

Curriculum Vitae

Prof. Takashi Imai

Contact Information

Department of Physics and Astronomy, Room ABB-259, McMaster University
1280 Main Street West, Hamilton, ON L7N 1G5, Canada
Phone: (905) 525-9140, ext. 27303, Fax: (905) 546-1252
e-mail: imai (followed by at) mcmaster.ca
Homepage: <http://www.physics.mcmaster.ca/~imai>

Personal Data

Born: January 25, 1963, in Tokyo, Japan

Employment History

Professor of Physics & Astronomy, McMaster (2006-present)
Associate Professor of Physics & Astronomy, McMaster (2002-2006)
Associate Professor of Physics, M.I.T. (2000-2002)
Assistant Professor of Physics, M.I.T. (1994-2000)
Post Doctoral Fellow, University of Illinois at Urbana-Champaign (1991-1994)
[Advisor: Prof. C. P. Slichter]

Education

Ph.D. in physics University of Tokyo (1991) [Advisor: Prof. H. Yasuoka]
M.S. in physics University of Tokyo (1988)
B.Sci. in physics University of Tokyo (1986)

Honors, Awards, and Statistics

Fellow, American Physical Society (2008)
Mitsui Career Development Chair, M.I.T. (1995-1998)
Alfred P. Sloan Research Fellow (1995-1997)
Over ~ 100 publications
Number of invited talks since 1992: ~ 141
Cumulative citations ~ 7150
h-index ~ 45

Research accomplishments and discoveries highlighted in Nature Physics (2021), Physics Today (2016), Science, Nature Materials (2015) Physics Viewpoint (2014), Physics Synopsis (2011), Nachrichten aus der Chemie (2010), Physics Today (2009), Nature Materials (2009), Nikkei Business Daily (2008), Science News (2008), Physics Today (2001), Science (2000, 1999), Physics World (1999) etc.

Research Interests

Experimental condensed matter physics, Strongly correlated electrons, Superconductivity, Quantum magnetism, Quantum phase transitions, Quantum critical point, Quantum spin liquids, Nuclear Magnetic Resonance (NMR), High pressure techniques (up to 9 GPa) for NMR and transport measurements.

Other Professional Activities

Reviewer: APS journals, Nature Magazines, Science, J. Phys. Soc. Japan, J. Phys. Cond. Matt., Eur. J. Phys., New J. Physics, NSF, DOE, NSERC, CFI, etc.

Reviewer, TRIUMF, Molecular and Materials Sciences Experiments Evaluation Committee

Associate Editor: Journal of the Physical Society of Japan (2009-2019)

List of Invited Presentations (141 invited talks since 1992).

(a) 77 invited talks at conferences, workshops, and summer schools

- (77) Workshop on Quasi-one Dimensional Magnets, November 2022 (Shanghai, China).
- (76) Workshop on Neutrons and Complementary Techniques for Quantum Materials, Oak Ridge, USA.
- (75) Frustrated Metals and Insulators, September 2022, International Centre for Theoretical Sciences (ICTS), Bangalore, India.
- (74) Canadian Congress of Physicists, June 2022 (Hamilton, Canada).
- (73) American Physical Society March Meeting, March 2022 (Chicago, to be presented by Ph.D. student J. Wang).
- (72) EuroMAR 2021, March 2021 (Slovenia, online due to Covid-19 pandemic).
- (71) American Physical Society March Meeting, March 2021 (online meeting due to Covid-19).
- (70) Quantum spin liquid program, Aspen Center for Physics, July 2019.
- (69) Topological State and Phase Transitions in Strongly Correlated Systems, July 2017 (Beijing).
- (68) Canadian Association of Physics Congress, May 2017 (Kingston)
- (67) International Conference on Highly Frustrated Magnetism, September 2016 (Taiwan, presented by a graduate student advisee M. Fu).
- (66) Quantum Materials Meeting, CIFAR, Oct. 3, 2015 (Montreal).
- (65) NIMS Conference 2015, July 2015 (Tsukuba, Japan).
- (64) Workshop on Quantum Criticality in Correlated Materials and Model Systems, International Institute of Physics, July 2014 (Natal, Brazil).
- (63) Magnetic Resonance 70, June 2014 (Kazan, Russia), presented by graduate student M. Fu.
- (62) International Conference on Superconductivity and Magnetism, April 2014 (Turkey)
- (61) X-th International Conference on Materials and Mechanisms of Superconductivity (M2S-2012), July 2012 (Washington DC).
- (60) International Conference on Superconductivity and Magnetism, April 2012 (Istanbul, Turkey) (appearance cancelled due to conflict of schedule).
- (59) American Physical Society March Meeting, March 2012 (Boston, Massachusetts).
- (58) New Frontiers of NMR Workshop, October 2011 (NHMFL, Tallahassee, Florida).
- (57) Recent Advances in Broad-band Solid-State NMR of Correlated Electronic Systems, September 2011 (Trogir, Croatia) (declined due to scheduling conflict).
- (56) 26th International Conference on Low Temperature Physics, August 2011 (Beijing). (Presented by myself on iron superconductors.)
- (55) 26th International Conference on Low Temperature Physics, August 2011 (Beijing). (Presented by a graduate student advisee M. Fu on frustrated kagome magnetism).
- (54) Hangzhou Workshop on Quantum Matter, April 2011 (Zhejiang University, Hangzhou, China).
- (53) Super PIRE Meeting, October 2010 (Oak Ridge). Appearance cancelled due to illness (flu).
- (52) CIFAR Workshop on Quantum Materials (Whistler Village).
- (51) International Workshop on Novel Phenomena in Physical and Life Sciences, October 2010 (Kyoto,

