Cancun, Mexico, August 2006.
- "Time-resolved studies at the Wide Angle Neutron Diffractometer," Annual Meeting of the American Crystallographic Association, Honolulu, HI, July 22-27, 2006.
- "Spontenaous spin-lattice coupling in the geometrically frustrated triangular lattice antiferromagnet $CuFeO_2$," Telluride workshop on Competing interactions and colossal responses in transition metal compounds, Telluride, CO, July 2006.
- "Electronically smectic-like phase in a nearly half-doped manganite," International workshop on self-organized strongly correlated electron systems, Seillac, France, May 29-31, 2006.
- "Polarized inelastic neutron scattering in the CMR manganite $La_{0.70}Ca_{0.30}MnO_3$," Polarized Inelastic Neutron Scattering Workshop, Brookhaven National Laboratory, April 2006.
- "Anisotropic antiferromagnetic ordering in the charge/orbital ordered manganite $Pr_{0.55}(Sr_{1-y}Ca_y)_{0.45}MnO_3$," International Materials Research Congress, Cancun, Mexico, August 21-25, 2005.
- **"**Neutron scattering studies of colossal magnetoresistance materials," International Conference on Spectroscopy, Lima, Peru, May 23-27, 2005.
- "Neutron and x-ray scattering in $Pr_{1-x}(Ca_{1-y}Sr_y)_xMnO_3$ (x=0.45,y=0.15), a CMR manganite near a bicritical point," Telluride Workshop in Magnetoresistive Oxides and Related Transition Metal Alloys, Telluride, CO, June 28-July 3, 2004.
- "Microscopic spin interactions in the metallic and insulating phases of the colossal magnetoresistance manganites," 15th American Conference on Crystal Growth and Epitaxy, Keystone, CO, July 20-24, 2003.
- "Spin waves in the ferromagnetic metallic and insulating phases of the CMR manganites," Workshop on CMR Manganites and related Transition Metal Oxides, Telluride, CO, July 14-20, 2002.
- "Spin interactions in the field-induced insulator-metal transition of $Pr_{0.70}Ca_{0.30}MnO_3$," Meeting of the American Physical Society, Indianapolis, IN, March 18-22, 2002.
- "Spin dynamics in the insulating and metallic ferromagnetic phases of the CMR manganites $A_{1-x}B_xMnO_3$ (A=La, Pr; B=Ca)," Workshop on the Present and Future of the Research in Manganites, Granada, Spain, September 17-19, 2001.
- "Resistivity rise and short-range ordering in the CMR manganites," International Conference on Neutron Scattering, Munich, Germany, September 10-13, 2001.
- "Neutron scattering studies of the magnetic coupling in the insulating and metallic ferromagnetic phases of the CMR manganites," JRCAT-CERC Workshop on Phase Control on Correlated Electron Systems, Maui, HI, June 6-10, 2001.

- "Magnons and phase separation in $Pr_{0.7}Ca_{0.3}MnO_3$," Telluride Summer Research Center Workshop on CMR Manganites and Related Transition Metal Oxides, Telluride, CO, July 16-22, 2000.
- "Neutron science--a tool to understanding our material world," National Science Bowl, Washington DC, May 6, 2000.
- "Magnons and phonons in the CMR manganites $Ln_{1-x}A_xMnO_3$ (x ~ 0.30)," March Meeting of the American Physical Society, Minneapolis, MN, March 20-24, 2000.
- "Inelastic neutron scattering," 3rd Spanish Neutron Scattering School, Oviedo, Spain, June 2-5, 1999.
- "Spin dynamics of the CMR manganites $Ln_{1-x}A_xMnO_3$ (x ~ 0.30)," Telluride Summer Research Center Workshop on Magnetoresistive Oxides , Telluride, CO, July 13-18, 1998.
- "Neutron scattering research at the High Flux Isotope Reactor," Mexico-USA Workshop on Scientific Facilities for Materials Research, Argonne National Laboratory, March 25-28, 1996.
- "Neutron scattering studies of amorphous invar alloys," International Symposium on Magnetoelasticity and Electronic Structure of Transition Metals, Alloys and Films, Duisburg, Germany, March 1989.
- "Spin dynamics of amorphous $Fe_{90-x}Ni_xZr_{10}$," 34th Annual Conference on Magnetism and Magnetic Materials, Boston, MA, November 1988.

TECHNICAL SEMINARS AND TUTORIALS

- "30+ years in neutron scattering at ORNL, a personal perspective (A journey from the Andes to the Smokies)" Oak Ridge Postdoctoral Association, Standing on the Shoulders of Giants Seminar Series, February 16, 2018
- "Science with Neutrons", NScD Neutron Lifecycle Lecture Series, Oak Ridge National Laboratory, July 8, 2016
- "30 years in neutron scattering at ORNL, a personal perspective (A journey from the Andes to the Smokies)" Oak Ridge Postdoctoral Association, Standing on the Shoulders of Giants Seminar Series, August 31, 2016
- "Spin dynamics of multiferroic materials studied by neutron scattering". Condensed Matter Colloquium, Condensed matter and Magnet Science Division, Los Alamos National Laboratory, December 10, 2014.
- "Neutron scattering at Oak Ridge National Laboratory. Application to the study of Multiferroic Materials," Physics Colloquium, University of Tennessee, Knoxville, TN, March 24, 2014.
- "Neutron scattering studies of multiferroic materials," Condensed Matter Seminar, Department of Physics, Michigan State University, East Lansing, MI, March 11, 2013.
- "Recent studies on multiferroic materials," Condensed Matter Seminar, Department of Physics and Astronomy, Louisiana State University, LA, October 18, 2012.
- "Neutron triple axis spectrometry," Chemistry Department, University of Tennessee, Knoxville, TN, February 11, 2011.
- "Neutron Scattering at Oak Ridge National Laboratory," Physics Department, Morehouse College, Atlanta, GA, November 16, 2010.
- "Spin excitations in multiferroic $CuFeO_2$," Physics Colloquium, Department of Physics,

University of Kentucky, Lexington, KY, September 17, 2010.

- "Why neutrons?," Joint Annual Conference of the National Society of Black Physicists and the National Society of Hispanic Physicists, Nashville, TN, February 11-15, 2009.
- "Magnetic interactions in the geometrically frustrated triangular lattice antiferromagnet $CuFeO_2$," Technical Seminar, Graduate School of Engineering Science, Osaka University, Toyonaka, Japan, June 13, 2008.
- "Magnetic interactions in the geometrically frustrated triangular lattice antiferromagnet $CuFeO_2$," Technical Seminar, Department of Physics, University of Tennessee-Knoxville, Knoxville, TN, September 24, 2007.
- "Introduction to neutron scattering," Tutorial, International Materials Research Congress, Cancun, Mexico, August, 2006.
- "Introduction to neutron scattering," Tutorial, International Materials Research Congress, Cancun, Mexico, August, 2005.
- "Introduction to neutron scattering," Andean School of Spectroscopy, Lima, Peru May 16-20, 2005.
- "Microscopic spin interactions in the metallic and insulating phases of the colossal magnetoresistance manganites*,"* Technical Seminar, Correlated Electron Research Center, Tsukuba, Japan, May 30, 2002.
- "Microscopic spin interactions in the colossal magnetoresistance nanganites studied by inelastic neutron scattering," Condensed Matter Seminar, National High Magnetic Field Laboratory, Tallahassee, FL, April 5, 2002.
- "Spin dynamics in the insulating and metallic ferromagnetic phases of the CMR manganites $A_{1-x}B_xMnO_3$ (A=La, Pr; B=Ca)," General ILL seminar, College IV, Institut Laue Langevin, Grenoble, France, November 14, 2001.
- "Neutron scattering studies of the CMR manganites at Oak Ridge National Laboratory," Advance Science Research Center Japan Atomic Energy Research Institute, Tokai, Japan, June 14, 2000.
- "Spin dynamics of the colossal magnetoresistance manganites $A_{1-x}B_xMnO_3$ near x=0.3," Condensed Matter Seminar, Department of Physics, University of California-Santa Cruz, Santa Cruz, CA, November 12, 1999.
- "Neutron Scattering from condensed matter systems," Physics Colloquium, Department of Physics, University of Alabama in Huntsville, Huntsville, AL, September 28, 1999.
- "Spin dynamics of the colossal magnetoresistance manganites $Ln_{1-x}A_xMnO_3$," Department of Physics, University of Zaragoza, Zaragoza, Spain, May 28, 1999.
- "Spin dynamics of the CMR manganites $Ln_{1-x}A_xMnO_3$ (x ~ 0.30)," School of Science and Engineering, Waseda University, Shinjuku, Tokyo, Japan, June 22, 1998.
- "Spin dynamics of the colossal magnetoresistance manganites $A_{1-x}B_xMnO_3$ (x ~ 0.30)," Physics Colloquium, Department of Physics University of Missouri, Columbia, MO, April 6 1998.
- "Spin dynamics of the colossal magnetoresistance manganites," Technical Seminar, Department of Physics, University of Illinois at Urbana-Champaign, Urbana, IL, March 13, 1998.
- "Neutron scattering studies of the spin dynamics of the colossal magnetoresistance manganites," Department of Physics, Southern Illinois University, Carbondale, IL, February 13, 1998.

