Outreach to the general public is a tricky proposition. Why would anyone stop their shopping, museum browsing or whatever to engage in conversation with a physicist about a subject many think is boring, too difficult to understand and probably irrelevant to their lives? Of course we think the opposite about our subject so we dream up ways to open people’s eyes to the fascinating world of physics around them.

In this branch we already have lo-tech and medium-tech outreach events (and drama-based educational events too) where we exploit Alka Seltzer and water to launch little rockets, compressed air to fire larger missiles, a Van de Graaff generator to make hair stand on end, a whirly tube to create musical notes, a Chladni plate to show standing waves, and so on.

Now we are introducing a new hi-tech activity that promises to provide a surprise for the public and an opportunity to chat briefly about physics. We call it “3D world” and it involves taking and displaying 3D photographs and HD videos using a state-of-the-art 3D camera.

Some of you will see the possibilities immediately. Others will probably be cautious, even sceptical. I am pleased to report that a 3D camera (Fujifilm FinePix Real 3D W3) and a 3D 8” Viewer (Fujifilm Real 3D V1) have been purchased and in their first week of use have exceeded all expectations. Both devices use LCD screens that show 3D pictures without the need for special 3D glasses. Just announcing out loud that a 3D camera is in use gets people’s attention. They want to see it. They are happy to be photographed by it and see the results. Children want to get involved. It is not difficult to draw attention to the 3D nature of the world around us. It is not difficult to turn the conversation to other areas of relevant physics: optics and light, and the physics and engineering of the 3D camera.

The second type of venue is a TV shop. Staff at PC World in Lancaster have already been helpful in allowing us to use their demonstration large screen 3D TV and 3D glasses to view our photos and videos. They can see that it helps us and it certainly does no harm for their efforts to sell 3D TVs.

Although discussions are at an early stage, it seems likely that weekend afternoon outreach sessions at PC World will be a reality when you read this.

Now of course this type of activity needs volunteers, probably two. At the moment we only have one camera but it belongs to the branch and all parts of our two counties will have appropriate locations for this activity. Not much training is necessary – the main problem is to avoid putting fingers over the lenses – it has twice the usual opportunities to do this!

Would you like to help?

Chris Bowdery, outreach co-ordinator

Visit the branch website at http://lancashire.iop.org
Lines on the leaves

Winter is here but there are new shoots sprouting from the branch. LANBRIA is proud to announce a new high-tech outreach event this December: “The Full 3D world” that exploits the latest 3D camera and viewer technology. As well as being used to interest the general public in basic physics ideas like 3D space and the layout of objects around us, it should also be noted that eminent people that physics lies at the heart of hi-tech gadgets. You should make us a news story for the local media. The camera will also allow us to record branch events in 3D. Whether this means that we will be able to see several videos follow, only time will tell. It is a pity that we cannot reproduce 3D photos here in LANBRIA. Hopefully by the time you read this, Galactic Gig will have completed its 50th performance with seasoned actors plus further shows with some new ones. See Bob Jones’s article (p4) for the expected plans at the time of going to press plus his update on the “Goldilux” DVD being finalised for school use.

The West Cumbria sub-branch is now well established with our partnership with UCLan we have hosted three talks in our automatic shows, using the Samuel Lindow building of UCLan’s Westakes Campus as the venue.

The first of the talks, on 30 September, was given by Prof. Tony Barker from the Royal Hallamshire Hospital, Sheffield, titled “Electro-magnetic fields and the human body – from transcranial magnetic stimulation to possible hazards of mobile phones and power lines”. Prof. Barker took time to discuss his work on the development of transcranial nerve stimulation (TNS): the stimulation of the nerves in the body through the application of a changing magnetic field. This allows nerves to be stimulated for a number of medical purposes without direct contact or surgery to access the nerves. TNS has many other important applications in neuropsychology, psychology and psychiatry with many more in the future. Other companies are still being investigated. Professor Barker also demonstrated the technique on a member of the audience with a TNS set. The effect was interesting with no discomfort but involved watching as your limbs move in obedience to the effect of the stimulation. He then went on to discuss another facet of his work, investigating the possible negative effect of electromagnetic fields from our modern lives, such as mobile phones, overhead power cables and wi-fi. He discussed some of the key findings from a number of studies and the investigations carried out by various public bodies over recent years. From these he informed the committee that there was no evidence of harmful effects from these types of magnetic fields. However, it would never be possible to prove anything 100% safe because our understanding of the human body and of the world around us is not (and is unlikely to ever be) complete. The lecture was greatly enjoyed by all and many attendees queued up to experience TNS directly. Approximately 28 people attended the lecture.

Our second lecture on 10 October was given by Dr Vincent Smith MBE (University of Bristol and CERN) and Dr Peter Ford MBE (University of Bath), titled “Einstein’s 1950 revolution in physics”. Einstein’s theory of relativity was especially welcomed that day as it had been formally announced by Prof. Colin McInnes (the Advanced Space Concepts Laboratory, University of Strathclyde), titled “Engineering, energy and the environment: the long view”.

