

Tom Lancaster

Date of birth

Present appointment	Durham University <i>Professor of Physics</i>	October 2017 –
Previous academic employment	Durham University <i>Reader in Physics</i>	October 2014 – September 2017
	Durham University <i>Lecturer in Physics</i>	January 2012 – September 2014
	Oxford University <i>EPSRC Career Acceleration Fellow</i>	October 2008 – December 2011
	Mansfield College, Oxford <i>Supernumerary fellow in Physics</i>	October 2008 – December 2011
	Royal Commission for the Exhibition of 1851 <i>Research Fellow</i>	October 2006 – September 2008
Education	Balliol College, Oxford <i>DPhil. (Physics), Jan 2005</i>	October 2001 - Jan 2005
	Pembroke College, Oxford <i>MPhys. (Physics), 1st Class, June 2001</i>	October 1997 - June 2001

Research interests Condensed matter (magnetism and superconductivity); quantum and classical field theories; philosophy of physics (emergence debate).

Major research grants and awards	Skyrmionics: From Magnetic Excitations to Functioning Low-Energy Devices <i>EPSRC £5,101,385 (CoI)</i>	2016 – 2019
	DFT+μ: a step change in muon spectroscopy <i>EPSRC £393,642 (PI)</i>	2016 – 2019
	Durham emergence project <i>John Templeton Foundation £2,283,256 (CoI)</i>	2013 – 2016
	New directions for EPSRC research leaders <i>EPSRC £296,845 (PI)</i>	2012 – 2014
	Career Acceleration fellowship <i>EPSRC £426,496 (PI)</i>	2008 – 2014

Teaching and supervision Textbooks: T. Lancaster and S.J. Blundell, *Quantum field theory for the gifted amateur*, OUP (2014).
Undergraduate lecture courses: Magnetism in condensed matter, Classical mechanics, History and philosophy of physics.
Graduate lecture courses: Quantum field theory, Basic theoretical notions of condensed matter physics.
PhD students supervised: J.S. Möller, R.C. Williams, R. Schoonmaker, B.M. Huddart.
PDRAs supervised: F. Xiao, D. Jochym, I.O. Thomas, M. Worsdale, K. Franke.

Contributions to research community ISIS Facilities access panel member (2015–) and User Group member (2008–2013). Referee for Physical Review Letters, Physical Review B, Journal of Physics: Condensed Matter, Studies in the History and Philosophy of Modern Physics, Nature Materials, Scientific Reports. Book reviewer for Contemporary Physics.

Ten relevant publications

Tom Lancaster

1. Quantum field theory for the gifted amateur
T. Lancaster and S.J. Blundell
(OUP, Oxford 2014).
2. Implications of bond disorder in a $S = 1$ kagome lattice.
Manson, Jamie L., Brambleby, Jamie, Goddard, Paul A., Spurgeon, Peter M., Villa, Jacqueline A., Liu, Junjie, Ghannadzadeh, Saman, Foronda, Francesca, Singleton, John, Lancaster, Tom, Clark, Stewart J., Thomas, Iorwerth O., Xiao, Fan, Williams, Robert C., Pratt, Francis L., Blundell, Stephen J., Topping, Craig V., Baines, Christopher, Campana, Charles & Noll, Bruce
Scientific Reports 8(1) (2018)
3. Strong Coupling of Microwave Photons to Antiferromagnetic Fluctuations in an Organic Magnet.
Mergenthaler, Matthias, Liu, Junjie, Le Roy, Jennifer J., Ares, Natalia, Thompson, Amber L., Bogani, Lapo, Luis, Fernando, Blundell, Stephen J., Lancaster, Tom, Ardavan, Arzhang, Briggs, G. Andrew D., Leek, Peter J. & Laird, Edward A.
Physical Review Letters 119(14): 147701 (2017).
4. Experimental and Theoretical Electron Density Analysis of Copper Pyrazine Nitrate Quasi-Low-Dimensional Quantum Magnets
L.H.R. Dos Santos, A. Lanza, A.M. Barton, J. Brambleby, P.A. Goddard, F. Xiao, R.C. Williams, T. Lancaster, F.L. Pratt, S.J. Blundell, J. Singleton, J.L. Manson, P. Macchi,
J. Am. Chem. Soc. **138**, 2280 (2016) (2016).
5. Anisotropic Local Modification of Crystal Field Levels in Pr-Based Pyrochlores: A Muon-Induced Effect Modeled Using Density Functional Theory
F.R. Foronda, F. Lang, J.S. Möller, T. Lancaster, A.T. Boothroyd, F.L. Pratt, S.R. Giblin, D. Prabhakaran, and S.J. Blundell
Phys. Rev. Lett. **114**, 017602 (2015).
6. Controlling magnetic order and quantum disorder in one- and zero-dimensional molecule-based magnets
T. Lancaster, P.A. Goddard, S.J. Blundell, F.R. Foronda, S. Ghannadzadeh, J.S. Möller, P.J. Baker, F.L. Pratt, C. Baines, L. Huang, J. Wosnitza, R.D. McDonald, K.A. Modic, J. Singleton, C.V. Topping, T.A.W. Beale, F. Xiao, J.A. Schlueter, R.D. Cabrera, K.E. Carreiro, H.E. Tran, J.L. Manson
Phys. Rev. Lett. **112**, 7201 (2014).
7. Enhancement of the superconducting transition temperature of FeSe by intercalation of a molecular spacer layer
M. Burrard-Lucas, D.G. Free, S.J. Sedlmaier, J.D. Wright, S.J. Cassidy, Y. Hara, A.J. Corkett, T. Lancaster, P.J. Baker, S.J. Blundell, S.J. Clarke
Nature Materials **12** 15 (2013).
8. Spin waves and revised crystal structure of honeycomb iridate Na_2IrO_3
S.K. Choi, R. Coldea, A.N. Kolmogorov, T. Lancaster, I.I. Mazin, S.J. Blundell, P.G. Radaelli, Y. Singh, P. Gegenwart, K.R. Choi, S.-W. Cheong, P.J. Baker, C. Stock, J. Taylor
Phys. Rev. Lett **108**, 127204 (2012).
9. Magnetic and non-magnetic phases of a quantum spin liquid
F. L. Pratt, P. J. Baker, S. J. Blundell, T. Lancaster, S. Ohira-Kawamura, C. Baines, Y. Shimizu, K. Kanoda, I. Watanabe and G. Saito
Nature **471**, 612616 (2011).
10. Coexistence of static magnetism and superconductivity in $\text{SmFeAsO}_{1-x}\text{F}_x$ as revealed by muon spin rotation
A.J. Drew, Ch. Niedermayer, P.J. Baker, F.L. Pratt, S.J. Blundell, T.Lancaster, R.H. Liu, G. Wu, X.H. Chen, I. Watanabe, V.K. Malik, A. Dubroka, M. Roessle, K.W. Kim, C. Baines, C. Bernhard,
Nature Materials, **8**, 310 (2009).