

LANBRIA

The newsletter of the Lancashire & Cumbria branch of the Institute of Physics

Issue 20 December 2005

Lab in a Lorry visits Lancashire

Lab in a Lorry One (of three) will visit Lancashire between 23 January and 3 February 2006. The branch is now busy organizing the programme to try to cover most of the county.

All the Labs contain three hands-on demonstrations. The first is on the flow of viscous liquids in confined spaces – a green goo flowing between two Perspex plates sealed with a gasket with entry and exit taps.

The demonstration shows what happens when you try different techniques to extract and inject the liquid in the space. This is of obvious interest to the sponsor Schlumberger, and visually very appealing.

The second demonstration concerns acoustic resonance (of wine glasses), starting with a wet finger on the rim and ending with a strobe demonstration of the deflection of the glass rim under acoustic excitation.

The third one shows light scattering and the physics behind sunsets – Dettol in water forms the scattering medium, demonstrating how the colours form as the scattering length increases. Included in this experiment are some of the



One of the Institute's Labs in a Lorry outside 76 Portland Place, London.

the volunteers, who will guide the audience (generally pupils in Years 7–9) through the experiments.

We need three volunteers a day (or half-day). However, in a change from previous requests, the volunteers do not need Criminal Records Bureau clearance, though clearly it is preferable. (Getting this is no more painful than filling in a two-page form and providing the sponsor, SETPOINT Lancashire in our case, with proof of identity and address – although the complete process takes four to six weeks.) So we can accept volunteers right up until the week before the Lab arrives, but volunteer as soon as possible, please!

We hope that volunteers will not have to travel too far, but the branch will be able to pay travel expenses, preferably agreed beforehand.

If you would like to help or want to know more, contact John Bradshaw (see p3). For the latest information look at lancashire.iop.org, or for general interest www.labinalorry.org.

John Bradshaw
Branch support officer

2006 LANCASHIRE TOUR

23–24 January	Lancaster Girls' Grammar School (23 January training day)
25 January	Carnforth or Milnthorpe (TBC)
26–27 January	Woodlands Conference Centre, Chorley
28 January	BAE, Marsh Lane, Preston
29–31 January	Burnley FC (29 January training day)
1 February	Penwortham Priory Science and Technology College
2–3 February	King Edward VII and Queen Mary School, Lytham

coloured effects that can be generated by the polarization of the scattered light.

The major change for Lab in a Lorry from earlier this year is that there is now a full-time

supervisor on board, well versed in the operation of the experiments and how to present them to the audience. It is likely to be Euan McIntyre for our tour and he will personally train you,

PROGRAMME OF BRANCH EVENTS

Wednesday 7 December
Double pulsars and relativity
Dr Duncan Lorimer, Jodrell Bank, University of Manchester.
2.00 p.m. Faraday Lecture Theatre, Lancaster University. Joint colloquium with the Physics Department of Lancaster University. Refreshments will be available.

Thursday 15 December
Informal Christmas social event
6.00 p.m. C36 Physics Department, Lancaster University. Food and drink will be served. Please inform Steve Bailey to help with catering.

Year 2006 – 40 years of the Lancashire & Cumbria Branch

Wednesday 18 January (TBC)
Physics and stem cells
Dr Hubert Pollock, Lancaster University. 7.00 p.m. George Fox LT1, Lancaster University.

Wednesday 15 February
Dealing with spent nuclear fuel
Neil Stagg, BNFL. 6.30 p.m. Venue as above. Joint with IEE

Lancashire & Cumbria.

Wednesday 15 March
Ripples from the dark side of the universe
Prof. Jim Hough, Glasgow University. 2.00 p.m. Cavendish LT (TBC). Colloquium with the Physics Department of Lancaster University.

Preston's shoppers learn that



Robyn Halford supervises the Van de Graaff generator at the Fun Day.



A young girl having fun with physics during her half-term holiday.



Chris Wal

In the past two years the branch's Physics Fun Day was an attempt to provide a day out for members and their families, but few families came along. So this year we decided that fun days should be events to show the public that physics can be fun.

On Wednesday 26 October a

small group of branch members spent the day at St George's Mall in Preston. Kitted out in home-made polo shirts with the Einstein Year logo, the group set up shop outside H&M.

The main attraction was the Van de Graaff generator from the Physics Department at

Lancaster University. Around 170 people, mostly children with their parents, were charged to 20 kV and had their hair stand on end. Photos were taken of each one and the pictures made available online within 48 hours (see our website.)

There was also a demo of the

conservation of angular momentum using a rotating chair. Everyone was amazed at how much faster the chair spins when weights, initially held at arm's length, are brought towards the body.

