Benjamin Lees

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University of Warwick   URL: http://www2.warwick.ac.uk/fac/sci/people/staff/lees
Coventry   Born: 18 April 1990
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U.K.   Nationality: British

Research Interests

Mathematical Physics, Statistical Mechanics, Probability theory. Classical and quantum spin systems. Probabilistic representations of quantum spin systems.

Education

2013- PhD in Mathematics and Statistics, University of Warwick - Expected submission: May 2016. Supervised by Daniel Ueltschi and Roman Kotecký, funded by EPSRC as part of MASDOC at Warwick.

2008-2013 University of Warwick

2012-2013 MSc Mathematics and Statistics - Grade: Distinction (High first class). Included advanced modules in probability and analysis, group research in fluid mechanics and a project in classical and quantum spin systems.

2008-2012 M.Math Class: First. Included project concerning the critical temperature of the dilute bose gas in the continuum (top mark in year for project).

Publications

Staggered long-range order for diluted quantum spin models with R. Kotecký [Submitted to J. Stat. Phys.] (2016) (arXiv:1605.06279).

Correlation inequalities for the quantum XY model with C. Benassi, D. Ueltschi (2016) [To appear in J. Stat. Phys.] (arXiv:1510.03215).

Existence of Néel order in the S=1 bilinear-biquadratic Heisenberg model via random loops Commun. Math. Phys. (2016) DOI:10.1007/s00220-016-2656-1 (arXiv:1507.04942).

Long-range order for the spin-1 Heisenberg model with a small antiferromagnetic interaction J. Math. Phys. 55, 093303 (2014) (arXiv:1406.1044).

Talks Given

Néel order in a spin-1 lattice model using a random loop representation
Warwick Statistical Mechanics Seminar 03/12/2015
Dilute spin systems
MASDOC retreat - Briavels 18/05/2015
Probabilistic representations of quantum spin systems
Postgraduate seminar - Warwick 01/10/2014
Phase diagram of the spin-1 SU(2) invariant model
NSF/CBMS Conference Quantum Spin Systems - UAB 20/06/2014
The spin-1 SU(2) invariant model
MASDOC retreat - Ironbridge 20/05/2014
Nematic phase transitions in the spin-1 model
Many-Body Quantum Systems - Warwick 21/03/2014
Long range order in quantum spin systems
Spatial models in statistical mechanics - TU Darmstadt 25/02/2014
The classical Heisenberg and related models
Postgraduate seminar - Warwick 02/10/2013
Mathematical Models of Cloud Formation
MASDOC retreat - Haworth 14/05/2013

Visits, Conference and Summer School Participation

06/2015 **Quantum Spin Systems: Recent Advances - Cergy-Pontoise**
05/2015 **MASDOC retreat - Briavels**
05/2015 **Renormalisation Group Theory and Regularity Structures - Warwick**
09/2014 **UK Japan stochastic analysis conference - Warwick**
09/2014 **Laplacians, Random Walks, Bose Gas, Quantum Spin Systems - Bristol**
07/2014 **Young Researchers in Mathematics Conference - Warwick**
06/2014 **NSF/CBMS Conference Quantum Spin Systems - UAB**
05/2014 **MASDOC retreat - Ironbridge**
05/2014 **Gradient random field - Warwick**
04/2014 **Combinatorics and Statistical Mechanics - Warwick**
03/2014 **Many-Body Quantum Systems - Warwick**
02/2014 **Spatial models in statistical mechanics - TU Darmstadt**
12/2013 **Computational coarse-graining of many-body systems - Warwick**
09/2013 **Models from Statistical Mechanics in Applied Sciences - Warwick**
05/2013 **MASDOC retreat - Haworth**

Teaching

2011-2015 **Supervisor and Teaching Assistant - Warwick**

Position	Course Name	Students and hours/term
Supervisor	Term 1 & 2 2015/16	8 students 45 hours/term
	Maths Core for non-maths students	
Supervisor	Term 1 & 2 2014/15 Maths Core	5 students 45 hours/term
T. A.	MA4A7 (Quantum Mechanics) Term 2 2015	20 students 9 hours
T. A.	MA3H3 (Set Theory) Term 1 2014	30 students 9 hours
Supervisor	Term 1 & 2 2013/14 Maths Core	5 students 45 hours/term
T. A.	MA4A7 (Quantum Mechanics) Term 2 2014	20 students 9 hours
T. A.	MA3H3 (Set Theory) Term 1 2013	30 students 9 hours
Supervisor	Term 1 & 2 2011/12 Maths Core	5 students 45 hours/term

T.A. - Teaching Assistant

2011 **Student associates scheme - Warwick.** Dates 8-9/02, 21-25/03, 28/03-01/04.
12 day placement in secondary school teaching maths and science to ages 11-18.

Grants

Accommodation costs **Cergy-Pontoise** 22/06/2015 Awarded by Cergy-Pontoise
Accommodation costs **Bristol** 15/09/2014 Awarded by Bristol
Travel and accommodation costs **UAB** 16/06/2014 Awarded by UAB

Organisational Responsibilities

I am currently in charge of the MASDOC student publication page
URL: http://www2.warwick.ac.uk/fac/sci/masdoc/msc_dissertations/student_publications/

Last updated: June 27, 2016