PHYSICS DEPARTMENT NEWSLETTER

Loughborough University

Date: March 2009

Issue: 3

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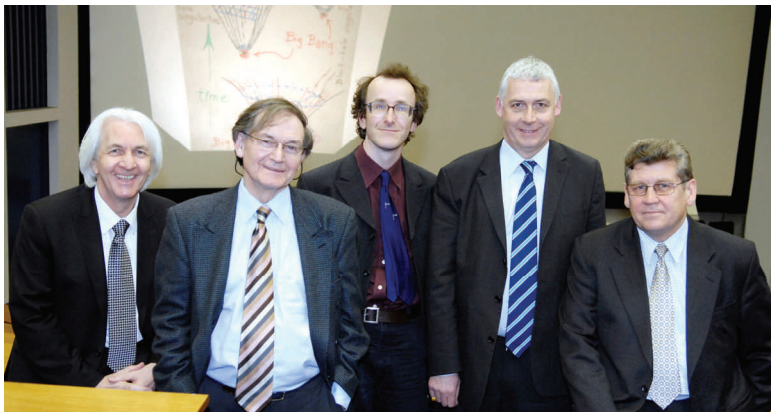
Mott Lecture 2009

The annual prestigious Mott Lecture 2009 was held on Wednesday 11th March and was given by Professor Roger Penrose from the University of Oxford, Mathematical Institute.



Prof Fletcher, Prof Penrose, Dr Samson, Prof Parsons, Prof Kusmartsev

The lecture was well attended by both the public and staff and students of the university.

The title of the lecture was 'Gravity and the Foundations of Quantum Mechanics' (Abstract: 'I argue that the measurement paradox of quantum mechanics (as most famously illustrated by 'Schrodingers cat') will require a change in the basic structure of the theory when gravitational effects become of relevance. Evidence in support of this viewpoint ranges from Einstein's equivalence principle to Big-Bang cosmology, to the second law of thermodynamics, and to the 'black-hole information paradox'). In 1995 Sir Nevill Mott visited the Physics Department and presented a lecture entitled '65 Years in Physics'. The lecture was a great success, and Sir Nevill Mott kindly permitted his name to be associated with an annual lecture series.

Prof Penrose & Prof Kusmartsev

The Mott Lecture is held each year in honor of Sir Nevill Mott and is given by an eminent Physicist whose work is related to Nevill Mott's research.

Dates for your diary:

- Staff Student Committee Meeting 13th May 2009
- Summer Graduation 17th July 2009

Alumni Reunion

Invitations have now been sent out to all alumni, current and past staff and current postgraduates.

We have already had a good response with many past staff and students booking their places at the event ranging from the 1970's to the 2000's. Please ensure if you would like to attend this event that you complete your reply slip and payment form and return them to Victoria as soon as possible as places are limited and it is strictly first come first served.

We hope you can attend the event and we encourage you to book your place early.

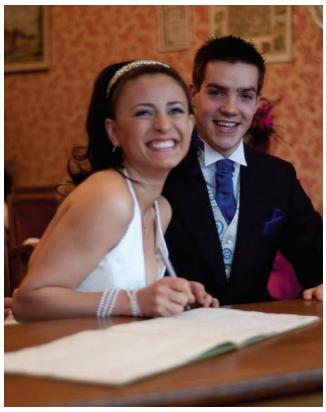
Toby Maw Gets Married

We would like to congratulate Toby Maw on his recent marriage to Adriana.

They first met in Australia on valentines day in 2006 whilst Toby was on his study abroad programme from Loughborough.

They married in Stowmarket Registry office on 1st January 2009 and then had a reception at a country house in Aspall (Suffolk). They then jetted off to Rome for their honeymoon.

Congratulations to them both.



Mr & Mrs Maw

Materials Research School Studentship

The latest Materials Research School studentship has been awarded to Mr Andy Prudom. Andy graduated from the Loughborough University Physics Department with a first class honours MPhys degree in July 2008. He is based in the Physics Department and is being jointly supervised by Dr Mo Song from the Materials Department and Dr Gerry Swallowe from Physics.