- "Neutron scattering studies of magnetic excitations in solids," Department of Physics, Southern Illinois University, Carbondale, IL, April 12, 1996.
- "Neutron scattering at the High-Flux Isotope Reactor in Oak Ridge," Kyoto University Reactor Research Institute, Kumatori, Osaka, Japan, October 18, 1994.
- "Neutron scattering at the High-Flux Isotope Reactor in Oak Ridge," Department of Earth and Space Science, Osaka University, Toyonaka, Osaka, Japan, October 17, 1994.
- "Neutron scattering studies of the spin dynamics of magnetic nmaterials," Department of Physics, Ball State University, Muncie, IN, February 17, 1994.
- "Neutron scattering studies of the spin dynamics of an itinerant-electron antiferromagnet: $Mn_{90}Cu_{10}$," Department of Physics, North Dakota State University, Fargo, ND, November 19, 1993.
- "Neutron scattering studies of the spin dynamics of itinerant antiferromagnets," Department of Physics, University of Missouri-Kansas City, Kansas City, MO, February 19, 1993.

PUBLICATIONS

Refereed journal publications (h-index = 32)

1. J. A. Fernandez-Baca and J. W. Lynn, "Neutron scattering studies of the magnetic superconductor $Ce_{1-x}Tb_xRu_2$," *J. Appl. Phys*. **52**, 2183 (1981).
2. J. A. Fernandez-Baca, J. W. Lynn, J. J. Rhyne, and G. E. Fish, "Spin dynamics of the amorphous invar alloy $Fe_{0.86}B_{0.14}$," *J. Appl. Phys*. **57**, 3545 (1985).
3. J. A. Fernandez-Baca, J. J. Rhyne, and G. E. Fish, "Neutron scattering study of the spin dynamics of amorphous $Fe_{70}Ni_{20}Zr_{10}$," *J. Magn. Magn. Mater*. **54-57** , 289 (1986).
4. J. A. Fernandez-Baca, J. W. Lynn, J. J. Rhyne, and G. E. Fish, "Spin dynamics of amorphous $Fe_{0.86}B_{0.14}$," *Physica* **136B** , 53 (1986).
5. J. A. Fernandez-Baca, J. W. Lynn, J. J. Rhyne, and G. E. Fish, "Spin dynamics of amorphous $Fe_{90-x}Ni_xZr_{10}$," *J. Appl. Phys*. **61**, 3406 (1987).
6. J. A. Fernandez-Baca, J. W. Lynn, J. J. Rhyne, and G. E. Fish, "Long-wavelength spin-wave energies and linewidths of the amorphous invar alloy $Fe_{100-x}B_x$," *Phys. Rev. B* **36**, 8497 (1987).
7. J. J. Rhyne, R. W. Erwin, J. A. Fernandez-Baca, and G. E. Fish, "Magnetic correlations in amorphous Fe-Zr Alloys," *J. Appl. Phys*. **63** , 4080 (1988).
8. J. A. Fernandez-Baca, J. W. Lynn, J. J. Rhyne, and G. E. Fish, "Low temperature spin waves in amorphous $Fe_{90-x}Ni_xZr_{10}$," *J. Appl. Phys*. **63** , 3749 (1988).
9. J. A. Fernandez-Baca, J. J. Rhyne, R. W. Erwin, and G. E. Fish, "Neutron scattering study of the magnetic correlations of iron-rich Fe-Zr glasses", *J. Phys*. (Paris) **49**, C-8, 1207 (1988).
10. S. Raman, S.Kahane, R. M. Moon, J. A. Fernandez-Baca, J. L. Zarestky, J. E. Lynn, and J. W. Richardson, "Thermal-neutron scattering lengths and capture by even calcium isotopes,", *Phys. Rev.* C **39** , 1297 (1989).
11. J. A. Fernandez-Baca, "Neutron scattering studies of amorphous invar alloys," *Physica* B **161**, 211 (1989).
12. J. A. Fernandez-Baca, J. J. Rhyne, G. E. Fish, M. Hennion, and B. Hennion, "Spin dynamics of amorphous $Fe_{90-x}Ni_xZr_{10}$," *J. Appl. Phys*. **67**, 5223 (1990).
13. J. A. Fernandez-Baca, R. M. Nicklow, and J. J. Rhyne, "Magnetic excitations in thulium metal," *J. Appl. Phys.* **67**, 5283 (1990).

