

CURRICULUM VITAE

EMPLOYMENT

Jan 2010 - **University Research Fellowship** awarded by The Royal Society
present Quantum Matter Group, Cavendish Laboratory, Cambridge University, U.K.
2006 – ‘10 **Trinity College (Cambridge) Junior Research Fellow** (Physics),
1997 – ‘00 **Management Consultant**, Tata Strategic Management Group, India

EDUCATION

Sept 2000 **Stanford University**, CA, U.S.A. M.S., Ph.D., Department of Applied Physics
- 2006 PhD Advisor: I. R. Fisher **‘Bose-Einstein condensation in spin-dimer compounds’**
1995 – ‘97 **Indian Institute of Management** M.B.A.
Ahmedabad, India
1992 – ‘95 **Women’s Christian College**, India B.Sc., Department of Physics

FELLOWSHIPS & AWARDS

2010 – ‘14 **Non-stipendiary Research Fellowship** (awarded by King’s College, Cambridge)
2010 – ‘15 **University Research Fellowship** (awarded by The Royal Society)
2007 **Lee-Osheroff-Richardson prize** (awarded by Oxford Instruments)
2007 – ‘09 **ICAM Postdoctoral Fellowship** (awarded by The Institute for Complex Adaptive Matter)
2006 – ‘10 **Junior Research Fellowship** (awarded by Trinity College, Cambridge)
2003 – ‘06 **Harvey Fellowship** (awarded by The Mustard Seed Foundation)
2000 **Visiting Research Fellowship** at Tata Institute of Fundamental Research, India
1995 **President’s Gold Medal** (awarded to India’s top 5 in the National Graduate Physics Exam)
Nesam Devapragasam Prize (Best outgoing student overall, Physics class of ‘95)
Alice Barnabas Prize (Best outgoing student in Physics core subjects)
1994 **Ammu Matthew Scholarship Prize** (Best second year Physics student)
Ranjini Victor Prize (Highest marks in Relativity and Quantum Mechanics)

FUNDING

2011 – ‘13 **Research Grant** ‘Exploration of Frustrated Systems in Search of Spin-Charge Separation’
PI: £50,000 (awarded by The Royal Society)
2009 – ‘12 **Research Grant** ‘A Materials Driven Approach to Condensed Matter Systems’,
PI: £180,000 (awarded by Isaac Newton Trust, matching funds from Cambridge Physics department)
2008 **Short Term Scientific Mission Grant** ‘Fermi surface measurements on a clean underdoped high T_c
superconductor using torque and TDO techniques in high magnetic fields’,
PI: €2500 (awarded by COST P16-ECOM)
2008 **Conference Grant** for travel to International Conf. on Strongly Correlated Electron Systems, Brazil
PI: £1650 (awarded by The Royal Society)
2007 – ‘08 **Research Grant** ‘Heavy fermions - materials synthesis for novel phase exploration’
PI: £15,000 (awarded by The Royal Society)
2007 – ‘08 **Trinity Education and Research Grant** ‘New materials synthesis’
PI: £25,000 (awarded by Trinity College, Cambridge)

SUPERVISION

YEAR (DEGREE)	NAME	TOPIC	CURRENT POSITION
CURRENT STUDENTS			
2010 – current (PhD)	B. Tang	<i>Quantum Oscillations in SrFe₂As₂ using resonant oscillator technique</i>	
2009 – current (PhD)	S. Das	<i>Anisotropic properties of detwinned SrFe₂As₂ single crystals</i>	
FORMER STUDENTS			
2008 – 2011 (PhD)	J. Gillett	<i>High temperature superconductivity in a family of iron pnictide materials</i>	Postdoc, U. Cambridge
2010 (BSc)	S. Hayes	<i>Magnetic study of frustrated Sr₂IrO₄ single crystals</i>	
2009 (MPhil)	P. Syers	<i>Improving sample quality in the ternary iron pnictide compounds</i>	PhD, U. Maryland
2009 (BSc)	A. Ming	<i>Effects of annealing on SrFe₂As₂ single crystals</i>	PhD, U. Cambridge
2008 (BSc)	P.H.C.Lau	<i>Neutron scattering on large SrFe₂As₂ single crystals</i>	PhD, U. Cambridge
2008 (BSc)	E.V.Smith	<i>Magnetic study of frustrated phosphide 122 single crystals</i>	
2007 (BSc)	L. Rajah	<i>Determination of the phase diagram for the superconductor Sr(Fe_{1-x}Co_x)₂As₂</i>	PhD, U. Cambridge
2007 (BSc)	A.Makinen	<i>Quantum oscillations in CeCu₂Si₂ single crystals</i>	PhD, U. Cambridge
2007 (BSc)	P. Gingell	<i>Single crystal growth of the spin dimer material Ba₂Cr₃O₈</i>	PhD, U. Warwick
2006 (BSc)	P. Tang	<i>Flux growth system for high purity crystals of CeCoIn₅</i>	
2002 – '06	Graduate mentor for undergraduate research in Fisher group, Stanford University; supervised T. Huie, D. Yin, P. Tanedo (currently PhD student in Cornell U.), P. B. Brooks, M. K. McCourt		