Japan).

(50) Canadian Association of Physicists, June 2010 (Toronto, Canada).

(49) Hangzhou Workshop on Quantum Matter, May 2010 (Zhejiang University, Hangzhou, China). Appearance cancelled due to family hospitalization/death.

(48) 9th International Conference on Spectroscopies in Novel Superconductors (SNS2010), May 2010 (Shanghai, China).

(47) American Physical Society March Meeting, March 2010 (Portland, Oregon).

(46) IX-th International Conference on Materials and Mechanisms of Superconductivity (M2S-2009), September 2009 (Tokyo, Japan).

(45) Toronto Workshop on Iron-pnictides, January 2009 (Toronto, Canada).

(44) Canadian Institute for Advanced Research, Quantum Materials meeting, November 2008, (Vancouver, Canada).

(43) Beijing International Workshop on Iron-based Superconductors, October 2008 (Beijing, China).

(42) International Symposium on Iron Oxypnictide, June 2008 (Tokyo, Japan).

(41) American Physical Society March Meeting, March 2008 (New Orleans).

(40) MaNEP (Materials with Novel Electronic Properties) Summer School on Low Dimensional Systems, Swiss National Competence Center in Research, September 2006 (Saas-Fee, Switzerland).

(39) Advances in Neutron, Synchrotron radiation, μ SR, and NMR Researches (a satellite conference of International Conference of Magnetism 2006), August 2006 (Tokai, Japan).

(38) American Physical Society General Meeting, March 2006 (Baltimore, Maryland).

(37) ICAM / IFW International Workshop on NMR Studies of Novel Superconductors, October, 2005 (Dresden, Germany). (Declined)

(36) International Workshop on Collective Phenomena in Low-Dimensional Transition Metal Oxides, Max-Planck Institute for Complex Systems, February 22-25, 2005 (Dresden, Germany).

(35) 18th International Symposium on Superconductivity (ISS-18), Nov. 23-25, 2004 (Niigata, Japan).

(34) Nanoscale Properties of Condensed Matter Probed by Resonance Phenomena, August 15-19, 2004 (Kazan, Russia).

(33) NEDO Workshop on Borides, March 2004 (Maui, Hawaii).

(32) NATO Advanced Research Workshop on New Challenges in Superconductivity: Experimental Advances and Emerging Theories, January 11-14, 2004 (Miami, Florida).

(31) International Workshop on "Self-organized Strongly Correlated Electron Systems," August 2003 (Santorini Island, Greece).

(30) Canadian Institute for Advanced Research Quantum Materials Workshop November 2002 (Harrison Springs, British Columbia).

(29) LT-23 (23rd International Conference on Low Temperature Physics), August 2002 (Hiroshima, Japan).