14. J. A. Fernandez-Baca, R. M. Nicklow, Z. Tun, and J. J. Rhyne, "Neutron scattering study of the magnetic excitations of thulium metal," *Phys. Rev*. *B* **43**, 3188 (1991).
15. S. Raman, J. A. Fernandez-Baca, and R. M. Moon, "Thermal-neutron scattering length and capture by ^{46}Ca," *Phys. Rev. C* **44**, 518 (1991).
16. B. C. Chakoumakos, G. Lager, and J. A. Fernandez-Baca, "Refinement of structures of $Sr_3Al_2O_6$ by Rietveld Analysis of neutron powder diffraction data," *Acta Cryst*. C **48**, 414 (1992).
17. J. A. Fernandez-Baca, M. E. Hagen, R. M. Nicklow, Y. Tsunoda, and S. M. Hayden, "Magnetic excitations in the itinerant antiferromagnet $Mn_{90}Cu_{10}$," *J. Magn. Magn. Mater.* **104-107**, 699 (1992).
18. M. E. Hagen, H. R. Child, J. A. Fernandez-Baca, and J. L. Zaretsky, "A study of the magnetic critical scattering from the longitudinally modulated antiferromagnets thulium and erbium,." *J. Phys: Condensed Matter*. **4**, 8879 (1992).
19. B. C. Chakoumakos, J. A. Fernandez-Baca, and L. A. Boatner, "Refinement of the structures of the layer silicates $MCuSi_4O_{10}$ (M=Ca, Sr, Ba) by Rietveld Analysis of neutron powder diffraction data," *J. Solid State Chem*. **103**, 105 (1993).
20. J. A. Fernandez-Baca, M. E. Hagen, R. M. Nicklow, T. G. Perring, and Y. Tsunoda, "High-energy magnetic excitations in $Mn_{90}Cu_{10}$," *J. Appl. Phys*. **73**, 6548 (1993).
21. Y. S. Yang, B. D. Gaulin, J. A. Fernandez-Baca, Naushad Ali, and G. D. Wignall, "Small-angle scattering studies of $Ce(Fe_{1-x}Al_x)_2$," *J. Appl. Phys.* **73**, 6066 (1993).
22. R. B. Rogge, Y. S. Yang, Z. Tun, B. D. Gaulin, J. A. Fernandez-Baca, R. M. Nicklow, and A. Harrison, "A neutron scattering study of the Quasi-One-Dimensional Dilute Ising-Like Antiferromagnet $CsCo_{0.83}Mg_{0.17}Br_3$," *J. Appl. Phys.* **73**, 6451 (1993).
23. S. Katano, S. Funahashi, N. Môri, Y. Ueda, and J. A. Fernandez-Baca, "Pressure effects on the structural phase transitions and superconductivity of $La_{2-x}Ba_xCuO_4$ (x=0.125)," *Phys. Rev. B* **48**, 6569 (1993).
24. T. M. Giebultowicz, J. A. Fernandez-Baca, R. M. Nicklow, J. K. Furdyna, and U. Debska, "Spin dynamics in a diluted Heisenberg NN antiferromagnet on an HCP lattice – $Zn_{1-X}Mn_XSe$," *J. Appl. Phys.* **73**, 5660 (1993).
25. S. Katano, K. Yamay, J. A. Fernandez-Baca; and S. Funahashi, "Crystal-structure of the tetragonal superconductor $CaLaBaCu_3O_x$ ($6.69 \leq x \leq 6.94$)," *Physica C* **217**, 73 (1993).
26. S. Katano, J. A. Fernandez-Baca, S. Funahashi, N. Môri, Y. Ueda, and K. Koga, "Crystal structure and superconductivity of $La_{2-x}Ba_xCuO_4$ ($0.03 \leq x \leq 0.24$)," *Physica C* **214**, 64 (1993).
27. H. Ikeda, J. A. Fernandez-Baca, R. M. Nicklow, M. Takahashi, and K. Iwasa, "Fracton excitations in a diluted Heisenberg Antiferromagnet near the percolation threshold: $RbMn_{0.39}Mg_{0.61}F_3$," *J. Phys: Condens. Matter* **6**, 10543 (1994).
28. X, -L. Wang, J. A. Fernandez-Baca, Z. R. Wang, D. Vaknin, and D. C. Johston, "Neutron-diffraction study of magnetic-ordering of $BaCuO_{2-x}$," *J. Appl. Phys*. **75**, 6603 (1994).
29. S. Kawano, J. A. Fernandez-Baca, and R. M. Nicklow, "Magnons in ferromagnetic terbium under high pressure," *J. Appl. Phys*. **75**, 6060 (1994).
30. M. K. Crawford, M. A. Subramanian, R. L. Harlow, J. A. Fernandez-Baca, Z. R. Wang, and D. C. Johnston, "Sr_2IrO_4: A new two-dimensional spin 1/2 canted Heisenberg Antiferromagnet," *Phys. Rev. B* **49**, 9198 (1994).
31. X. -L.Wang. C. R. Hubbard, K. B. Alexander, P. Becher, J. A. Fernandez-Baca, and S. Spooner, "Neutron diffraction measurements of the residual stresses in Al_2O_3-ZrO_3 (CeO_2) ceramic composites," *J. Am. Ceram. Soc.* **77**, 1569 (1994).

32. Z. R. Wang, X. L. Wang, J. A. Fernandez-Baca, D. C. Johnston, and D. Vaknin, "Antiferromagnetic ordering and paramagnetic behavior of ferromagnetic clusters in $BaCuO_{2+x}$," *Science* **264**, 402 (1994).
33. H. J. Al-Kanani, J. G. Booth, J. W. Cable, and J. A. Fernandez-Baca, "Magnetic transitions at high fields in $(Fe,Mn)_3Si$ alloys," *J. Appl. Phys.* **76**, 6359 (1994).
34. M. A. Subramanian, M. K. Crawford, R. L. Harlow, T. Ami, J. A. Fernandez-Baca, Z. R. Wang, and D. C. Johnston, "Sr_2RhO_4 and Sr_2IrO_4: Structural and magnetic studies of 4*d* and 5*d* transition metal analogs of La_2CuO_4," *Physica C* **235–240**, 743 (1994).
35. S. Katano, N. Mori, Y. Ueda, J. A. Fernandez-Baca, and S. Funahashi, "Structural phase transitions and superconductivity of $La_{2-x}Ba_xCuO_4$ with $x = 0.125$: Effects of pressure and Sr-substitution," *Physica C* **235–240**, 837 (1994).
36. D. Zhao, D. L. Huber, T. M. Giebultowicz, and J. A. Fernandez-Baca, "Analysis of low-temperature spin dynamics in a diluted Heisenberg Antiferromagnet on a HCP Lattice: $Zn_{1-x}Mn_xSe$," *Solid State Comm*. **94**, 89 (1995).
37. S. Kawarazaki, Y. Kobashi, J. A. Fernandez-Baca, S. Murayama, Y. Onuki, and Y. Miyako, "Neutron diffraction study on the magnetism of the $Ce(Ru_{1-x}Rh_x)_2Si_2$ mixed compound system," *Physica B* **206-207**, 298 (1995).
38. N. Herron, D. L. Thorn, R. L. Harlow, G. A. Jones, J. B. Parise, J. A. Fernandez-Baca, and T. Vogt, "Preparation and structural characterization of two new phases of aluminum trifluoride," *Chem. of Materials* **7**, 75 (1995).
39. X. -L. Wang, J. A. Fernandez-Baca, Z. R. Wang, D. Vaknin, and D. C. Johnston, "Neutron diffraction study of the magnetic ordering of $BaCuO_{2+x}$," *Physica B* **213-214**, 97 (1995).
40. X. -L.Wang, J. A. Fernandez-Baca, C. R. Hubbard, K. B. Alexander, and P. F. Becher, "Transformation behavior in $Al_2O_3ZrO_2$ ceramic composites," *Physica B* **213-214**, 824 (1995).
41. H. Ikeda, K. Iwasa, J. A. Fernandez-Baca, and R. M. Nicklow, "Spin correlations in percolating networks with fractal geometry," *Physica B* **213-214**, 1995).
39. J. A. Fernandez-Baca, Peggy Hill, B. C. Chakoumakos, and Naushad Ali, "Neutron diffraction study of the magnetic structures of $CeMn_2Ge_2$ and $CeMn_2Si_2$," *J. Appl. Phys*. **79**, 5398(1996)
40. J. A. Fernandez-Baca, E. Fawcett, H. L. Alberts, V. Yu Galkin, and Y. Endoh, "Effect of pressure on the Magnetic Phase Diagram of the antiferromagnetic spin-density-wave alloy Cr-1.6% Si," *J. Appl. Phys.* **81**, 3877 (1997).
41. D. Mandrus, J. L. Sarrao, B. C. Chakoumakos, J. A. Fernandez-Baca, S. E. Nagler, and B. C. Sales, "Magnetism in $BaCoS_2$," *J. Appl. Phys.* **81**, 4620 (1997).
42. D. Vaknin, J. P. Koster, J. L. Zarestky, Z. Wang, J. A. Fernandez-Baca, and D. C. Johnston, "Magnetic diffraction from the magnetic clusters in single crystal $BaCuO_{2+x}$," *Phys. Rev. B* **57**, 465 (1998).
43. H. Ikeda, M. Takahashi, J. A. Fernandez-Baca, and R. M. Nicklow, "Neutron study of fracton excitations in percolating antiferromagnets," *J. Magn, Magn. Mater.* **177**, 139 (1998).
44. Z. Zlanic, D. P. Belanger, and J. A. Fernandez-Baca, "Random-field critical scattering at high magnetic concentration in the Ising antiferromagnet $Fe_{0.93}Zn_{0.07}F_2$," *J. Magn, Magn. Mater.* **177**, 171 (1998).
45. H. Kawano, R. Kajimoto, H. Yoshizawa, J. A. Fernandez-Baca, Y. Tomioka, H. Kuwahara, and Y. Tokura, "Two-dimensional anisotropy in a layered metallic antiferromagnet $RE_{1-x}Sr_xMnO_3$," *Physica B* **241-243**, 289 (1998).