REFEREEING OF PUBLICATIONS & GRANTS

Referee for Deutsche Forschungsgemeinschaft (DFG) grant proposals

Referee for Engineering and Physical Sciences Research Council (EPSRC) grant proposals

Referee for Nature, Nature Communications, Physical Review Letters, Physical Review B, New Journal of Physics, Journal of Physics Condensed Matter

Harvey Fellowship International & Selection committees

CONFERENCE ORGANISATION

Local organising committee chair, member of program committee for SCES (Strongly Correlated Electron Systems) 2011 international conference held in Cambridge with over 600 delegates

Member of programme committee for SCES (Strongly Correlated Electron Systems) 2012 international conference to be held in Busan, Korea

Member of international advisory committee for M2S (Materials and Mechanisms of Superconductivity) 2012 international conference to be held in Washington DC, USA

OUTREACH

Member of ChaOS physics outreach society, lead undergraduate research seminars and perform demonstrations at colleges and at open days for GCSE students at U. of Cambridge

Lead panel discussion on Women in Science, 'Women's Day' at Trinity College, U. of Cambridge

Mentor for Quest Scholars Program for underprivileged high school students

MEDIA

National Geographic TV program 'Secrets of the Dead' on China's Terracotta Warriors features my research into the quantum magnet BaCuSi₂O₆ at high magnetic fields

SELECTED PUBLICATIONS

TOTAL OF 37 PUBLICATIONS, CITED 771 TIMES, **H NUMBER = 13** (SOURCE: ISI WEB OF SCIENCE)
 [Corresponding author denoted by †]

- 2011 *Chemical potential oscillations from nodal Fermi surface pocket in the underdoped high-temperature superconductor $YBa_2Cu_3O_{6+x}$*
Nature Communications 2, DOI:10.1038/ncomms1468 (2011)
 Suchitra E. Sebastian[†], N. Harrison, M. M. Altarawneh, Ruixing Liang, D. A. Bonn, W. N. Hardy & G. G. Lonzarich
Quantum oscillations in the high- T_c cuprates
Philosophical Transactions of the Royal Society A 369, 1687 (2011)
 Suchitra E. Sebastian[†], Neil Harrison, Gilbert G. Lonzarich
- 2010 *Fermi liquid behaviour in an underdoped high T_c superconductor*
Physical Review B Rapid Comm. 81, 140505 (2010)
 S. E. Sebastian[†], N. Harrison[†], M. M. Altarawneh, R. Liang, D. A. Bonn, W. N. Hardy, G. G. Lonzarich
Metal-insulator quantum critical point beneath the high T_c superconducting dome
Proceedings of the National Academy of Sciences 107, 6175 (2010)
 Suchitra E. Sebastian[†], N. Harrison, M. M. Altarawneh, C. H. Mielke, Ruixing Liang, D. A. Bonn, W. N. Hardy, G. G. Lonzarich
- 2009 *Heavy holes - precursor to superconductivity in antiferromagnetic $CeIn_3$*
Proceedings of the National Academy of Sciences 106, 7741(2009)
 Suchitra E. Sebastian[†], N. Harrison, C. D. Batista, S. A. Trugman, V. Fanelli, M. Jaime, T. P. Murphy, E. C. Palm, H. Harima and T. Ebihara
- 2008 *Superconductivity up to 29 K in $SrFe_2As_2$ and $BaFe_2As_2$ at high pressures*
Journal of Physics: Condensed Matter 21, 012208 (2008)
[Most highly cited and downloaded paper of the year, Journal of Physics: Condensed Matter]
 Patricia L. Alireza, Y. T. Chris Ko, Jack Gillett, Chiara M Petrone, Jacqueline M Cole, Gilbert G. Lonzarich and Suchitra E. Sebastian[†]
Quantum oscillations in the parent magnetic phase of an iron arsenide high temperature superconductor
Journal of Physics: Condensed Matter 20, 422203 (2008)
 Suchitra E. Sebastian[†], J. Gillett, N. Harrison, P. H. C. Lau, D. J. Singh, C. H. Mielke and G. G. Lonzarich
Fractalization drives crystalline states in a frustrated spin system
Proceedings of the National Academy of Sciences 105, 20157 (2008)
 Suchitra E. Sebastian[†], N. Harrison, P. Sengupta, C. D. Batista, S. Francoual, E. Palm, T. Murphy, N. Marcano, H. A. Dabkowska, B. D. Gaulin
Multi-component Fermi surface in an underdoped high temperature superconductor
Nature 454, 200 (2008)
 Suchitra E. Sebastian[†], N. Harrison, E. Palm, T. P. Murphy, Ruixing Liang, D. A. Bonn, W. N. Hardy & G. G. Lonzarich
- 2006 *Dimensional reduction at a quantum critical point*
Nature 441, 617 (2006)
 S. E. Sebastian[†], N. Harrison, C. D. Batista, L. Balicas, M. Jaime, P. A. Sharma, N. Kawashima, I.R. Fisher
- 2005 *Characteristic BEC scaling near Quantum Critical Point in $BaCuSi_2O_6$*
Physical Review B Rapid Comm. 72, 100404(R) (2005)
 S. E. Sebastian, P. A. Sharma, M. Jaime, N. Harrison, V. Correa, L. Balicas, N. Kawashima, C. D. Batista, I.R. Fisher