(28) ICTP Workshop on Intrinsic Multi-scale Structure and Dynamics in Complex Electronic Oxides, July 2002 (International Center for Theoretical Physics, Trieste, Italy).

(27) Gordon Research Conference on Correlated Electron Systems, June 2002 (Waterville, Maine).

(26) Superconductivity Workshop (PCSW) at MuSR-2002, June 2002 (Williamsburg, Virginia). (Declined)

(25) NEDO Workshop on Boron-based Novel Electronic Materials, March 2002 (Zurich). (Declined)

(24) International conf. on strongly correlated electron systems, August 2001, (Ann Arbor)

(23) 2nd International Conference on Spin, Charge and Lattice Effects, August 2001 (Sendai, Japan).

- (22) 6th International Conference on Spectroscopies in Novel Superconductors, May 2001 (Chicago).
- (21) NEDO Workshop on High Temperature Superconductivity, April 2001 (Hawaii).
- (20) ITP Workshop on High Temperature Superconductivity, November 2000 (Institute for Theoretical Physics, UCSB).
- (19) Stripe 2000 (3rd International Conference on Stripes and High Tc Superconductivity), September 25-30, 2000 (Rome, Italy).
- (18) ITP Conference on High Temperature Superconductivity, August 2000 (Institute for Theoretical Physics, UCSB).
- (17) ICM-2000 (International Conference on Magnetism 2000), August 2000 (Recife, Brazil).
- (16) American Physical Society General Meeting, March 2000 (Minneapolis). (Organized a symposium on Charge Stripes, where my research assistant A.W. Hunt presented an invited talk).
- (15) 6th M2S-HTSC-VI (6th International Conference on Materials and Mechanism of Superconductivity and High Temperature Superconductors), February 2000 (Houston).
- (14) ITP Conference on Quantum Magnetism, August 1999 (Institute for Theoretical Physics, UCSB).
- (13) LT-22 (22nd International Conference on Low Temperature Physics), Aug. 1999 (Helsinki, Finland).
- (12) 6th Tanaka Symposium on Superconductivity, July 1999 (Hamamatsu, Japan),
- (11) Workshop on Quantum Mechanical Effects on Magnetic Systems, June 1999 (Leiden, Netherlands).
- (10) Specialized Colloque Ampere, June, 1999 (Pisa, Italy).
- (9) American Physical Society Centennial Meeting, March 20-25, 1999 (Atlanta, Georgia).
- (8) Aspen Winter Conference on Quantum Critical Phenomena, January 1999 (Aspen, Colorado).
- (7) Florida Workshop on Strongly Correlated Electrons, February 1998 (Tallahassee, Florida).
- (6) 4th International Conference on Spectroscopies in Novel Superconductors, March 1995 (Palo Alto, California).
- (5) ICTP Workshop on Strong Correlation and Quantum Critical Phenomena, July 1994 (International Center for Theoretical Physics, Trieste, Italy).
- (4) Aspen Winter Physics Conference on High Temperature Superconductivity, January 1994 (Aspen, Colorado).
- (3) Gordon Research Conference on Superconductivity, January 1994 (Oxnard, California).
- (2) LT-20 (20th International Conference on Low Temperature Physics), August 1993 (Eugene, Oregon).
- (1) American Physical Society General Meeting, March 1993 (Seattle, Washington).

(b) 64 Colloquia and seminars (alphabetical order):

Argonne National Laboratory, AT & T Bell Labs, Boston College, Boston University, Brock University, Brookhaven National Laboratory, Clark University, Cornell University (2 occasions), Colorado State University, Columbia University, ETH Zurich (Swiss Federal Institute of Technology), Florida State University / National High Magnetic Field Lab., IBM T.J. Watson Research Center, Iowa State University (2 occasions), Institute for Quantum Computing at University of Waterloo, McMaster University (3 occasions), Michigan State University, M.I.T. (4 occasions), NEC Institute in Princeton, Northeastern University, Northwestern University, Ohio State University (2 occasions), Pennsylvania State University, Princeton University, Queen's University, Rutgers University (3 occasions), Stanford University, State University of New York at Potsdam, Tohoku University (Japan), U.C. Berkeley, U.C. Davis, U.C.L.A. (2 occasions), U.C. Riverside, U.C. Santa-Cruz, University of Chicago, University of Connecticut (2 occasions), University of Guelph, University of Illinois at Urbana-Champaign, University of Minnesota (3 occasions), Univ. Montreal, University of St. Andrews (U.K.), University of Southern California,

University of Tokyo (2 occasions), University of Toronto, University of Waterloo (3 occasions), Zhejiang University (China), Yale University.