46. W. T. Lee, S. A. Werner, J. A. Fernandez-Baca, and R. S. Fishman, "Excitations of the transversely polarized spin density waves in chromium," *Physica B* **241-243**, 622 (1998).
47. N. Wakabayashi, R. M. Nicklow, S, Katano, Y. Ishii, H. R. Child, H. G. Smith, and J. A. Fernandez-Baca, "Calculation of thermal diffuse scattering," *Physica B* **241-243**, 320 (1998).
48. M. Nishi, K. Kakurai,Y. Fujii, M. Yethiraj, D. A. Tenant, S. E. Nagler, J. A. Fernandez-Baca, O. Fujita, and J. Akimitsu, "Magnetic excitations of $CuGeO_3$ under applied pressure," *Physica B* **241-243**, 537 (1998).
49. S. Katano, Y. Ishii, Y. Morii, H. R. Child, and J. A. Fernandez-Baca, "Upgrade of the Wide-Angle Neutron Diffractometer at the High Flux Isotope Reactor," *Physica B* **241-243**, 198 (1998).
50. J. A. Fernandez-Baca, P. Dai, H. Y. Hwang, S-W. Cheong, and C. Kloc, "Evolution of the low-frequency spin dynamics in ferromagnetic manganites," *Phys. Rev. Lett*. **80**, 4012, (1998).
51. H. Yoshizawa, H. Kawano, J. A. Fernandez-Baca, H. Kuwahara and Y. Tokura, "Anisotropic spin waves in a layered metallic antiferromagnet: $Nd_{0.45}Sr_{0.55}MnO_3$," *Phys. Rev. B* **58**, R571 (1998)
52. H. Ikeda, S. Itoh, M. A. Adams, and J. A. Fernandez-Baca, "Crossover from homogeneous to fractal excitations in the near-percolating Heisenberg antiferromagnet $RbMn_{0.39}Mg_{0.61}F_3$," *J. Phys. Soc. Jpn.* **67**, 3376 (1998).
53. N. Igawa, T. Nagasaki, Y. Ishii, K. Noda, H. Ohno, Y. Morii, and J. A. Fernandez-Baca, "Phase transformation study of metastable tetragonal zirconia powder," *J. Mater. Sci.* **33**, 4747 (1998).
54. Z. Slanic, D. P. Belanger, and J. A. Fernandez-Baca, "Equilibrium random-field Ising critical scattering in the antiferromagnetic $Fe_{0.93}Zn_{0.07}F_2$," *Phys. Rev. Lett.* **82**, 426 (1999).
55. M. Nishi, K. Kakurai, Y. Fujii, S. Katano, J. Akimitsu, M. Yethiraj, and J. A. Fernandez-Baca, "New aspects of the b*-LA phonon of $CuGeO_3$," *J. Phys. Chem. Solids* **60**, 1109 (1999).
56. H. Yoshizawa, R. Kajimoto, H. Kawano, J. A. Fernandez-Baca, Y. Tomioka, H. Kuwahara, and Y. Tokura, "Magnetic ordering and spin fluctuations in nearly half-doped manganites," *Materials Science And Engineering B* **63**, 125 (1999).
57. S. M. Yunus, J. A. Fernandez-Baca, M. A. Asgar, F. U. Ahmed, and M. A. Hakim, "Neutron diffraction studies of the magnetic disorder in $Zn_xMg_{0.8-x}Ni_{0.2}Fe_2O_4$ ferrite with x = 0.0, 0.2, 0.4 and 0.6.," *Physica B* **262**, 112 (1999).
58. T. Kosugi, K. Amezawa, N. Yamamoto, S. Kawano, and J. A. Fernandez-Baca, "Neutron diffraction studies of the magnetic structures of $Tb_{0.76}Y_{0.24}$ single crystal under high pressure," *J. Phys. Chem. Solids* **60**, 1225 (1999).
59. S. Katano, J.A. Fernandez-Baca, and Y. Yamada, "Phase transition, diffuse scattering and segregation kinetics in the colossal magnetoresistance material $Pr_{70}Ca_{30}MnO_3$," *Physica B* 276-278, 786 (2000)
60. P. Dai, H. Y. Hwang, J. Zhang, J. A. Fernandez-Baca, S.–W Cheong, C. Kloc, Y. Tomioka, and Y. Tokura, "Magnon damping by magnon-phonon coupling in manganese perovskites," *Phys. Rev. B* **61**, 9553 (2000).
61. S. M. Yunus, J. A. Fernandez-Baca, M. A. Asgar, and F. U.Ahmed, "Neutron diffraction study of magnetic ordering in the spinel oxide $Co_xMn_{1-x}Al_{2x}Fe_{2-2x}O_4$," *Journal of Alloys and Compounds*, **298**, 9 (2000).
62. F.C. Montenegro, D. P. Belanger, Z. Slanic, and J. A. Fernandez-Baca, "Ordering in the dilute weakly-anisotropic antiferromagnetet $Mn_{0.35}Zn_{0.65}F_2$," *Phys. Rev. B* **61**, 14681 (2000).
63. F.C. Montenegro, D. P. Belanger, Z. Slanic, and J. A. Fernandez-Baca, "d=3 random field behavior," *J. Appl. Phys.* **87**, 6537(2000).

64. P. Dai, J. A. Fernandez-Baca, N. Wakabayashi, E. W. Plummer, Y. Tomioka, and Y. Tokura, "Short-range polaron correlations in the ferromagnetic $La_{1-x}Ca_xMnO_3$," *Phys. Rev. Lett* **85**, 2553 (2000).
65. Y. Yamada, J. Suzuki, K. Oikawa, S. Katano, and J. A. Fernandez-Baca, "Neutron diffraction of hole polaron ordering in $La_{1-x}Sr_xMnO_3$ (x similar or equal to 1/8)," *Phys. Rev. B* **62**, 11600 (2000).
66. Z. Slanic , D. P. Belanger, and J. A. Fernandez-Baca, "Scaling properties of the critical behaviour of the dilute antiferromagnet $Fe_{0.93}Zn_{0.07}F_2$," *J. Phys. Condens. Matter* **13**, 1711 (2001).
67. A. S. Bakulin, A. W. Overhauser, H. Kaiser, S. A. Werner, J. A. Fernandez-Baca, and H. G. Smith, "Phonon dispersion of indium along [111]," *Phys. Rev. B* **63**, 052301, (2001).
68. Jiandi Zhang, P. Dai, J. A. Fernandez-Baca, E. W. Plummer, Y. Tomioka, and Y. Tokura, "Jahn-Teller phonon anomaly and dynamic phase fluctuations in $La_{0.7}Ca_{0.3}MnO_3$," *Phys. Rev. Lett.* **86**, 3823 (2001).
69. J. A. Fernandez-Baca, P. Dai, N. Wakabayashi, E. W. Plummer, S. Katano, Y. Tomioka, and Y. Tokura, "Polaron correlations in Ferromagnetic CMR Manganites," *J. Phys. Soc. Jpn.* **70** Supp. A, 85 (2001).
70. Y. Ishii, S. Katano, J. Suzuki, K. Aizawa, H. R. Child, Y. Morii, and J. A. Fernandez-Baca, "Upgrade of the Wide Angle Neutron Diffractometer at the High-Flux Isotope Reactor," *J. Phys. Soc. Jpn. Supp. A* **70**, 453 (2001).
71. P. Dai, J. A. Fernandez-Baca, E. W. Plummer, Y. Tomioka, and Y. Tokura, "Magnetic Coupling in the Insulating and Metallic Ferromagnetic La1-xCaxMnO3," *Phys. Rev. B* **64**, 224429 (2001).
72. J. A. Fernandez-Baca, P. Dai, H. Kawano-Furukawa, H. Yoshizawa, E. W. Plummer, S. Katano, Y. Tomioka, and Y. Tokura, "Microscopic spin interactions in the CMR manganites," *Phys. Rev B* **66,** 054434 (2002).
73. Y. S. Yang, F. Marsiglio , M. Madsen , B. D. Gaulin, R. B. Rogge, and J. A. Fernandez-Baca**, "**Spin-wave response in the dilute quasi-one-dimensional ising-like antiferromagnet $CsCo_{0.83}Mg_{0.17}Br_3$," *Phys. Rev. B* **65**, 212408 (2002).
74. N. Wakabayashi, S. Shimomura , P. Dai, J.A.Fernandez-Baca, Y. Tomioka, and Y. Tokura, "Polaron lifetime in $La_{0.75}Ca_{0.25}MnO_3$," *Appl. Phys. A-Mater.* **74**, S1782-S1784 (2002).
75. W. C. Barber, F. Ye, D. P. Belanger, and J. A. Fernandez-Baca, "Magnetic Vacancy Percolation in Dilute Antiferromagnets," *Phys. Rev. B* **69**, 024409 (2004).
76. F. Ye, M. Matsuda, S. Katano, H. Yoshizawa, J. A. Fernandez-Baca, E. T. Seppala, and M. J, Alava, "Percolation fractal dimension in scattering lineshapes of the random-field Ising model," *J. Magn. Magn. Mat.* **272-276**, 1298 (2004).
77. C. L. Fu, C.T. Liu ,X. L. Wang, M Krcmar, and J. A. Fernandez-Baca, "Magnetism-induced solid solution softening in NiAl with Co, Fe, Mn, and Cr solute atoms: theory and experiment," *Intermetallics* **12**, 911, (2004).
78. J. A. Fernandez-Baca, M. E. Hagen, Pengcheng Dai, J. Kulda, Y. Tomioka, and Y. Tokura, "Spin waves and phonons in the CMR ferromagnet $La_{0.70}Ca_{0.30}MnO_3$," *Physica B* **385-386**, 66 (2006)
79. F. Ye, J. A. Fernandez-Baca, Pengcheng Dai, J. W. Lynn, H. Kawano-Furukawa, H. Yoshizawa, Y. Tomioka, and Y. Tokura. "Electronically smectic-like phase in a nearly half-doped manganite," *Phys. Rev. B* **72**, 212404 (2005).