Christopher P Gallagher
LANBRIA sub-branch talks

In future, LANBRIA will only be available online. From 2011, find it at www.iop.org or myIOP.

Articles and letters can still be submitted to the editor:

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Release of ‘Galileo’ DVD is expected to wow schools

In the September issue I described the plans of the Creative Learning Department at the Dukes Theatre, Lancaster, with IOP branch support, to film my drama on the life of Galileo and to produce a DVD for distribution to 100 local schools for screening to year 6–8 pupils. The DVD would also include science lesson plans and resources for schools to stage parts of the drama.

The filming went ahead in August as scheduled, using some of the actors from the live show in March – most significantly the key actors playing Galileo and his friend Alfonso. All was “in the can”, as the expression goes, after four days of intense activity, both in the theatre, with liberal use of the “green screen”, and on location in Lancaster Priory and Williamson Park. I witnessed the action throughout and helped in any small way I could. It was a thoroughly entertaining experience, as had been the live show before it.

Several new actors were recruited by director Guy Christiansen to fill the missing parts. All were young and some were semi-professionals, and I was astonished how good a performance they could give only a week after first seeing the script. They brought a completely new, and extremely funny, interpretation to several of the scenes, particularly the one scene in which Galileo is absent, in the Dutch optician’s shop.

Acts of God
Guy and technical director Jason Threlfall went to great pains to get everything right and there were many “takes”, which would have to be edited afterwards with much time and effort. The expected problems with actors getting lines wrong were compounded by various “acts of God” on location, including rain showers (not good for telescopic observations) and even a little thunder, more human interventions, such as an unexpected wedding party at the Ashton Memorial and background noises that would have been unfamiliar to Galileo, including helicopters, trains and wailing police sirens. I did not realise how noisy Lancaster can be on a typical August afternoon! Even the interior of the theatre was not immune: the sound of boy racers going round the corner outside was heard with monotonous regularity at a certain time in the afternoon. Despite all of this I am confident that the final film will look and sound good. I was given a preview of some of the raw footage, before any editing or special effects, and what I saw was both impressive and amusing. By the time that Jason has worked all of his magic with the digital backgrounds and special effects, he (and Guy) will have spent many more hours of their time than they have strictly been paid for on the IOP contracts.

The plan now is that the editing of the film of the performance will be completed in time for a showing to a small group of local science teachers very soon, together with a small number of year-7–8 pupils. So far five teachers have agreed to go along. The teachers will be there, not to offer advice on the artistic side of the film, which will be essentially complete, but to advise and perhaps help with the science lesson plans that will mostly be my responsibility, using their knowledge of this age group and the relevant science curriculum. The lesson plans might be filmed as short lecture-demonstrations, perhaps even in the Department of Physics at Lancaster.

When the DVD is complete the Creative Learning Department will make 100 copies (using branch funding that it has already received) for the IOP to distribute at its own expense to local schools, both primary and secondary, hopefully in time for pre-Christmas screenings. We will have to think a little about how we do this, how the schools are chosen and how to market the release so as to maximise the likelihood that the DVD will actually be shown! The IOP will own the copyright to the DVD but it will be required to consult the writer and director if it wishes to distribute it more widely.

With luck “Galileo” will become extremely popular with schools and will become known outside our area. Branch members can look forward to an entertaining little show soon!

Bob Jones, vice-chair

Galactic Gig: 49 and counting!

It seems very likely that the 50th performance of Galactic Gig, the branch’s ever-popular outreach activity in primary schools, will have been given by the time you read this. We had originally expected that this milestone would be passed in June, but, despite thinking that we had plenty of student actors from December 2009 (see April issue), this was not to be. Several of them had decided to take the opportunity of using the quietest week of the academic year (which was also the preferred week for Galactic Gig, between examinations and the end of the summer term) for other activities, and who can blame them? It proved impossible to recruit new actors at short notice.

On with the show
For performances in December things are looking more hopeful. Five first-year physics students at Lancaster have very recently expressed an interest in helping with branch outreach activities, and the majority are even willing to consider acting, although we will have a better idea when they have read the script! In addition, we have enough actors from earlier years available to ensure that we can do at least one day of Galactic Gig.

At the time of writing, we expect to give a minimum of two performances and a maximum of six performances in the week 29 November – 3 December. No firm fixtures have yet been made with schools, but from past experience this will not be a problem as long as schools have about four weeks’ notice of the event.

If, as anticipated, at least one performance goes ahead, it will be taken as a signal for a celebratory dinner before Christmas, to which some actors from earlier years will be invited. However, perhaps we had better limit the invitations.

According to my calculations, a grand total of 21 people have been actively involved in Galactic Gig since its inception in “Einstein Year” 2005, nearly all of them actors, including three from Lancaster Girls’ Grammar School (two pupils and a teacher)!

Bob Jones, vice-chair