Bibliography of Prof. Takashi Imai

- (102) Emergence of the Spin Polarized Domains in the Kagome Lattice Heisenberg Antiferromagnet Zn-barlowite ($\text{Zn}_{0.95}\text{Cu}_{0.05}\text{Cu}_3(\text{OD})_6\text{FBr}$), Weishi Yuan, Jiaming Wang, Philip M. Singer, Rebecca W. Smaha, Jiajia Wen, Young S. Lee, and Takashi Imai, *Nature Physics Journal (npj) Quantum Materials* (2022). Accepted for publication.
- (101) Local dynamics and thermal activation in the transverse-field Ising chain, Jiahao Yang, Weishi Yuan, Takashi Imai, Qimiao Si, Jianda Wu and Márton Kormos, *Phys. Rev. B* **106**, 125149 (2022).
- (100) Emergence of valence bonds with inhomogeneous gaps in the kagome lattice Heisenberg antiferromagnets Zn-barlowite and herbertsmithite, J. Wang, W. Yuan, P.M. Singer, R. W. Smaha, W. He, J. Wen, Y. S. Lee, and T. Imai, *Nature Physics* **17**, 1109-1113 (2021).
- (99) NMR investigation on honeycomb iridate $\text{Ag}_3\text{LiIr}_2\text{O}_6$, J. Wang, W. Yuan, T. Imai, P.M. Singer, F. Bahurami, and F. Tafti, *Phys. Rev. B* **103**, 214405 (2021).
- (98) Revisiting the ^{63}Cu NMR signature of charge order in $\text{La}_{1.875}\text{Ba}_{0.125}\text{CuO}_4$, T. Imai, P.M. Singer, A. Arsenault, and M. Fujita, *J. Phys. Soc. Jpn.* **90**, 034705 (2021).
- (97) ^{139}La NMR investigation of the interplay between the lattice, charge, and spin dynamics in charge ordered high T_c cuprate $\text{La}_{1.875}\text{Ba}_{0.125}\text{CuO}_4$, P.M. Singer, A. Arsenault, T. Imai, and M. Fujita, *Phys. Rev. B* **101**, 174508 (2020)
- (96) Magnetic inhomogeneity in charge-ordered $\text{La}_{1.885}\text{Sr}_{0.115}\text{CuO}_4$ studied by NMR, A. Arsenault, T. Imai, P.M. Singer, K.M. Suzuki, and M. Fujita, *Phys. Rev. B* **101**, 184505 (2020).
- (95) Spin excitations of a proximate Kitaev quantum spin liquid realized in Cu_2IrO_3 , S. K. Takahashi, J. Wang, A. Arsenault, M. Abramchuk, F. Tafti, P.M. Singer, and T. Imai, *Phys. Rev. X* **9**, 031047 (2019).
- (94) Low frequency spin dynamics in XY quantum spin ice $\text{Yb}_2\text{Pt}_2\text{O}_7$, S. K. Takahashi, A. Arsenault, C. Mauws, A. M. Hallas, C. Sarkis, K. A. Ross, C. R. Wiebe, M. Tachibana, G. M. Luke, and T. Imai, *Phys. Rev. B* **98**, 104425 (2018).
- (93) ^{139}La and ^{63}Cu NMR investigation of charge order in $\text{La}_2\text{CuO}_{4+y}$ ($T_c = 42$ K) T. Imai and Y.S. Lee, *Phys. Rev. B* **97**, 104506 (2018).
- (92) ^{139}La NMR investigation of the charge and spin order in $\text{La}_{1.885}\text{Sr}_{0.115}\text{CuO}_4$ single crystal, A. Arsenault, S.K. Takahashi, T. Imai, W. He, Y.S. Lee, and M. Fujita, *Phys. Rev. B* **97**, 064511 (2018).
- (91) ^{17}O NMR study of charge ordered $\text{La}_{1.885}\text{Sr}_{0.115}\text{CuO}_4$, T. Imai and K. Hirota, *J. Phys. Soc. Jpn.* **87**, 025004 (2018).
- (90) Revisiting ^{63}Cu NMR evidence for charge order in $\text{La}_{1.885}\text{Sr}_{0.115}\text{CuO}_4$, T. Imai, S. K. Takahashi, A. Arsenault, A. W. Acton, D. Lee, W. He, Y.S. Lee and M. Fujita, *Phys. Rev. B* **96**, 224508 (2017).
- (89) Nuclear relaxation rates in the herbertsmithite kagome antiferromagnets $\text{ZnCu}_3(\text{OH})_6\text{Cl}_2$, N.E. Sherman, T. Imai, and R.R.P Singh, *Phys. Rev. B* **94**, 140415R (2016).
- (88) Do quantum spin liquids exist? T. Imai and Y.S. Lee, *Physics Today*, p-30, August (2016).
- (87) ^{133}Cs and ^{75}As NMR investigation of the quasi-one-dimensional $\text{Cs}_2\text{Cr}_3\text{As}_3$, H. Z. Zhi, D. Lee, T. Imai, Z. Tang, Y. Liu, and G. Cao, *Phys. Rev. B* **93** 174508 (2016).
- (86) Evidence for a Gapped Spin Liquid Ground State in a Kagome Heisenberg Antiferromagnet, M. Fu, T. Imai, T.-H. Han, and Y.S. Lee, *Science* **350**, 655 (2015).
- (85) NMR investigation of the quasi-one-dimensional superconductor $\text{K}_2\text{Cr}_3\text{As}_3$, H. Z. Zhi, T. Imai, F.L. Ning, Jin-Ke Bao, and Guang-Han Cao, *Phys. Rev. Lett.* **114**, 147004 (2015).
- (84) NMR investigation of spin correlations in BaCo_2As_2 , K. Ahilan, T. Imai, A.S. Sefat, and F.L. Ning, *Phys. Rev. B* **90** 014520 (2014).