Andy Prudom hard at work

Andy is working on nanostructured polymeric materials which have great potential to improve the survivability of both vehicle and body armours in the face of terrorist threats. Recent research on polymer nanocomposites has indicated that a nanostructured material architecture can enhance a wide range of physical and engineering properties. For personnel protection, a balance must be made between the needs of high protection and light weight and these materials potentially offer a great improvement on those currently used. Andy is making use of the wide range of high strain rate test equipment developed in the Physics Department and the Materials preparation and characterisation facilities housed in the Materials Department.

His work will provide the preliminary data which will feed into the recently announced £750k Materials School EPSRC / Dstl grant on Enhancing Damage Tolerance. This is jointly held by researchers in the Wolfson School, Materials and the Physics Department.

Paddle on Water

Felicity Price, final year physics student, recently took part in the BUCS White Water Race 2008 helping the university dominate all ten events.

The event took place at the River Washburn and was being contested by 25 universities. Nottingham Trent were favourites to win the event after a good 07/08 season.

Loughborough University initially overwhelmed when told that Trent had 96 entries to our 39. This however, did not help them in the end.

The Team (Felicity holding trophy)

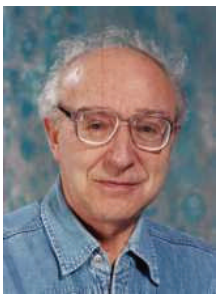
Loughborough walked away with 17 medals in total and gave them an unassailable lead in the university standings.

Felicity entered the woman's KI (Kayak) event and won gold along with the mixed team event.

Well done to everyone who took part.

Fellow of the American Physical Society

Congratulations to Professor Daniel Khomskii on his election as Fellow of the American Physical Society for 'important contributions to the theory of strongly correlated electron systems, especially the study of orbital ordering'.



Congratulations

Neil Lindsey and Tom Hardy have both completed their PhD's. They will both graduate in the summer graduation ceremonies .

We wish you both all the luck for the future and hope you have a happy working career.

Saudi Arabian Visitors from Sultan University

Thursday 5th February 2009 saw an important day in the Physics Department with a visit from The President of the Fahad bin Sultan University in Saudi Arabia.

The President, Professor Riad Chedid visited the department along with the Vice President for Development, Mr Abdullah

Marzoug Al Balawi, a Member of the University Council Mr Bayan Yousef and the Director of the Continuing Education Centre, Dr Tahseen Rafik for the signing of a Memorandum of Understanding of Collaboration between the two Universities and Departments.

Prediction Recognised

Dr Zagoskin

Dr Alex Zagoskin, along with his co-authors suggested that specific defects occurring in Josephson-phase qubits, which are usually detrimental to the performance, could be used to an advantage (as extra qubits or quantum memory elements). The experimental group of John Martinis from UC Santa Barbara showed that this is indeed the case and that the decoherence time of such qubits is significantly higher.

This successful experimental realization of the theoretical proposal was reported in a paper in Nature Physics, Process tomography of quantum memory in a Josephson-phase qubit coupled to a two-level state.

Congratulations to all the authors.

Green Issues

Joanne Beanland (postgraduate), recently attended a university environmental forum & agreed to be our representative to improve the departments energy efficiency & has asked for your ideas j.beanland@lboro.ac.uk

Physics Six Aside Team 'Supernova' Thwarted in Quarter Finals

The Physics Department six aside team called 'Supernova' showed great promise in their challenge for the annual University Staff Six Aside Competition.

Two leagues of teams from different departments took part with the top four out of each league progressing to the quarter final stages.

Supernova managed three wins and a draw to end up in third position in their league. Their most notable victory being against 6-0 thrashing of team Disco.

The team went into the quarter finals game against Sports Tech full of confidence, with team manager and Head of Department Professor Feo Kusmartsev bullish on the teams chances of winning through to the Semi's.

The game started with Sports Tech well on top, closing down Supernova quickly in all areas of the pitch, never giving them time to settle on the ball. This together with some robust tackling, put Supernova on the back foot. Kusmartsev was on the receiving end of some tackles but played on through the pain.

It was no surprise when Sports Tech took the lead and then doubled it half way through the first half.

Supernova were not out of it though and pulled one back when Doug Green made a strong run down the left and hammered a thunderous shot against the bar, the ball rebounded back to the area in front of the goal, where a scramble ensued and Green fired in the ball when it dropped to his feet.

