IOP | Institute of Physics
In Scotland

NEWSLETTER

December 2008

Physics buskers amaze Highland Games crowds

Visitors to the Inverness Highland Games were ready for tossing the caber, throwing the Scots hammer and watching some athletics, but were they prepared for "Alka-Seltzer rockets" and "balloon kebabs"?

The Institute's Physics in the Field team set up their stall at the Inverness Highland Games this summer (19–20 July), where they performed eye-catching "physics tricks" to an unsuspecting audience. More than a thousand people visited the outreach stand in a steady stream. Sometimes the tricks attracted a large crowd and ours was one of the most popular stands at the games.

Physics tricks are hand-held demonstrations using things that can be found at home. Some are messy, some are noisy, but all of them are crowd-pleasing and help to illustrate different areas of physics. Visitors are encouraged to find out how to do the tricks themselves and give on-the-spot performances to their friends and families.

At the Physics in the Field stand, one visitor revealed that "it was the best bit of the show". Another commented: "We have seen amazing wonders – balloons that don't pop and volcanoes in tumblers."

Alison McLure, national officer, said: "It's brilliant working with the visitors because they are really interested in what we are doing and want to find out more."

The Physics in the Field team set up a popular stall to perform "physics tricks" at the Inverness Highland Games this summer.

"What is really satisfying is when you show someone a trick and they relate it to something that they have come across in everyday life but just hadn't thought of it as physics before."

For those visitors who can't get enough, all of the tricks performed by the team, including making "balloon kebabs", launching "Alka-Seltzer rockets" and turning pints of water upside-down over a friend's head without drenching them, are available at www.physics.org with full explanations.

We would like to thank our volunteers Kate Freeman, Helen Maynard, Carolyn McKerracher and Chris Nicholson for all of their hard work and enthusiasm, without which the event would not have been a success.

Joe Winter

A note from the newsletter editor

Physics featured heavily in the news over the autumn, with the opening (and subsequent closing) of the Large Hadron Collider (LHC). One Scottish angle on the LHC is outlined in this issue. The publication of the *Physics Review*, commissioned earlier this year by Research Councils UK and conducted by a panel chaired by Prof. Bill Wakeham of the University of Southampton, was welcomed by the Institute and generated some media attention.

Policy work may not receive as much public notice but it has an important job of engaging our nation's policy makers. In Scotland, the Institute has responded to several consultations and inquiries in the last few months, and has taken a leading role in the Scottish parliament's cross-party group on science and technology. More details about this policy work can be found interspersed throughout the newsletter.

Another aspect of the Institute's work is to provide opportunities for members of the physics community to come together. Photon08 was one such gathering, where people could meet in person, and MyIOP, which allows people to interact in a virtual forum, was launched in September.

Finally, we highlight the variety of our work in promoting physics to the wider public and to schoolchildren. I hope that you enjoy this issue and, as always, I welcome your comments and opinions.

Alison McLure

Visit the Institute of Physics in Scotland site at www.iopscotland.org

Physics career interview: energy

Name Gavin McPherson
Job energy consultant

What got you interested in physics?
My mum talked me into doing physics at university. I started off doing mathematics, philosophy and psychology at the University of Glasgow, but I changed to physics in my first year. She knew that I was interested in the subject because I enjoyed watching the Christmas Lectures and *Horizon* programmes about physics. I also read books about it but I found mathematics easier at school. Physics didn't quite "fit together" for me and it wasn't my best subject.

What subjects did you take at school and university?
I studied mainly sciences, mathematics and technical drawing at school, although I had a typically broad Scottish education. I found it difficult to relate mathematics to physical problems but I got a buzz from gaining a good mark in my first-year physics examination, despite not finding it easy. This encouraged me to take it to degree level, which included a year's exchange at Queen's University in Kingston, Ontario, Canada. That year sold me on the subject because the classes were small and very well taught, and the lecturers and students were really enthusiastic. Any problems with the system had already been ironed out by the person who had been on the exchange the previous year.

Gavin had the opportunity to travel to Chile to study glacial erosion.

I had an interest in plasma physics and in particle physics, and decided to do a PhD in one of these subjects. Particle physics was big at Glasgow and the influence of David Saxon was key to me choosing an experimental PhD in particle physics at the University of Liverpool, despite being more naturally drawn to theoretical physics.

What was your career progression?
Following my doctorate I became a software engineer with Data Connection in London. After five years of specialising in telecommunications, I found the work intellectually challenging but I knew that something was missing. Also, I wanted to return to Scotland, where I thought that the energy market and technology had exciting potential, especially in the renewables sector. I had an interest in energy. I knew that it was a sector that would develop and I found a job at a quango in the energy field. This organisation ran out of funding so a colleague and I decided to set up our own business as energy consultants. Our company has recently been merged into a larger company, SQWenergy, and we are in the process of establishing its energy division.