To round off the demos there was a table showing a vibrating

Palestinian student shares a passion for physics

Physicists are a very diverse group of people from every country in the world. Laila Alabidi comes from the Middle East and has consented to an e-mail interview with LANBRIA.

LANBRIA: How did you become interested in physics?

LA: I enjoyed physics and mathematics at school, and initially toyed with the idea of going into aerospace engineering. Then at 16, just before applying to university, I read Stephen Hawking's *A Brief History of Time*, which got me really interested in theoretical physics.

Where did you study physics before coming to Lancaster?

I did my bachelor's degree in physics at the University of Jordan, and my MSc at the University of Newcastle upon Tyne.

What are you doing now?



Laila Alabidi shares her views on university physics with LANBRIA.

I am in my third year of a PhD in cosmology at Lancaster University, working on

constraining models of inflation using recent observational data.

Why did you choose Lancaster?

First, for the type of research, and second, for the reputation of the university/department and that of my current supervisor. I became even more keen to come here when I attended my interview, as the student I met (Yeinzon Rodriguez Garcia) was extremely interested and excited about his research here. I also really liked Lancaster and the campus.

Have you had any problems as a female physicist, here or elsewhere?

I have had problems in the UK – it is very isolating. At the BUSSTEPP summer school I attended in 2004, women only made up 10% of the delegates (that was 7 out of 70). This was not a scenario I envisaged when I came to the UK. I was accustomed to a more

reasonable ratio – at my university in Jordan, out of the 50 students who graduated with me, 30 were women. So I do feel marginalized, and have never really felt comfortable in this environment.

What is next for you?

Hopefully a postdoc, and eventually on to a permanent lecturing post.

What do you do to relax?

Socialize. I am quite involved in a couple of student societies, I read, watch films, bake cakes (and eat them!), and being a Muslim I find praying and reading the Koran relaxing.

Do you have any advice for future students?

I would recommend a PhD only to those who are truly passionate about pursuing research in their chosen subject.

Thanks very much for sharing your passion for physics and life.

Physics can be fun



Lab entertainment – and education – the crowd at the Chladni plate demonstration.



The shocking truth about physics.

string with a strobe lamp and a Chladni plate with sand to illustrate the vibrations of a solid plate of metal.

Einstein Year pens and stickers were handed out to everyone who took part. About two-dozen science books were given out to those who showed

interest in knowing more.

The event was declared a great success. We had good front-page coverage in the Preston and Leyland edition of the free newspaper *The Citizen* and the following day there was a photo on p6 of the *Lancashire Evening Post*. In

addition, the marketing manager of the Mall said the branch could come back any time it wanted.

The volunteers were Bob Jones, Robyn Halford, Chris Walton, Christine Linley (SETPOINT Cumbria) and myself. **Chris Bowdery** Chair

The editor's lines on the leaves

This is the last LANBRIA of Einstein Year but the spreading of the fun of physics goes on. Please read the article on p1 about the Lancashire tour of Lab

in a Lorry One and think about volunteering. Check our website for the latest news about the tour and the training sessions.

You will also find articles about recent meetings and events plus a programme of future events. And the e-interview this month is with

postgrad student Laila Alabidi.

In future, LANBRIA will only appear four times a year but I expect the issues to be bigger. The next issue will be in March 2006 and cover the Lab in a Lorry tour of Lancashire and the Paperclip Physics heats.

Chris Bowdery Editor

Money matters: how your branch is funded

As with most things in life, the activities of IOP branches are limited by financial constraints. Most of our funding comes directly from the Institute and we need to bid for funds each year and justify our expenditure.

Each October branch treasurers meet at Portland Place to present our bids for the following year. At least for the time being, the available central funding is adequate for the everyday activities of the different branches, although the expenditure per member varies

quite considerably between different regions.

One of the reasons for this is geography. The Lancashire & Cumbria branch covers a very large area with a fairly low population density. This means that travelling and associated costs can be quite high.

We could, of course, limit our activities to Preston, Lancaster and (maybe) Carlisle, but we feel that those who live on the wrong side of the Lake District should be able to experience the world of physics as well.

We receive an annual grant from headquarters of just over £2000, and for Einstein Year we received an additional £2000 for Einstein-related activities. Some expenditure (Paperclip and the costs of a part-time support officer) are paid directly by the Institute and there are contingency funds if we do run out of money.