80. F. Ye, Pengcheng Dai, J. A. Fernandez-Baca, Hao Sha, J. W. Lynn, H. Kawano-Furukawa, Y. Tomioka, Y. Tokura, and Jiandi Zhang. "Evolution of spin-wave excitations in ferromagnetic metallic manganites," *Phys. Rev. Lett.* **96**, 47204 (2006).
81. D. J. Goossens, T. R. Welberry, M. E. Hagen, and J. A. Fernandez-Baca, "The structural phase transition in deuterated benzil, $C_{14}D_{10}O_2$: Neutron inelastic scattering," *Phys. Rev. B* **73**, 134116 (2006).
82. F. Ye, Y. Ren, Q. Huang, J. A. Fernandez-Baca, Pengcheng Dai, J. W. Lynn, and T. Kimura, "Spontaneous spin-lattice coupling in the geometrically frustrated triangular lattice antiferromagnet $CuFeO_2$," *Phys. Rev. B* **73**, 220404 (2006).
83. H. Fukazawa, A. Hoshikawa, Y. Ishii, B. C. Chakoumakos, and J. A. Fernandez-Baca, "Existence of ferroelectric ice in the universe," *Astrophys J* 652, **L57** (2006).
84. L. Yang, X.-L. Wang, C. T. Liu, J. A. Fernandez-Baca, C. L. Fu, J. W. Richardson, and D. Shi, "Neutron diffraction study of the structure and low temperature phase transformation in ternary NiAl+M (M=Ni, Fe, Co) alloys," *Scripta Mat*. **56**, 911 (2007).
85. F. Ye, Pengcheng Dai, J.A. Fernandez-Baca, D.T. Adroja, T.G. Perring, Y. Tomioka, and Y. Tokura, "Spin waves throughout the Brillouin zone and magnetic exchange coupling in the ferromagnetic metallic manganites $La_{1-x}Ca_xMnO_3$ (x=0.25,0.30)," *Phys. Rev. B* **75**, 144408 (2007).
86. Y. W. Rodriguez, I. E. Anderson, D. P. Belanger, H. Nojiri, F. Ye, and J. A. Fernandez-Baca "Low temperature excitations in a dilute three-dimensional anisotropic antiferromagnet," *J. Magn. Magn. Mater.* **310**, 1546 (2007).
87. F. Ye, Y. W. Rodriguez, D. P. Belanger, and J. A. Fernandez-Baca, "The Order Parameter Critical Exponent of the Chiral Phase Transition in VF2*" J. Magn, Magn. Mater.* **310**, 1410 (2007).
88. S. Chi, F. Ye, P. Dai, J. A. Fernandez-Baca, Q. Huang, J. W. Lynn, E. W. Plummer, R. Mathieu, Y. Kaneko, and Y. Tokura, "Effect of antiferromagnetic spin correlations on lattice distortion and charge ordering in $Pr_{0.5}Ca_{1.5}MnO_4$," *Proc. National Academy of Sciences* **104**, 10796 (2007).
89. J. Zhang, F. Ye, H. Sha, P. Dai, J. A. Fernandez-Baca, and W. Plummer, "Magnons in ferromagnetic metallic manganites," *J. Phys. Cond. Mat.* **19**, 315204 (2007).
90. F. Ye, B. Lorenz, Q. Huang, Y. Y. Sun, C. W. Chu, J. A. Fernandez-Baca, P. Dai, and H. A. Mook, "Incommensurate magnetic structure in the orthorhombic perovskite $ErMnO_3$," *Phys. Rev. B* **76**, 060402(R) (2007).
91. F. Ye, J. A. Fernandez-Baca, R. S. Fishman, Y. Ren, H. J. Kang, Y. Qiu, and T. Kimura, "Magnetic interaction in the geometrically frustrated triangular lattice antiferromagnet $CuFeO_2$," *Phys. Rev. Lett*. **99**, 157201 (2007).
92. H. Kadowaki, K. Motoya, T. J. Sato, J. W. Lynn, J. A. Fernandez-Baca, and J. Kikuchi, "Quantum phase transition in the itinerant antiferromagnet $(V_{0.9}Ti_{0.1})_2O_3$," *Phys. Rev. Lett.* **101**, 096406 (2008).
93. H. Sha, F. Ye, P. Dai, J. A. Fernandez-Baca, D. Mesa, J. W. Lynn, Y. Tomioka, Y. Tokura, and J. Zhang. "Signature of Magnetic Phase Separation in the Ground State of $Pr_{1-x}Ca_xMnO_3$," *Phys. Rev. B* **78**, 052410 (2008).
94. Y. Tsunoda, L. Hao, S. Shimomura, F. Ye, J. L. Robertson, and J. A. Fernandez-Baca "Elastic diffuse scattering of neutrons in FeNi Invar alloys," *Phys. Rev. B* **78**, 094105 (2008).
95. R. S. Fishman, F. Ye, J. A. Fernandez-Baca, J. T. Haraldsen, and T. Kimura, "Importance of stacking to the collinear magnetic phases of the geometrically frustrated antiferromagnet $CuFeO_2$," *Phys. Rev. B* **78,** 10407 (2008).

96. M. Matsuda, M. Fujita, S. Wakimoto, J. A. Fernandez-Baca, J. M. Tranquada, and K. Yamada. "Magnetic Dispersion of the Diagonal Incommensurate Phase in Lightly-Doped $La_{2-x}Sr_xCuO_4$," *Phys. Rev. Lett.* **101**, 197001 (2008).

97. F. Ye, Y. Ren, J. A. Fernandez-Baca, H. A. Mook, J. W. Lynn,. P. Chaudhury, Y. Q. Wang, B. Lorenz, and C. W. Chu, "Magnetic switching and phase competition in the multiferroic antiferromagnet $Mn_{1-x}Fe_xWO_4$," *Phys. Rev. B* **78**, 193101 (2008).

98. T. Hong, V. O. Garlea, A. Zheludev, J. A. Fernandez-Baca, H. Manaka, S. Chang, J. B. Leao, and S. J. Poulton, "Effect of pressure on the quantum spin ladder material IPA-$CuCl_3$," *Phys. Rev. B* **78,** 224409 (2008).

99. H. Fukazawa, A. Hoshikawa, B. C. Chakoumakos, and J. A. Fernandez-Baca, "Existence of ferroelectric ice on planets, a neutron diffraction study," *Nuclear Instrumentation and Methods A* **600**, 279 (2009).