SELECTED INVITED TALKS AT INTERNATIONAL CONFERENCES

- 2011 *Gordon Research Conference in Superconductivity, New Hampshire, June 7th, 2011*
Superconductivity: 100 years young, International Institute of Physics, Natal, Brazil, May 19th, 2011
100th Anniversary of Superconductivity: Hot Topics and Future Directions, Leiden, April 7th, 2011
March Meeting of the American Physical Society, Dallas, USA, March 24th, 2011
Contrasting Superconductivity of Pnictides and Cuprates, Winter Conference, Aspen, January 25th, 2011
- 2010 *Emergent Quantum States in Complex Correlated Matter, Dresden, August 23rd, 2010*
Intl. Conference on Strongly Correlated Electron Systems (SCES) Santa Fe, NM, June 28th, 2010
I2CAM/FAPERJ Summer School (New phenomena in Quantum Matter), Rio de Janeiro, June 6th-12th, 2010
Intl. Conference on Spectroscopies in Novel Superconductors (SNS), Shanghai, China, May 23rd-28th, 2010
Properties of high T_c superconductors (DFG research unit FOR538 workshop), Munich, April 13th, 2010
International Symposium on Physics of New Quantum Phases (PSM), Yokohama, Japan, March 10th, 2010
Asia Pacific Center for Theoretical Physics (APCTP) winter workshop, PyeongChang, Korea, Feb 4th, 2010
- 2009 *Quantum Criticality & Novel Phases, Dresden, Germany, August 3rd, 2009*
Critical Issues Related to Higher T_c Superconductors, KITP, Santa Barbara, USA, June 24th, 2009
Gordon Research Conference in Superconductivity, Hong Kong, June 9th, 2009
March Meeting of the American Physical Society, Pittsburgh, USA, March 16th, 2009
Unifying Themes in Condensed Matter, Winter Conference, Aspen, USA, Jan 12th, 2009
- 2008 *International Workshop on Iron-(Nickel)-Based Superconductors, Beijing, China, October 18th, 2008*
International Conference on Spontaneous Coherence in Excitonic Systems, Cambridge U.K. Sept 11th, 2008
International Conference on Strongly Correlated Electron Systems, Brazil, August 19th, 2008
Frontiers of Low Temperature Physics, London, U.K., August 16th, 2008
Strong Correlations in Materials and Atom Traps. ICTP, Trieste, Italy, August 14th, 2008
International Conference on Low Temperature Physics, Amsterdam, Netherlands, August 11th, 2008
Physical Phenomena in High Magnetic Fields, Tallin, Estonia, August 5th, 2008