Supernova were much more confident now with Tom Hewett working like a Trojan to win possession for the team. Substitutes rolled on and off to give players a rest due to the frenetic pace of the match.

Just before half time the fleet footed Ato Stephens who out paced the Sports Tech defence to slot home for the equaliser.

The second half was a close affair with both teams striving to get the upper hand, Toby Maw and Richard Wilson both making a contribution to the game.

But it was Sport Tech who regained the lead when they broke away down the pitch and scored with a well struck shot.

Supernova did not give up and applied lots of pressure on an ever increasingly nervous opposition, several goal mouth scrambles ensued at the Sports Tech end together with some robust defending stopped Supernova equalising the scores.

If you have any enquiries or any news or events you would like covering in a future newsletter please contact Victoria Webster on:

Phone: 01509 223301
Fax: 01509 223986
E-mail: v.j.webster@lboro.ac.uk

Thank you and we hope you enjoyed this issue.

New Recruits

We would like to once again welcome Toby Maw, Ryan Gordon and Paul Dakers to the department who return after graduating in the summer to study for a PhD .

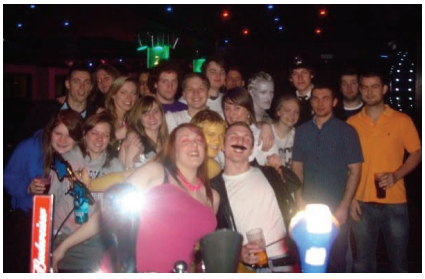
Union Councilor

Kat Barber is the union councillor and would like to hear from any students who have any questions or queries with regards to the way the union is run or if they have any issues you would like her to bring up at the council meetings. Please contact Kat on k.barber-06@student.lboro.ac.uk

Welcome

We would like to welcome Dr Marat Gaifullin who has recently joined the department on a permanent basis as a full time lecturer.

You can find him in office W225



The Committee

Introducing.....

Dr John Samson

Senior Lecturer

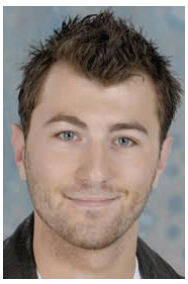
John got his first degree and PhD at Cambridge. His PhD was in the Theory of Condensed Matter group at the Cavendish Lab, supervised by Volker Heine, on the statistical mechanics of iron, where the same electrons have to look after both magnetism and conduction.

He spent two years at Cornell in upstate New York and two years in the Max Planck Institute in Stuttgart, before coming to Loughborough in 1986.

His research is in condensed matter theory and in quantum theory. He has lectured mostly in quantum and solid state and supervises first year labs.

He chairs the Staff Student Committee, and tries to ensure that things get done there. He is also Programme Tutor for Physics and Feedback Co-coordinator.

He has a basic need to be in the mountains—mostly hiking, but will be grabbing his ice axe and putting on crampons again this summer in Switzerland. Closer to home, he is chair of the Loughborough and District Group of the Rambler's Association—come along for the Sunday walks.



Doug Green

Postgraduate

Born in Nottingham and raised in the Melton Mowbray area and has always had a keen interest in sciences.

He Graduated from Loughborough University with a Bsc in Physics in the summer of 2007. He is now studying for a PhD in Colossal Magnetoresistance.

Doug has many varied interest and include darts, snooker, pool, freeride and downhill mountain biking, football, chess and has recently started stamp collecting. He also likes American football and went to watch New Orleans vs San Diego Chargers at Wembley last October.

He is also an avid fan of two time European cup winners Nottingham Forest. Doug also plays for Loughborough Academicals FC as centre forward which is made up of staff and postgraduates and play in the Charnwood Sunday League.

Doug is a massive Back To The Future fan and hopes one day to own a DeLorean.

R.I.P

It is with great sadness that we announce the death of Jim Sturgess. Jim was once a lecturer and head of department in the Physics Department and will be remembered with fondness.

We received the news from his daughter following the receipt of one of our invitations for the forthcoming reunion.

Social Gathering!!

Physics students got together for a night of fun on Tuesday 17th March with a themed night of 'elements' (which explains the funny clothing).

The event was organised by the committee team and they would like to say 'a big thank you to everyone who went, hope you had a great night and we look forward to may more socials. Lots of physics luv, the committee team'.