100. R. P. Chaudhury, B. Lorenz, Y. Q. Wang, Y. Y. Sun, C. W. Chu, F. Ye, J. Fernandez-Baca, H. Mook, and J. Lynn, "Re-entrant spiral magnetic order and ferroelectricity in $Mn_{1-x}FexWO_4$ (x=0.035)," *J. Appl. Phys.* **105**, 07D913, (2009)

101. F. Ye, S. Chi, J.A. Fernandez-Baca, A. Moreo, E. Dagotto, J. W. Lynn, R. Mathieu, Y. Kaneko, Y. Tokura, and P. Dai, "Electronic self-organization in the single-layer manganite $Pr_{1-x}Ca_{1+x}MnO_4$," *Phys. Rev. Lett*. **103**, 167202(2009).

102. J. T. Haraldsen, F. Ye, R. S. Fishman, J. A. Fernandez-Baca, Y. Yamaguchi, K. Kimura, and T. Kimura, "Identifying the multiferroic phase of doped $CuFeO_2$ using inelastic neutron scattering," *Phys. Rev. B* **82**, 020404 (R), (2010) .

103. R. P. Chaudhury, F. Ye, J. A. Fernandez-Baca, Y.-Q.Wang, Y. Y. Sun, B. Lorenz, H. A. Mook, and C. W. Chu, "Magnetic and multiferroic phases of single-crystalline $Mn_{0:85}Co_{0:15}WO_4$," *Phys Rev. B* **82**, 184422 (2010).

104. R. P. Chaudhury, F. Ye, J. A. Fernandez-Baca, B. Lorenz, Y. Q. Wang, Y. Y. Sun, H. A. Mook, and C. W. Chu, " Robust ferroelectric state in multiferroic $Mn_{1-x}Zn_xWO_4$", *Phys. Rev. B* **83**,14401 (2011).

105. F. Ye, R. S. Fishman, J. A. Fernandez-Baca, A. A. Podlesnyak, G. Ehlers, H. A. Mook, Y. Wang, B. Lorenz, and C. W. Chu, "Long-range magnetic interactions in the multiferroic antiferromagnet $MnWO_4$," *Phys Rev. B* **83**, 140401 (R) (2011).

106. Arakawa M., Kagi H., Fernandez-Baca J. A., Chakoumakos B. C. and Fukazawa H., "Neutron diffraction study of hydrogen-ordered ice XI: Annealing effect, and memory effect," *Physics and Chemistry of Ice*, Hokkaido University Press, Sapporo, Japan, 329-338. (2011).

107. Fukazawa H., Arakawa M., Kagi H., Yamauchi H., Fernandez-Baca J.A., and Chakoumakos B.C., "Structure and properties of ferroelectric water ice," *Physics and Chemistry of Ice*, Hokkaido University Press, Sapporo, Japan, 421-428 (2011).

108. Arakawa M., Kagi H., Fernandez-Baca, J.A., Chakoumakos B.C., and Fukazawa H., "The existence of memory effect on hydrogen ordering in ice: The effect makes ice attractive," *Geophys. Res. Lett.* **38**, L16101 (2011).

109. M. Matsuda, J. A. Fernandez-Baca, M. Fujita, K. Yamada, and J. M. Tranquada, "Detailed structure of the low-energy magnetic dispersion of the diagonal incommensurate phase in $La_{1.975}Sr_{0.025}CuO_4$," *Phys. Rev. B* **84,** 104524 (2011).

110. S. D. Wilson, Z. Yamani, C. Dhital, B. Freelon, P. G. Freeman, J. A. Fernandez-Baca, K. Yamada, S. Wakimoto, W. J. L. Buyers, and R. J. Birgeneau, "Zn-induced spin dynamics in overdoped $La_{2-x}Sr_xCu_{1-y}Zn_yO_4$," *Phys. Rev B* **85**, 14507 (2012).

111. Izumi Tomeno, Jaime A Fernandez-Baca, Karol J Marty, Yorihiko Tsunoda, and Kunihiko Oka, "Lattice dynamics of $PbTiO_3$," *Journal of Physics: Conference Series* **340,** 012054 (2012).
112. Feng Ye, Songxue Chi, Huibo Cao, Bryan Chakoumakos, Jaime A. Fernandez-Baca, Radu Custelcean, Tongfei Qi, O. B. Korneta, and G. Cao, "Direct evidence of a zigzag spin chain structure in the honeycomb lattice Na_2IrO_3," *Phys. Rev. B* **85**, 180403 (R) (2012).
113. D. Mesa, F. Ye, S. Chi, J. A. Fernandez-Baca, W. Tian, B. Hu, R. Jin, E. W. Plummer, and J. Zhang, "Single-bilayer E-type antiferromagnetism in Mn-substituted $Sr_3Ru_2O_7$: Neutron scattering study," *Physical Review B* **85**, 180410 (2012).
114. K. C. Liang, Y. Q. Wang, Y. Y. Sun, B. Lorenz, F. Ye, J. A. Fernandez-Baca, H. A. Mook, and C. W. Chu, "The complex multiferroic phase diagram of $Mn_{1-x}Co_xWO_4$," *New J. Phys.* **14**, 073028 (2012)
115. F. Ye, S. Chi, J. A. Fernandez-Baca, H. Cao, K. C. Liang, Y. Wang, B. Lorenz, and C. W. Chu, "Magnetic orders and spin-flop transitions in the cobalt doped multiferroic $Mn_{1-x}Co_xWO_4$," *Phys Rev B* **86**, 194429 (2012).
116. I. Tomeno, J. A. Fernandez-Baca, K. J. Marty, K. Oka, and Y. Tsunoda, "Simultaneous softening of acoustic and optic modes in cubic $PbTiO_3$," *Phys. Rev. B*. **86**, 134306 (2012).
117. Marty, K., Christianson, A.D., dos Santos, A.M., Sipos, B., Matsubayashi, K., Uwatoko, Y., Fernandez-Baca, J.A., Tulk, C.A., Maier, T.A., Sales, B.C., Lumsden, M.D., "Pressure induced renormalization of energy scales in the unconventional superconductor $FeTe_{0.66}Se_{0.4}$," *Phys. Rev. B* **86**, 220509 (R) (2012).
118. F. Ye, S. Chi, B. C. Chakoumakos, J. A. Fernandez-Baca, T. Qi, and G. Cao, "Magnetic and crystal structures of Sr_2IrO_4: A neutron diffraction study," *Phys, Rev. B* **87**, 140406 (R) (2013).
119. A. M. Durand, D. P. Belanger, C. H. Booth, F. Ye, S. Chi, J. A. Fernandez-Baca, and M. Bhat, "Magnetism and phase transitions in $LaCoO_3$*," J. Phys. Cond. Matt,* **25** , (2013).
120. C. Zhang, R. Yu, Y. Su, Y. Song, M. Wang, G. Tan, T. Egami, J. A. Fernandez-Baca, E. Faulhaber ,Q. Si, and P. Dai, "Double neutron spin resonances and gap anisotropy in underdoped superconducting $NaFe_{0.985}Co_{0.015}As$," *Phys. Rev. Lett.* **111**, 207002 (2013).
121. A. Pramanick, S. O. Diallo, O. Delaire, S. A. Calder, A. D. Christianson, X.-L. Wang, and J. A. Fernandez-Baca, "Atomistic origins for large enhancement of electromechanical coupling in ferroelectric single crystals," *Phys. Rev. B* **88**, 180101(R) (2013).
122. Poudel, N., K.-C. Liang, Y. Q. Wang, Y. Y. Sun, B. Lorenz, F. Ye, J. A. Fernandez-Baca, C. W. Chu, "Magnetic-field-induced spontaneous polarization reversal in multiferroic $Mn_{0.85}Co_{0.15}WO_4$," *Phys. Rev. B.* **89**, 054414 (2014).
123. S. Anissimova, D. Parshall, G. Gu, K. Marty, M. Lumsden, S. Chi, J. Fernandez-Baca, D. Abernathy, D. Lamago, J. Tranquada, and D. Reznik, "Direct observation of dynamic charge stripes in $La_{2-x}Sr_xNiO_4$," *Nature Communications* **5**, 3467 (2014).
124. W. Tian, G. Tan, L. Liu, J. Zhang, B. Winn, T. Hong, J. A. Fernandez-Baca, C. Zhang, and P. Dai, "Doping influence of spin dynamics and magnetoelectric effect in hexagonal $Y_{0:7}Lu_{0:3}MnO_3$," *Phys. Rev.* B. **89**, 144417 (2014).
125. Y. Sekine, T. Ikeda-Fukazawa, M. Aizawa, R. Kobayashi, S. Chi, J. Fernandez-Baca, H. Yamauchi, and H. Fukazawa, "Neutron diffraction of ice in hydrogels," *Physical Chemistry* B. **118**, 13453−13457 (2014).
126. S. Chi, F. Ye, H. D. Zhou, E. S. Choi, H. Cao, and J. A. Fernandez-Baca, "Magnetoelectric coupling tuned by competing single iron anisotropies in Mn1−xNixTiO3*," Phys. Rev.* B **90**, 144429 (2014).

