

Kemp William Plumb

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Employment

- 2017– Assistant Professor, Department of Physics, Brown University, Providence, USA, Appointment: Oct 2017.
- 2014–2017 Postdoctoral Research Fellow, The Johns Hopkins University, Baltimore, USA, Advisor: Collin L. Broholm.

Education

- 2009–2014 University of Toronto, Toronto, Canada
Ph.D. Physics, November 2014.
- 2007–2009 McGill University, Montréal, Canada
M.Sc. Physics, October 2009.
- 2003–2007 Queen's University, Kingston, Canada
B.A.Sc. Engineering Physics, April 2007.

Fellowships and Awards

- 2014–2017 Johns Hopkins-Princeton Institute for Quantum Matter Postdoctoral Fellowship
- 2012–2014 Ontario Graduate Scholarship
- 2012 American Conference on Neutron Scattering outstanding student poster award
- 2008 Principal's Graduate Fellowship, McGill

Professional Activities

- 2017–Present Science Review Committee, Neutron Scattering Science Division, ORNL.
- 2016–Present Referee: *Physical Review Letters*, *Physical Review B*, *Physical Review Materials*, *Nature Communications*

Publications

Submitted Articles

1. **K. W. Plumb**, C. Stock, J. A. Rodriguez Rivera, J.-P. Castellán, J.-W. Taylor, W. Wu, S. R. Julian, and Y. J. Kim *From mean-field localized magnetism to itinerant spin fluctuations in the “Nonmetal-Metal”- FeCrAs.*

Submitted (Nov. 2017)

2. **K. W. Plumb**, Hitesh J. Changlani, A. Scheie, Shu Zhang, J. W. Krizan, J. A. Rodriguez-Rivera, Yiming Qiu, B. Winn, R. J. Cava, C. L. Broholm, *Continuum of magnetic excitations in a three dimensional $S = 1$ Heisenberg magnet.*

Submitted (October, 2017).

Published Articles

1. J. P. Sheckelton, **K. W. Plumb**, B. A. Trump, C. L. Broholm, T .M. McQueen, *Rearrangement of Van-der-Waals Stacking and Formation of a Singlet State at $T = 90$ K in a Cluster Magnet.*

Inorg. Chem. Front. **4**, 481-490 (2017). <http://dx.doi.org/10.1039/C6QI00470A>

2. **K. W. Plumb**, Jennifer Morey, J. A. Rodriguez-Rivera, Hui Wu, A. A. Podlesnyak, T .M. McQueen, C. L. Broholm, *Antiferromagnetic and orbital ordering on a diamond lattice near quantum criticality.*

Phys. Rev. X **6**, 041055 (2016).

<https://journals.aps.org/prx/abstract/10.1103/PhysRevX.6.041055>.

3. M. B Sanders, J. W. Krizan, **K. W. Plumb**, T .M. McQueen, R. J. Cava, *NaSrMn₂F₇, NaCaFe₂F₇, and NaSrFe₂F₇: novel single crystal pyrochlore antiferromagnets.*

J. Phys. Cond. Mat. **29**, 045801 (2016).

<http://iopscience.iop.org/article/10.1088/1361-648X/29/4/045801/pdf>

4. J. R. Morey, **K. W. Plumb**, C. M. Pasco, B. A. Trump, T .M. McQueen, S. M. Koopayeh, *Growth and characterization of iron scandium sulfide.*

Journal of Crystal Growth (2016).

<http://www.sciencedirect.com/science/article/pii/S0022024816305103>.

5. L. J. Sandilands, Y. Tian, A. A. Reijnders, H. S. Kim, **K. W. Plumb**, Young-June Kim, Hae-Young Kee, Kenneth S. Burch, *Spin-orbit excitations and electronic structure of the putative Kitaev magnet α -RuCl₃.*

Phys. Rev. B **7**, 075144 (2016). <http://link.aps.org/doi/10.1103/PhysRevLett.114.147201>.