What job do you do now?
I am still working as an energy consultant, which involves giving advice to the public and private sector on how the energy markets work. This information can help the public sector to develop and evaluate energy policy, while the private sector can use our advice to develop strategies to best exploit the energy market.

What does the work entail?
The job involves forecasting the energy market, considering different scenarios for the future development of the sector. This kind of modelling is something that physicists excel at, since we are good at dealing with uncertainties and we know how to make decisions in the light of those uncertainties. The core day-to-day work involves researching and writing reports or writing proposals to gain work. I also read other peoples' reports for research purposes and a fair bit of time is taken

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Events mark the LHC's Scottish connection

Prof. Peter Higgs' Scottish connection was commemorated when the Large Hadron Collider (LHC) was switched on for the first time in September. There was a good deal of publicity, too, with interviews taking place with Prof. Higgs in Edinburgh, for *Newsnight,* and for Radio Scotland's *Newsdrive* programme. Radio 4 held a "Big Bang day", anchored by Andrew Marr. It is probably unprecedented for a scientific event to be covered in this way.

CERN

The LHC: sited in a 27 km long underground tunnel at CERN, Geneva.

At the Scottish parliament, the cross-party group about science and technology was briefed on the LHC's opening. There was also a ministerial briefing held on 10 September, followed by a press briefing. The cabinet secretary for education and lifelong learning, Fiona Hyslop, and the government's chief scientific adviser, Prof. Anne Glover, agreed to a briefing by a delegation of five from Edinburgh and Glasgow.

consultant

up with the management of the company.

What benefits does the job provide?
My work has a good deal of variety, with every project being different, although this does mean that you can't rest on your laurels. It is interesting and challenging and I am constantly learning new things. I like the fact that we help to influence policy makers to make decisions based on evidence, and we clarify the debate. I feel that we are providing a public service in that these better-informed decisions will impact on everyone's future. The job also provides opportunities to earn a living wage.

What personal skills or aptitudes do you need for the job?
You need a high degree of numeracy and an ability to focus on the important things, while sifting through a lot of data. Time-management and collaboration skills are essential. Communication skills are important, especially to explain complicated ideas in an understandable way. This is something that physicists are not always good at but I am lucky enough to work in a team with a good set of complementary skills. It's useful to have the confidence to ask questions and to admit when you don't know something. You gain the respect of people this way and it gives you a chance to drill a bit deeper into a subject.

What has been the highlight?
Starting the business was really exciting – when enough money was coming in to pay ourselves a salary. Winning our first big project was a real buzz but then the realisation set in that the work had only just begun.

How does your physics training help you in that work?
A physics degree helps you to understand models and the way that science works. It also gives you theoretical agility. The hard work it takes to understand the likes of Maxwell's equations or relativity pays off when it suddenly clicks. It also helps you to develop an instinct for solving problems and it becomes easier to see through complex scenarios. An intuitive understanding of uncertainties is another useful result of studying physics. You learn to think critically and to ask probing questions.

Physics training is special because you are like a mathematician who gets their hands dirty (or gets the occasional electric shock) and an engineer who knows the theory behind their work.

Alison McLure

The deadline for your contributions to the March 2009 issue

Monday 26 January 2009

E-mail your materials to alison.mclure@iop.org

Outreach truck tours Argyll and Bute

The Lab in a Lorry boards a ferry on its way to Argyll and Bute.

Lab in a Lorry completed a two-week tour of Argyll and Bute recently with the aim of scientific inspiration of young people in the region. The tour visited Dunoon Grammar School (with Rothesay Academy joining), Lochgilphead High School, Campbeltown Grammar School, Tarbert Academy, Islay High School, Tiree High School and Oban High School.

Designed to encourage positive attitudes towards science and to make science and engineering more attractive, Lab in a Lorry offers 11–14-year-olds the opportunity to explore the subjects through specially created interactive experiments. Lab in a Lorry in Scotland is a partnership between the Institute of Physics, the Offshore Training Foundation and the Scottish government. The Schlumberger Foundation is a founding partner.

Each lorry is fitted with three distinct laboratory areas where groups of up to six young people can take part in each of the fun and informative experiments. The programme is usually delivered by volunteers sourced from the area being visited – all practising scientists and engineers – and with at least one volunteer mentor to every six students, everyone gets to try their hand at experimental science, and to think about the surprises and questions that arise. However, given some of the remoteness in Argyll and Bute, a team of science and engineering ambassadors was assembled from across Scotland to take part, representing Glasgow University, Heriot-Watt University and the drinks company, Diageo.