127. N. Poudel, B. Lorenz, K. Liang, Y. Wang, Y. Y. Sun, F. Ye, J. A. Fernandez-Baca, C. Chu, "Spontaneous polarization reversal in multiferroic Mn0.85Co0.15WO4 induced by an external magnetic field," *IEEE Transactions on Magnetics* **50**, 2503904 (2014).
128. A. M. Durand, T. J. Hamil, D. P. Belanger, S. Chi, F. Ye, J. A. Fernandez-Baca, Y. Abdollahian, and C. H. Booth, "The effects of Co3O4 on the Structure and Unusual Magnetism of LaCoO3". *J. Phys.: Condens. Matter* **27**, 126001 (2015).
129. A. M. Durand, D. P. Belanger, T. J. Hamil, F. Ye, S. Chi, J. A. Fernandez-Baca, C. H. Booth, Y. Abdollahian, and M. Bhat, "The unusual magnetism of bulk and nanoparticle LaCoO3*". J. Phys.: Condens. Matter* **27,** 176003 (2015).
130. A. Pramanick, M. R. V. Jørgensen, S. O. Diallo, A. D. Christianson, X.-L. Wang, C. Hoffmann, X. Wang, J. A. Fernandez-Baca. "Nanoscale Atomic Displacements Ordering for Enhanced Piezoelectric Properties in Lead-free ABO_3 Ferroelectrics" *Adv. Mater.* **27**, 4330 (2015).
131. Roger England, Gerard Ludtka, Thomas Watkins, Jaime A. Fernandez-Baca and Peter Kalu. "Phase Transformation in a High Flux Magnetic Field". TMS 2015 Supplemental Proceedings, 1345 (2015).
132. H. Fukazawa, M. Arakawa, H. Yamauchi, Y. Sekine, R. Kobayashi, Y. Uwatoko, S. Chi, and J. A. Fernandez-Baca, "Properties of Ferroelectric Ice" *J. Phys. Soc. Jpn.* Conference Proceedings **8**, 033010 (2015).
133. Y. Sekine, R. Kobayashi, S. Chi, J. A. Fernandez-Baca, K. Suzuya, F. Fujisaki, K. Ikeda, T. Otomo, T. Ikeda-Fukazawa, H. Yamauchi, and H. Fukazawa "Neutron Diffraction of Ice and Water in Hydrogels", *J. Phys. Soc. Jpn.* Conf. Proc. **8**, 033009 (2015).
134. F. Ye, Xiaoping Wang, Christina Hoffmann, Jinchen Wang, Songxue Chi, Masaaki Matsuda, B. C. Chakoumakos, J. A. Fernandez-Baca, G. Cao, "Structure symmetry determination and magnetic evolution in $Sr_2Ir_{1-x}Rh_xO4$". *Phys. Rev*. **92**, 201112(R) (2015).
135. N. Poudel, B. Lorenz, B. Lv, Y. Q. Wang, F. Ye, Jinchen Wang, J. A. Fernandez-Baca, C. W. Chu, "Effects of nickel doping on the multiferroic and magnetic phases of MnWO4". Integrated Ferroelectrics, 166, 17-29 (2015).
136. Wang, J. C., Feng Ye, Songxue Chi, J. A. Fernandez-Baca, Huibo Cao, Wei Tian, M. Gooch, N. Poudel, Yaqi Wang, Bernd Lorenz, C. W. Chu, "Pressure effects on magnetic ground states in cobalt doped multiferroic Mn1−xCoxWO4". *Phys. Rev*. B **93**, 155164 (2016).
137. Chenglin Zhang, Weicheng Lv, Guotai Tan, Yu Song, Scott V. Carr, Songxue Chi, M. Matsuda, A. D. Christianson, J. A. Fernandez-Baca, L. W. Harriger, and Pengcheng Dai, "Electron doping evolution of the neutron spin resonance in NaFe1−xCoxAs", *Phys. Rev*. B **93**, 174522 (2016).
138. Taro Nakajima, Yusuke Tokunaga, Masaaki Matsuda, Sachith Dissanayake, Jaime Fernandez-Baca, Kazuhisa Kakurai, Yasujiro Taguchi, Yoshinori Tokura, and Takahisa Arima, "Magnetic structures and excitations in a multiferroic Y-type hexaferrite BaSrCo2Fe11AlO22", *Phys. Rev*. B **94**, 195154 (2016).
139. Alberto Nocera, N. Patel, J. Fernandez-Baca, E. Dagotto, and G. Alvarez, "Magnetic excitation spectra of strongly correlated quasi-one dimensional systems: Heisenberg versus Hubbard-like behavior". *Phys. Rev*. B **94**, 205145 (2016).

140. W. Tian, Huibo Cao, Jincheng Wang, Feng Ye, M. Matsuda, J.-Q. Yan, Yaohua Liu, V. O. Garlea, B. C. Chakoumakos, B. C. Sales, Randy S. Fishman, and J. A. Fernandez-Baca, "Spin-lattice coupling mediated multiferroicity in (ND4)2FeCl5D2O". *Phys. Rev* B **94**, 214405 (2016)
141. Hiroki Yamauchi, Naoto Metoki, Ryuta Watanuki, Kazuya Suzuki, Hiroshi Fukazawa, Songxue Chi, and Jaime A. Fernandez-Baca, "Magnetic Structure and Quadrupolar Order Parameter Driven by Geometrical Frustration Effect in NdB4". *J. Phys. Soc. Jpn*. **86**, 044705 (2017).
142. Metoki, N., Hiroki Yamauchi, Hideaki Kitazawa, Hiroyuki S. Suzuki, Masato Hagihala, Matthias D. Frontzek, Masaaki Matsuda, Jaime A. Fernandez-Baca, "Neutron powder diffraction study of the magnetic structure of NdPd5Al2", *J. Phys. Soc. Jpn*. **86**, 034710 (2017).
143. Fankang Li, Hao Feng, Alexander N. Thaler, Steven R. Parnell, William A. Hamilton, Lowell Crow, Wencao Yang, Amy B. Jones, Hongyu Bai, Masaaki Matsuda, David V. Baxter, Thomas Keller, Jaime A. Fernandez-Baca, Roger Pynn, "High resolution neutron Larmor diffraction using superconducting magnetic Wollaston prisms". *Scientific Reports* **7,** 865 (2017).
144. G. M. Kaminsky, D. Belanger, F. Ye, J. A. Fernandez-Baca, J. C. Wang, M. Matsuda, J. Q. Yan, "Origin of the net magnetic moment in LaCoO3." *Phys. Rev.* B **97**, 024418 (2018).
145. F. Ye, J. C. Wang, J. M. Sheng, C. Hoffmann, T. Gu, H. J. Xiang, W. Tian, J. J. Molaison, A. M. dos Santos, M. Matsuda, B. C. Chakoumakos, J. A. Fernandez-Baca, X. Tong, B. Gao, J. W. Kim, S. W. Cheong, "Soft antiphase tilt of oxygen octahedra in the hybrid improper multiferroic $Ca_3Mn_{1.9}$ $Ti_{0.1}O_7$." *Phys. Rev*. B **97**(4), 041112 (R) (2018).
146. F. Li, H. Feng, A. Thaler, S. R. Parnell, L. Crow, M. Matsuda, F. Ye, T. Kimura, J. A. Fernandez-Baca, R. Pynn, "New capabilities in high-resolution neutron Larmor diffraction at ORNL." *Journal of Applied Crystallography* **51**(3), 1-7 (April 2018). https://doi.org/10.1107/S160057671800
147. MD Frontzek, KM Andrews, AB Jones, BC Chakoumakos, JA Fernandez-Baca, "The Wide Angle Neutron Diffractometer squared ($WAND^2$)-Possibilities and future", *Physica* B: Condensed Matter (2017).
148. N. Metoki, H. Yamauchi, M. Matsuda, J. A. Fernandez-Baca, R. Watanuki, and M. Hagihala, "Polarized neutron scattering study of the multiple order parameter system NdB4", *Phys. Rev*. B **97,** 174416 (2018).
149. W. Tian, H. B. Cao, Amanda J. Clune, Kendall D. Hughey, Tao Hong, J.-Q. Yan, Harish K. Agrawal, John Singleton, B. C. Sales, Randy S. Fishman, J. L. Musfeldt, and J. A. Fernandez-Baca, "Phase separation and magnetic-field-induced phenomena in molecular multiferroic (ND4)2FeCl5·D2O", *Phys. Rev*. B **98**, 054407 (2018).
150. M. D. Frontzek, R. Whitfield, K. M. Andrews, A. B. Jones, M. Bobrek, K. Vodopivec, B. C. Chakoumakos, and J. A. Fernandez-Baca, "WAND2 - A versatile wide angle neutron powder/single crystal diffractometer", *Rev. Sci. Instrum*. **89**, 092801 (2018).
151. Metoki, Naoto; Yamauchi, Hiroki; Suzuki, Hiroyuki S.; et al. "f-Electr *J. Phys. Soc. Jpn*. on States in PrPd5Al2", *J. Phys. Soc. Jpn.* **87** , 094704 (2018).