6. **K. W. Plumb**, Kyusung Hwang, Y. Qiu, Leland W. Harriger, G. E. Granroth, Alexander I. Kolesnikov, G. J. Shu, F. C. Chou, Ch. Rüegg, Yong Baek Kim, Young-June Kim, *Quasiparticle-continuum level repulsion in a quantum magnet*. Nature Physics **12**, 224 (2016). <http://dx.doi.org/10.1038/nphys3566>.
7. J. A. Sears, M. Songvilay, **K. W. Plumb**, J. P. Clancy, Y. Qiu, Y. Zhao, D. Parsharll, Young-June Kim, *Magnetic order in α - $RuCl_3$: a honeycomb lattice quantum magnet with strong spin-orbit coupling*. Phys. Rev. B **91**, 144420 (2015). <http://link.aps.org/doi/10.1103/PhysRevB.91.144420>.
8. Luke J. Sandilands, Yao Tian, **Kemp W. Plumb**, Young-June Kim, Kenneth S. Burch, *Scattering continuum and possible fractionalized excitations in α - $RuCl_3$* . Phys. Rev. Lett. **114**, 147201 (2015). <http://link.aps.org/doi/10.1103/PhysRevLett.114.147201>.
9. **K. W. Plumb**, J. P. Clancy, L. J. Sandilands, V. Vijay Shankar, Y. F. Hu, K. S. Burch, Hae-Young Kee, Young-June Kim, *α - $RuCl_3$: A spin-orbit assisted Mott insulator on a honeycomb lattice*. Phys. Rev. B **90**, 041112 (2014). <http://link.aps.org/doi/10.1103/PhysRevB.90.041112>.
10. **K. W. Plumb**, A. T. Savici, G. E. Granroth, F. C. Chou, Young-June Kim, *High-energy continuum of magnetic excitations in the two-dimensional quantum antiferromagnet $Sr_2CuO_2Cl_2$* . Phys. Rev. B **89**, 180410 (2014). <http://link.aps.org/doi/10.1103/PhysRevB.89.180410>.
11. **K. W. Plumb**, Zahra Yamani, M. Matsuda, G. J. Shu, B. Koteswararao, F. C. Chou, Young-June Kim, *Incommensurate dynamic correlations in the quasi-two-dimensional spin liquid $BiCu_2PO_6$* . Phys. Rev. B **88**, 024402 (2013). <http://link.aps.org/doi/10.1103/PhysRevB.88.024402>.
12. **K. W. Plumb**, A. M. Cook, J. P. Clancy, A. I. Kolesnikov, B. C. Jeon, T. W. Noh, A. Paramakanti, Young-June Kim, *Neutron scattering study of spin-orbital locked magnetic excitations in a 5d-based double perovskite Ba_2FeReO_6* . Phys. Rev. B **87**, 184412 (2013). <http://link.aps.org/doi/10.1103/PhysRevB.87.184412>.
13. J. P. Clancy, N. Chen, C. Y. Kim, W. F. Chen, **K. W. Plumb**, B. C. Jeon, T. W. Noh, Young-June Kim, *Spin-orbit coupling in iridium-based 5d compounds probed by x-ray absorption spectroscopy*. Phys. Rev. B **86**, 195131 (2012). <http://link.aps.org/doi/10.1103/PhysRevB.86.195131>.
14. J. P. Clancy, **K. W. Plumb**, C. S. Nelson, Z. Islam, G. Cao, T. Qi, Young-June Kim, *Field-induced magnetic behaviour of the bilayer iridate $Sr_3Ir_2O_7$* . Submitted (2012). <http://arxiv.org/abs/1207.0960>.

Dissertations

1. **K. .W. Plumb**, *Inelastic neutron scattering studies of novel quantum magnets*. Ph.D. Dissertation, University of Toronto (2014). <http://hdl.handle.net/1807/68319>.
2. **K. W. Plumb**, *Measuring mitotic spindle dynamics in budding yeast*. Masters Thesis, McGill University (2009). <http://digitool.library.mcgill.ca/thesisfile86726.pdf>.

Conferences and Seminars

Invited Presentations

1. *NaCaNi₂F₇: A kinetically arrested spin liquid on a pyrochlore lattice*. The Institute for Solid State Physics, Tokyo (JP). May 2017.
2. *Experimental signatures of a spin-liquid in a three dimensional frustrated magnet*. Notre Dame University, South Bend (US). March 2017.
3. *Experimental evidence for a spin liquid in a three dimensional Heisenberg magnet*. Brown University, Providence (US). February 2017.
4. *Giant anisotropic interactions in the frustrated quantum magnet BiCu₂PO₆*. APS March Meeting, San Antonio (US). March 2015.
5. *Novel spin excitations in the frustrated quantum magnet BiCu₂PO₆*. Paul Scherrer Institut, Villigen, (CH). May 2014.
6. *Novel spin excitations in the frustrated quantum magnet BiCu₂PO₆*. Johns Hopkins University, Baltimore, (US). April 2014.
7. *Novel spin excitations in the frustrated quantum magnet BiCu₂PO₆*. Oak Ridge National Laboratory, Oak Ridge, (US). February 2014.

Contributed Presentations

1. *Spin and lattice dynamics in NaCaNi₂F₇ and GaTa₄Se₈*. Quantum Condensed Matter Division's Young Investigators Workshop, Oak Ridge National Laboratory (US). June 2017.
2. *Magnetic excitations in a pyrochlore Heisenberg antiferromagnet: NaCaNi₂F₇*. APS March Meeting, New Orleans (US). March 2017.
3. *Antiferromagnetic and orbital ordering on a diamond lattice near quantum criticality (poster)*. Gordon Conference on Strongly Correlated Electron Systems, South Hadley (US). June 2016.
4. *Magnetic Ordering in FeSc₂S₄*. APS March Meeting, Baltimore (US). March 2016.

5. *Incommensurate dynamic correlations and continuum scattering in BiCu₂PO₆*. APS March Meeting, Denver (US). March 2015.
6. *Incommensurate dynamic correlations and continuum scattering in quantum-disordered BiCu₂PO₆ (poster)*. Canadian Institute for Neutron Scattering Annual General Meeting, Hamilton, (CA). October 2013. *Award for best student poster.
7. *Incommensurate dynamic correlations and continuum scattering in quantum-disordered BiCu₂PO₆ (poster)*. International Conference on Neutron Scattering, Edinburgh, (UK). July 2013.
8. *Spin-orbital locked magnetic excitations in Ba₂FeReO₆*. Canadian Association of Physics Congress, Montréal, (CA). April 2013.
9. *Incommensurate spin excitations in BiCu₂PO₆ (poster)*. American Conference on Neutron Scattering, Washington, (US). June 2012. *ACNS Outstanding student poster award
10. *Incommensurate spin excitations in BiCu₂PO₆ (poster)*. International Conference on Highly Frustrated Magnetism, Hamilton, (CA). June 2012.
11. *Multi-parameter analysis of spindle and cell cycle dynamics in asymmetric cell division*. Biophysical Society Annual Meeting, Boston, (US). February 2009.