Institute of Physics spokesperson Ian Cuthbert said: "Lab in a Lorry is a fantastic experience for young people. It generates excitement and curiosity in science by letting them explore experimental science for themselves with the help of expert mentors. Given the mobility of our programme, it is very important for us to visit geographically and socially isolated areas. The Argyll and Bute tour was possibly the best one yet and we were warmly received at every school in the area. We hope that we have managed to inspire a few of the students so that they might consider science and engineering in their future studies and careers."

Lab in a Lorry is continuing to tour Scotland with visits planned for Inverclyde, Dundee, North Lanarkshire and Aberdeenshire in 2009. For further information, visit www.labinalorry.org.uk.

Bursary scheme seeks physicists

The Nuffield Bursary Scheme enables fifth- or sixth-year secondary-school students who are interested in pursuing a career in science, technology, engineering or mathematics to work alongside practising scientists, technologists, engineers and mathematicians in commercial or industrial establishments, research institutions and universities.

The Nuffield Foundation awards each student a bursary to carry out a project that is designed to make a real contribution to the host organisation, as well as benefiting the student. During the project period, the host also shows the student the full extent of their organisation's work. The projects last, on average, between four and six weeks, and take place during the summer holiday.

The Institute of Physics in Scotland part-sponsored a celebration event so that the students involved in the scheme could have an opportunity to display what they have achieved during their placement. Participants could also meet and discuss their placement with other bursary students, supervisors and guests. This year has again been successful, with a total of 75 students taking part in the scheme throughout Scotland.

One of the bursary recipients working at Dundee Engineering.

The projects on show that involved physics were "Automated feature recognition with a newly commissioned astronomical CCD camera", University of Glasgow; "Spectroscopy of semiconductor light-emitting diodes and simulation of electron backscatter diffraction patterns", University of Strathclyde; "Optical trapping of aerosols using novel light beams", University of Dundee; and "An analysis of acoustic doppler current profiler with a view to tidal prediction", Heriot-Watt University.

We would like to increase the number of physics-based projects in future years. There are many benefits to agreeing to host a project, such as:

- spreading knowledge of your organisation's activities;
- bringing fresh thinking to your existing projects;
- developing staff skills through the mentoring of bursary students;
- strengthening links between industry and education;
- demonstrating your commitment to education;
- furthering the work of your organisation.

For more information about the scheme, visit www.nuffieldfoundation.org.uk/scb or contact your regional coordinator Frances Chapman (e-mail f.c.chapman@abdn.ac.uk, tel 01224 274191).

Relaunched Young Engineers Club needs leaders

Some twenty years ago the Scottish Council for Development and Industry (SCDI) launched its Young Engineers Club (YEC) Scotland initiative. The simple aim was to encourage the formation of a network of extracurricular clubs across Scotland that would help to provide a conduit for interested children, from primary school to the Scottish job market. The method of approach was straightforward: find a willing person at each level – usually a teacher but sometimes a youth leader or parent – to become a point of contact and enable them in any way possible to give encouragement and support locally, and also to feel connected to the bigger picture.

The clubs engage pupils in a range of hands-on science, engineering and technology activities, and many are supported by industry. Visit www.yecscotland.co.uk to see the success stories so far for all 275 YECs, stretching across the length and breadth of Scotland, from Orkney to Dumfries.

Renfrew High School tackle a hands-on technology challenge set by Rio Tinto Alcan at last year's Celebration of Engineering event.

At this time of radical rethinking in scottish education and with the introduction of Curriculum for Excellence, SCDI is again addressing the same need. Scotland's supply of highly trained and motivated engineers and scientists is paramount, and the urgent question of attracting and keeping our best is at the top of the agenda. The well established network is ready for expansion. To this end the Scottish YEC network has been retitled as Young Engineers and Science Clubs Scotland. There is now a golden opportunity with the ease of modern communication for every child in Scotland to have access to the extra encouragement that makes so much difference.

Running a Young Engineers and Science Club is an excellent cross-curricular activity. Becoming part of the Scottish network of clubs gives you access to a range of events, challenges, competitions and resources, and a start-up grant is also available.

A highlight of the year is the annual Celebration of Engineering event, which will be held in Glasgow on 19 June 2009, involving about 60 clubs from across Scotland showcasing their activities, sharing best practice and competing in an exciting technology challenge competition. The Institute's Lab in a Lorry will be at the event.

If you are interested in starting a club or would like further information, contact Jane Martin, project manager (Young Engineers and Science Clubs Scotland, Scottish Council for Development and Industry, Campsie House, 17 Park Circus Place, Glasgow G3 6AH, e-mail jane.martin@scdi.org.uk, tel 0141 352 8544).

