

LANBRIA

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

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

Spaced Out project brings the planets down to earth

Have you heard about Spaced Out, a new UK project to illustrate the size and content of our solar system? A model of the Sun will be placed at the Jodrell Bank Observatory, and Lancaster Girls' Grammar School (LGGS) will be the home of a model of Saturn. Pluto will be in Fort William while Bath will be the host of Uranus.

The Lancaster connection comes about because the project leader, Dr Nigel Marshall, is a part-time astronomy teacher at LGGS. He is also the chief examiner for GCSE astronomy.

It is intended that each planetary site will be more than



Ian Morison (Jodrell Bank), Dr Nigel Marshall (LGGS), Andrew Greenwood (website designer) and Ann Picot (site designer).

just the home of a large sphere. In fact the planets might not be represented by spheres at all.

There will be a strong emphasis on art and plants as well as physics and astronomy.

The LGGS site will be close to the road so that the public can see it without coming onto school property. Interestingly, it will be within a stone's throw of the Fleming and Frankland commemorative plaque that the branch erected in 2001.

The branch is very pleased to learn of this initiative and hopes to contribute in practical ways in the months to come. If you wish to see a presentation by Nigel Marshall and view an exhibit of the Saturn site, then come along to the Physics Fun Day at Lancaster University on 19 June.

Fun Day finds its keynote speaker

The main event of the year for the branch is the annual Physics Fun Day – well, Fun Half-Day, to be strictly accurate.

This year the theme is “Physics and aviation” and the date for your diary is Saturday 19 June, 2.00–6.00 p.m.

Once again the venue is the George Fox Building at Lancaster University. We did try to book other places but with no success. Anyway, the George Fox Building offers lots of space, both inside and out.

Although the full programme will not be available until the June issue of *LANBRIA*, we can confirm that Martin Shelley, assistant director of the British National Space Centre, will be giving a keynote talk entitled “Space: securing our future,

unlocking our past”.

There will probably be another talk on 21st-century aviation plus a presentation and display from Dr Nigel Marshall about the Spaced Out project (see above).

Just like last year there will be competitions with prizes for all ages. Finally there will be hands-on activities, including rocket launchings, plus supervised activities for younger children during the talks.

All of the latest information will be made available on our website at lancashire.iop.org. If you have Internet access, do keep an eye on it for news.

Come along on 19 June and help to make the event a Physics Fun Day to remember. Chris Bowdery (for the Fun Day organizing group)

Editor's lines on the leaves

This month's *LANBRIA* is shorter than usual. However, this is offset somewhat by the news that there will be an issue next month too. It should arrive just in time for the transit of Venus on 8 June, so watch out for the special articles on this event.

Our leading article this month is the exciting news about Spaced Out in Lancaster. I recently met with Nigel Marshall at Lancaster Girls' Grammar School to discuss the branch's possible participation in this project. Let us have your views on this by e-mail or, better still, come to the AGM, which will form part of the Physics Fun Day on 19 June (p2).

Chris Bowdery, **Chair**

AGM set to take place on Fun Day

This is the formal notification to branch members that the Annual General Meeting will take place as part of the Physics Fun Day on 19 June 2004 at Lancaster University. The accounts will be included in the June issue of *LANBRIA*. Formal officer reports will be presented on the day.

This year the posts of chair and honorary treasurer are up for election. The current chair is eligible for a second term and is willing to stand. However, our treasurer wishes to resign, so please consider whether you wish to put yourself forward for this post or nominate someone else. Please contact me for further details or to volunteer.

There has been a proposal from a member, Stephen Ironmonger, that the branch should hold some meetings in the Penrith area. This will be discussed at the AGM. Please let me know if you are in favour, especially if you would attend or even help to organize them.

The AGM is a very important meeting for the branch and needs to be quorate. Do please come along to it and do your bit to make the branch function. Being part of the Fun Day should make it short and painless!
Steve Bailey, **Secretary**

BRANCH EVENT

Saturday 19 June

Physics Fun Day: Physics and Aviation

The annual half-day festival of physics will include the Annual General Meeting. George Fox Building, Lancaster University. There will be activities for all of the family, including talks, competitions and rocket launchings.

E-mail your *LANBRIA* contributions by

8 May 2004

to chris.bowdery@physics.org

Kirkbie Kendal wins local heat of Paperclip Physics



Buoyant winners: Kirkbie Kendal School won physics books and a plaque.

On Wednesday 3 March the branch held its regional final of the 2004 Paperclip Physics Competition (see p2 of the March issue for details).

The six teams from the earlier regional heats gave repeat but improved presentations in front

of Dr Ian Ferguson (branch vice-chair), Keith Snape (Newman College) and Martin Greenwood (Rock FM). As always, the judges had a difficult time deciding on a winner but their choice of the Kirkbie Kendal girls team was endorsed by an unofficial poll

among the other contestants.

The young Cumbrian physicists explored the ideas of density and buoyancy using a combination of drama and some stomach-churning colourful cocktails. Thankfully no-one got to drink them.

The team then went to London for the grand final on 31 March but sadly were unable to repeat their success in the face of stiff competition from teams from other branches. However, a school from the Manchester and District branch took first prize, so we can be proud of another north-west team's achievement.

Congratulations, anyway, go to Kirkbie Kendal School (which now receives an Institute of Physics plaque), to the girls themselves (who can read up about *Superstrings and Other Things: a Guide to Physics* from their book prizes) and also to Anne Duffy, their teacher.

Einstein, and that little equation that we all know about

In 2005 we celebrate Einstein Year because it will be exactly 100 years since the publication of Einstein's papers on Brownian motion (the proof that atoms exist), the photoelectric effect (the photon nature of light) and the special theory of relativity.

If the general public know anything about Einstein then it will be about relativity theory and $E = mc^2$. This raises the

question about what $E = mc^2$ really means. Some physicists have interpreted this equation as the general equivalence of mass and energy.

However, experts will tell us that Einstein wrote $E_0 = mc^2$ to indicate that the energy of a particle at rest is equal to its mass multiplied by the square of the speed of light.

Thus it would be incorrect to

attribute a mass to a photon, proportional to its energy, because it is never at rest, even though Einstein did toy with this idea on the way to developing his general theory of relativity.

He originally thought that it would cause light to bend in a gravitational field, but in general relativity, massless photons are "deflected" purely because of the curvature of space.

Grammar pupil wins Internet contest

The first (February/March) round of the branch's Web-based Monthly Schools' Competition has ended and we have a winner: Yasmin Thompson from Lancaster Girls' Grammar School.

Yasmin wins a £10 book token for knowing the answers to the following two questions:

Q. Physicist Sir Ernest Marsden was born in Rishton in Lancashire. What is the address of the house where he was born?

A. Sir Ernest Marsden was born at 68 Hermitage Street, Rishton, Lancashire, in 1889.

Q. Who gave a talk to the Lancashire and Cumbria branch of the Institute of Physics on Thursday 29 January 2004 entitled "Activity on the surface of Mars"?

A. Dr Karl Mitchell gave this talk.

The April round of the competition will have ended by the time you read this but the May round will have just begun. Visit lancashire.iop.org to find the latest questions. If you attend a school in Lancashire or Cumbria then you could be the next winner.

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