- (83) Cu substitution effects on the local magnetic properties of $\text{Ba}(\text{Fe}_{1-x}\text{Cu}_x)_2\text{As}_2$: a site selective ^{75}As and ^{63}Cu NMR study, H. Takeda, T. Imai, M. Tachibana, J. Gaudet, B.D. Gaulin, B.I. Saparov, and A.S. Sefat, *Phys. Rev. Lett.* **113**, 117001 (2014).
- (82) Critical behavior of the SDW transition in under-doped $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ ($x < 0.05$): ^{75}As NMR investigation, F.L. Ning, M. Fu, D.A. Torchetti, T. Imai, A.S. Sefat, P. Cheng, B. Shen, and H.-H. Wen. *Phys. Rev. B* **89**, 214511 (2014).
- (81) Evolution of quantum fluctuations near the quantum critical point of the transverse field Ising chain system CoNb_2O_6 , A. W. Kinross, M. Fu, T. Munsie, H. A. Dabkowska, G.M. Luke, S. Sachdev, and T. Imai, *Phys. Rev. X* **4**, 031008 (2014).
- (80) Local Magnetism and Electronic Correlations in the Geometrically Frustrated Cluster Magnet $\text{LiZn}_2\text{Mo}_3\text{O}_8$, J. P. Sheckelton, F. R. Fonda, LiDong Pan, R. D. McDonald, T. Lancaster, P. J. Baker, N. P. Armitage, T. Imai, S. J. Blundell, and T. M. McQueen, *Phys. Rev. B* **89**, 064407 (2014).
- (79) NMR investigation of the diluted magnetic semiconductor $\text{Li}(\text{Zn}_{1-x}\text{Mn}_x)\text{P}$ ($x = 0.1$), C. Ding, C. Qin, H. Man, T. Imai, and F.L. Ning, *Phys. Rev. B* **88**, 041108R (2013).
- (78) $(\text{La}_{1-x}\text{Ba}_x)(\text{Zn}_{1-x}\text{Mn}_x)\text{AsO}$: A two dimensional 1111-type diluted magnetic semiconductor in bulk form, C. Ding, H. Man, C. Qin, J. Lu, Y. Sun, Q. Wang, B. Yu, C. Feng, T. Goko, L. Liu, B. A. Frandsen, Y. J. Uemura, H. Wang, H. Luetkens, E. Morenzoni, W. Han, C. Q. Jin, T. Munsie, T. J. Williams, R. M. D'Ótenzio, T. Medina, G. M. Luke, T. Imai, and F. L. Ning, *Phys. Rev. B* **88**, 041102R (2013).
- (77) NMR search for spin nematic state in LaFeAsO single crystal, M. Fu, D.A. Torchetti, T. Imai, F.L. Ning, J.Q. Yan, and A.S. Sefat, *Phys. Rev. Lett.* **109**, 247001 (2012).