152. Jinchen Wang, R. S. Fishman, Yiming Qiu, J. A. Fernandez-Baca, Georg Ehlers, K.-C. Liang, Yaqi Wang, Bernd Lorenz, C. W. Chu, and Feng Ye, "Comprehensive inelastic neutron scattering study of the multiferroic Mn1−xCoxWO4", *Phys. Rev.* B **98**, 214425 (2018).

Books, book chapters and book sections

1. J. A. Fernandez-Baca and W. Y. Ching, editors*, The Magnetism of Amorphous Metals and Alloys* (book), World Scientific (1995).
2. Jeffrey W. Lynn, and Jaime A. Fernandez-Baca, " Neutron Scattering Studies of the Spin Dynamics of Amorphous Alloys," chapter in *The Magnetism of Amorphous Metals and Alloys, Chapter 5*, J. A. Fernandez-Baca and W. Y. Ching, eds., World Scientific (1995).
3. J. A. Fernandez-Baca, "Brief Introduction to Neutron Scattering", section in "Nanoscale Phase Separation and Colossal Magnetoresistance, The Physics of Manganites and Related Compounds," by Elbio Dagotto, Springer Verlag, Heidelberg (2002).
4. Randy S. Fishman, Jaime A. Fernandez-Baca and Toomas Room, "Spin Wave Theory and its Applications to Neutron Scattering and THz Spectroscopy", AIP Concise Physics, A. Morgan and Claypool Publishing (2018)

Other refereed and nonrefereed publications

1. M. Holden, K. Mikke, E. Fawcett, and J. A. Fernandez-Baca, "The Magnetism of Metallic Manganese Alloys," in *International Conference on the Physics of Transition Metals*, *Darmstad, Germany, July20-24, 1992,* P. M. Oppeneer and J. Kübler, eds. (World Scientific, 1993), vol. II, p. 644.
2. K. Mikke, T. M. Holden, J. A. Fernandez-Baca, E. Fawcett, and J. Jankowska-Kisilinska, "High-Energy Magnetic Excitations in Single Domain Homogeneous Antiferromagnetic γ-Mn(18% Cu) Alloy at 10K," in *International conference on the Physics of Transition Metals*, *Darmstad, Germany, July20-24, 1992,* P. M. Oppeneer and J. Kübler, eds. (World Scientific, 1993), vol. II, p. 659.
3. S. Katano, S. Funahashi, J. A. Fernandez-Baca, N. Môri, C. Murayama, and Y. Ueda, "Structural Phase Transition and Superconductivity in $La_{2-x}Ba_xCuO_4$," in *Proceedings of the 5th International Symposium on Advanced Nuclear Energy Research*, *Mito, Japan, 10-12 March, 1993,* E. Shirai, ed., Mito, Japan, 1993, , p. 514.
4. X. -L. Wang, C. R. Hubbard, K. B. Alexander, P. F. Becher, J. A. Fernandez-Baca, and S. Spooner, "Neutron Diffraction Study of the Micro Residual Stresses in $ZrO_2(CeO_2)Al_2O_3$ Ceramic Composites," Advances in X-Ray Analysis , J. V. Gilfrich, ed. Plenum Press 1993, vol. 36, p. 499.
5. X. -L. Wang, P. F. Becher, K. B. Alexander, J. A. Fernandez-Baca, and C. R. Hubbard, "Residual Stresses in Al_2O_3 ZrO_2 Ceramic Composites," in *Proceedings of the Fourth International Conference on Residual Stresses*, *Baltimore, MD, June 8-10, 1994*, p. 1172.
6. S. Spooner, J. A. Fernandez-Baca, S. A. David, C. R. Hubbard, T. M. Holden and J. A. Root, "Investigation of Residual Stresses in a Multipass Weld in 1''Stainless Steel Plate," in *Proceedings of the Fourth International Conference on Residual Stresses*, *Baltimore, MD, June 8-10, 1994*, p. 1205.

7. D. C. Johnston, T. Ami, F. Borsa, M. K. Crawford, J. A. Fernandez-Baca, K. H. Kim, R. L. Harlow, A. V. Mahajan, L. L. Miller, M. A. Subramanian, D. R. Torgeson, and Z. R. Wang, " Superconductivity and Metal-Insulator Transitions in Some Ternary and Pseudoternary 3d-,4d-, and 4d- Metal Oxydes," in *'Spectroscopy of Mott Insulators and Correlated Metals,' eds. A. Fujimori and Y. Tokura, Springer Series in Solid State Sciences, volume 119,* p. 241 (1995)
8. M. Yethiraj and J. A. Fernandez-Baca, "Neutron Scattering at the High Flux Isotope Reactor at Oak Ridge National Laboratory," in *Mat. Res. Symp. Proc. Vol 376* (1995)
9. D. C. Johnston, T. Ami, F. Borsa, P. C. Canfield, P. Carretta, B. K. Cho, J. H. Cho, F. C. Chou, M. Corti, M. K. Crawford, P. Dervenagas, R. W. Erwin, J. A. Fernandez-Baca, A. I. Goldman, R. J. Gooding, Q. Huang, M. F. Hundley, R. L. Harlow, B. N. Harmon, A. Lascialfari, L. L. Miller, J. E. Ostenton, N. M. Salem, C. Stassis, B. Sternlieb, B. J. Suh, D. R. Torgeson, D. Vaknin, K. J. E. Vos, X. -L. Wang, Z. R. Wang, M. Xu, and J. Zarestky, "Overview of Recent Magnetic Studies of High Tc Cuprate Parent Compounds and Related Materials," in *Recent Developments in High Temperature Superconductivity,* J. Klamut, B. W. Veal, B. M. Dabrowski, P. W. Klamut and M. Kazimierski, eds. (Springer Verlag) p. 61 (1995).
10. J. A. Fernandez-Baca, M. D. Lumsden, Barry Winn, J. Zarestky and A. Zheludev, "The Triple-Axis Spectrometers at the High Flux Isotope Reactor," *Neutron News* (Taylor & Francis), vol 19, issue 2, p. 18 (2008).

11. B. C. Chakoumakos, J. A. Fernandez-Baca, V. O. Garlea, C. R. Hubbard, and X. Wang, "The Diffraction Instruments at the High Flux Isotope Reactor," *Neutron News* (Taylor & Francis), vol 19, issue 2, 19, p. 14 (2008).