In a normal (i.e non-Einstein) year our largest item of annual expenditure is for meetings of various sorts. The rest of the funds go on a whole range of

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Nathan Bradley (student)
Alan Christy
Ian Ferguson
Tony Guénault
Michael Holmes
Bob Jones
David Manning
Nigel Marshall
Tim Mercer
Sophie Michel (student)
Ruth Perkins (student)

See <http://lancashire.iop.org> for details of committee members, events and how to join the Lancashire & Cumbria branch.

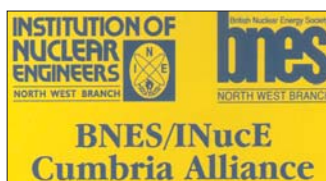
Branch holds event with BNES

As part of a plan to increase our co-operation with other scientific societies in our area, the branch jointly sponsored a meeting on Wednesday 19 October at the Westlakes Research Centre, near Whitehaven, with the Cumbria branch of the British Nuclear Energy Society (BNES). Their events secretary is Catrina Collings who is also an IOP branch member.

The lecture was by Simon Franklin who is the director of research operations and safety at the Consort nuclear reactor at Imperial College (Silwood Park

Field Station). I was particularly pleased to be able to represent the branch because I did an undergraduate project at the reactor back in the late 1970s.

Simon explained that the reactor facility is the only research reactor left in the UK and is used for many tasks. Their website <https://www.ic.ac.uk/spectrum/reactor/> says: "The Reactor Centre provides facilities... to be used for teaching and research in many fields of nuclear science and technology such as reactor physics, reactor engineering,



neutron physics, solid state physics, radiochemistry and activation analysis. The Reactor Centre also provides radioisotopes for use in other laboratories."

Unfortunately there is insufficient funding to keep the facility going so Simon outlined

plans to decommission it in the next 10 years. This would be a significant loss to this country but maybe it will be a wake-up call for its users to find the money to continue its work.

At 7.00 p.m. on Tuesday 17 January 2006, John Taylor (BNFL) will give a BNES talk at Westlakes on "The Pebble Bed Modular Reactor: the small power unit with the big safety margins". This sounds like a fascinating talk for our members who live within travelling distance.

Chris Bowdery Chair

Local meetings prove a big success

During 2005 the branch has held two local meetings, one at Newton Rigg near Penrith and the other at the Westlakes Research Institute near Whitehaven.

The Newton Rigg meeting was the second one of the group of branch members in the Penrith/Keswick area and took place on Wednesday 20 April. The main speaker was Nigel Marshall, Spaced Out project director, who gave a presentation on the project (see the April issue of LANBRIA).

This was followed by a demonstration by John Bradshaw, branch support officer for the North-west, of Physics To Go experiments that the IOP has put together for Einstein Year. Although the



Duncan Lorimer and members from West Cumbria at the meeting about pulsars on 12 October.

meeting was successful, only two local members turned up, which was disappointing. However, we did receive a

number of e-mails afterwards from people who had hoped to attend but were prevented at the last minute.

The Westlakes meeting was the first of its kind for West Cumbria members and attracted 19 people. Duncan Lorimer (Jodrell Bank) gave a superb, animated presentation on the physics that can be extracted from the first double-pulsar system that has been found. (This talk will be repeated at Lancaster University on 7 December.) After the talk the members had a short discussion about IOP activities in their area and gave feedback to the branch committee.

Thanks to John Bradshaw for organizing both meetings.
Chris Bowdery Chair

New faces join your committee

There have been a large number of changes to our branch committee this autumn.

Peter Bates, Anne Small, David Mehers, Rich Haley and Brian Jones have resigned. I thank them for all the work they have done. Peter notably has been secretary, chair and most recently Paperclip Physics competition organizer. In 2005, he was a joint winner of the Chairs of Branches' Prize for his involvement nationally in this competition.

Fortunately the committee has several new members. Robyn Halford is the new education representative, Bob Jones will be helping with outreach activities, Nigel Marshall (Spaced Out project director, GCSE Astronomy principal examiner and LGGS teacher) will be liaising with the astronomy and education communities, and John Bradshaw (our branch support officer) is the industry representative.

We also have three new students on committee: Nathan Bradley, Ruth Perkins and Sophie Michel. All but one of the new members are already science and engineering ambassadors (SEAs).

In 2006 the branch will celebrate its 40th anniversary. The committee will be planning exciting events throughout the year. In many ways it will be Einstein Year – the sequel!

Chris Bowdery Chair

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Mobile Careers Interview with Vishanti Lall

6 January 2006

The Tickled Trout Hotel, near Preston

An opportunity for branch members to have one-on-one careers advice.

Book direct with Vishanti as soon as possible.

E-mail: vishanti.lall@iop.org