- (76) NMR characterization of Sulphur substitution effects in the $\text{K}_x\text{Fe}_{2-y}\text{Se}_{2-z}\text{S}_z$ high T_c superconductor, D.A. Torchetti, T. Imai, H.C. Lei and C. Petrovic, *Phys. Rev. B* **85**, 144516 (2012).
- (75) Local spin susceptibility of the $S = 1/2$ Kagome lattice in $\text{ZnCu}_3(\text{OD})_6\text{Cl}_2$, T. Imai, M. Fu, T.H. Han, and Y.S. Lee, *Phys. Rev. B* **83**, 020411R (2011).
- (74) Absence of magnetic long range order in lightly-doped $\text{Ti}_{1-x}\text{Sc}_x\text{OCl}$ down to 1.7 K, A.A. Aczel, G.J. MacDougall, F.L. Ning, J.A. Rodriguez, S.R. Saha, F.C. Chou, T. Imai, and G.M. Luke, *Phys. Rev. B* **83**, 134411 (2011).
- (73) ^{77}Se NMR investigation of the $\text{K}_x\text{Fe}_{2-y}\text{Se}_2$ high T_c superconductor ($T_c = 33$ K), D.A. Torchetti, M. Fu, D.C. Christensen, K.J. Nelson, T. Imai, H.C. Lei, and C. Petrovic, *Phys. Rev. B* **83**, 104508 (2011).
- (72) Effect of annealing on the specific heat of $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$. K. Gofryk, A.B. Vorontsov, I. Vekhter, A.S. Sefat, T. Imai, E.D. Bauer, J.T. Thompson, and F. Ronning, *Phys. Rev. B* **83**, 064513 (2011).
- (71) Effect of annealing on the specific heat of the optimally doped $\text{Ba}(\text{Fe}_{0.92}\text{Co}_{0.08})_2\text{As}_2$. K. Gofryk, A.B. Vorontsov, I. Vekhter, A.S. Sefat, T. Imai, E.D. Bauer, J.T. Thompson, and F. Ronning, *Journal of Physics: Conference Series* **273**, 012094 (2011).
- (70) Phase separation and cluster spin dimmer glass observed in a quasi-2d quantum helimagnet: Zn substituted LiCu_2O_2 , H.C. Hsu, J.Y.-Lin, Y.K. Kao, W.L. Lee, M.-W. Chu, T. Imai, H.L. Liu, and F.C. Chou, *Phys. Rev. B* **82**, 094450 (2010).
- (69) Magnetic properties of the geometrically frustrated $S = 1/2$ antiferromagnets, $\text{La}_2\text{LiMoO}_6$ and Ba_2YMoO_6 , with the B-site ordered double perovskite structure: Evidence for a Collective Spin Singlet Ground State, T. Aharen, J. E. Greedan, A. A. Aczel, J. Rodriguez, G. McDougall, G. M. Luke, T. Imai, V. K. Michaelis, S. Kroecker, H. Zhou, C. Wiebe, and L. M.D. Cranswick, *Phys. Rev. B* **81**, 224409

- (2010).
- (68) Superconductivity near a quantum critical point in $\text{Ba}(\text{Fe},\text{Co})_2\text{As}_2$, K. Ahilan, F.L. Ning, T. Imai, A. S. Sefat, M.A. McGuire, B.C. Sales, and D. Mandrus: *Physica C* **470** (2010) S273.
- (67) Contrasting spin dynamics between underdoped and overdoped $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$, F.L. Ning, K. Ahilan, T. Imai, A. S. Sefat, M.A. McGuire, B.C. Sales, and D. Mandrus, *Phys. Rev. Lett.* **104**, 037001 (2010).
- (66) Magnetic properties of the $S = 3/2$ geometrically frustrated double perovskites $\text{La}_2\text{LiRuO}_6$ and Ba_2YRuO_6 , T. Aharen, J.E. Greedan, F.L. Ning, T. Imai, V. Michaelis, S. Kroeker, H. Zhou, C.R. Wiebe, and L.M.D. Cranswick, *Phys. Rev. B* **80**, 134423 (2009).
- (65) Electronic phase diagram of the iron-based high T_c superconductor $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ under hydrostatic pressure ($0 < x < 0.099$) K. Ahilan, F.L. Ning, T. Imai, A.S. Sefat, M.A. McGuire, B.C. Sales and D. Mandrus, *Phys. Rev. B* **79** 214520 (2009).
- (64) ^{59}Co and ^{75}As NMR Investigation of the Lightly Doped $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ ($x = 0.02, 0.04$), F.L. Ning, K. Ahilan, T. Imai, A.S. Sefat, M.A. McGuire, B.C. Sales and D. Mandrus: *Phys. Rev. B* **79**, 140506R (2009).
- (63) Why Does Undoped FeSe Become A High T_c Superconductor Under Pressure?: T. Imai, K. Ahilan, F.L. Ning, T.M. McQueen, and R.J. Cava, *Phys. Rev. Lett.* **102**, 177005 (2009).
- (62) Spin Susceptibility, Phase Diagram, and Quantum Criticality in the Electron-Doped High T_c Superconductor $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$, F.L. Ning, K. Ahilan, T. Imai, A.S. Sefat, M.A. McGuire, B.C. Sales and D. Mandrus, *J. Phys. Soc. Jpn.* **78**, 013711 (2009).
- (61) NMR investigation of intrinsic spin susceptibility in $\text{LaFeAsO}_{0.9}\text{F}_{0.1}$, T. Imai, K. Ahilan, F.L. Ning, M.A. McGuire, A.S. Sefat, R. Jin, B.C. Sales and D. Mandrus, *J. Phys. Soc. Jpn.* **77** (2008) Supplement C, 47.
- (60) Pressure effects on the electron-doped high T_c superconductor $\text{BaFe}_{2-x}\text{Co}_x\text{As}_2$, K. Ahilan, J. Balasubramaniam, F.L. Ning, T. Imai, A.S. Sefat, M.A. McGuire, R. Jin, B.C. Sales and D. Mandrus, *J. Phys. Cond. Mat.* **20**, 472201 (2008).
- (59) ^{59}Co and ^{75}As NMR Investigation of Electron-Doped High T_c Superconductor $\text{BaFe}_{1.8}\text{Co}_{0.2}\text{As}_2$ ($T_c = 22$ K) F.L. Ning, K. Ahilan, T. Imai, A.S. Sefat, M.A. McGuire, R. Jin, B.C. Sales and D. Mandrus: *J. Phys. Soc. Jpn.* **77**, 103705 (2008).
- (58) ^{19}F NMR investigation of the iron pnictide superconductor $\text{LaFeAsO}_{0.89}\text{F}_{0.11}$, K. Ahilan, F.L. Ning, T. Imai, A.S. Sefat, M.A. McGuire, R. Jin, B.C. Sales and D. Mandrus, *Phys. Rev. B* **78**, 100501R (2008).
- (57) ^{59}Co NMR evidence for charge ordering below $T_{CO} \sim 51$ K in $\text{Na}_{0.5}\text{CoO}_2$, F.L. Ning, S. Golin, T. Imai, G.J. Shu, and F.C. Chou, *Phys. Rev. Lett.* **100**, 086405 (2008).
- (56) ^{63}Cu , ^{35}Cl , and ^1H NMR in the $S = 1/2$ Kagome lattice $\text{ZnCu}_3(\text{OH})_6\text{Cl}_2$, T. Imai, E.A. Nytko, B.M. Bartlett, M.P. Shores, and D.G. Nocerra, *Phys. Rev. Lett.* **100**, 077203 (2008).
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