Beltane launch stokes beacon's fire

The Institute's national officer for Scotland and several members of the branch committee attended the launch of the Edinburgh Beltane project in early October. This part of the Beacon for Public Engagement is a four-year project delivered by a partnership led by the University of Edinburgh. It is one of six UK beacons established to bridge the gap between researchers working at the cutting edge and the people that their research will affect.

The launch was made up of speeches from the principal and vice-chancellor of the University of Edinburgh, Prof. Timothy O'Shea, Sir Tam Dalyell, Mark Batho, chief executive of the Scottish Funding Council, Jim Mather, minister for enterprise, energy and tourism, and a satellite link with Piers Sellers, a NASA astronaut. Guests also had a chance to see some diverse exhibitions, from deep-space rocks (Royal Observatory Edinburgh) to science busking (National Museums of Scotland).

The idea of these exhibitions and other events organised by the Edinburgh Beltane is to encourage citizen participation in, and understanding of, research that is relevant to public policy, such as health and life sciences, energy, and the environment. This is with a view to embed a culture of public engagement in higher education institutions, and to encourage and to support researchers playing their part in society and policy making.

If you would like to find out more about getting involved with Edinburgh Beltane, contact Ruth Edwards (e-mail info@edinburghbeltane.net, tel 0131 650 4874, www.edinburghbeltane.net).

Workshop encourages participants to mix and manipulate images

The Pixel This workshop is a hands-on activity that complements the existing and exciting Pixel This science show launched in September 2006. During the workshop participants learn the basics of image manipulation and use high-tech equipment to mix images and produce their own VJ set. Participants are then able to burn their set onto a DVD that they can keep.

The workshop is wide-ranging in appeal, encapsulating S1–6 pupils. Its interesting youth initiatives are also designed to inspire and motivate the 16–25 age group, including young individuals who are in the "not in education, employment or training" category.

The workshop has been trialled at three schools in Renfrewshire. The participating pupils had a strong interest in technology subjects and ranged from S2 to S4 pupils.

Comments from students taking part included: "I enjoyed learning about things to do with the pixels" and "good fun but better if it was longer".

The workshop increased teacher enthusiasm for the subject from an original score of 3.7 out of 5 to 4.7 out of 5. Teachers' comments included: "beyond expectations, pupils were well involved – especially in the afternoon" and "an excellent workshop that gave pupils a chance to do something we cannot do".

This workshop has great potential for secondary schools and community groups. It will be added to the outreach programme for schools and groups in 2008/2009.

Gillian Lang

The Scottish economy needs physical sciences

Another meeting of the science and technology cross-party group was held on Wednesday 3 September in the Scottish parliament. The topic of the meeting was "The importance of chemistry and physics to the scottish economy". Sandy Dobbie from Chemical Sciences Scotland and Beth Taylor from the Institute of Physics spoke about the range of technologies and industries underpinned by these core scientific disciplines. They emphasised the need to inform policy makers and to excite young people about the opportunities that exist in these sciences and related engineering disciplines.

Not a lot of people know that the chemicals industry is one of Scotland's top export earners and that physics-based sectors contributed 9.4% of the economic output of Scotland in 2005. These and other fascinating facts were highlighted in an effort to inform parliamentarians of the importance of the physical sciences to Scotland.

The meeting also included a briefing about the launch of the Large Hadron Collider in Switzerland and, in particular, the Scottish connections to the work at CERN.

Alison McLure

Taskforce presents interim report about the future of Scottish universities

The Joint Future Thinking Taskforce on Universities was set up by the Scottish government to consider:

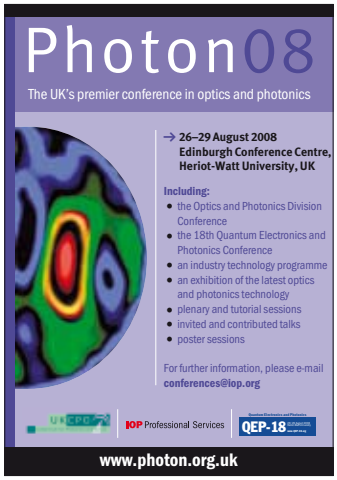
- how to optimise and shape the contribution that the Scottish university sector can make during the next 20 years to the Scottish economy, to Scottish culture and society, and to the political priorities of the Scottish government;
- what opportunities can be created and what barriers will need to be overcome to achieve that;
- what resources will be needed and how they will be provided.

Its interim report was published recently (www.scotland.gov.uk/Resource/Doc/82254/0061979.pdf) and has wide implications for how Scottish universities will be operated in the future. The Institute of Physics has made written comments about these proposals and attended a summit held at Glasgow Caledonian University to discuss the report, but what do you think of these proposals? Are they likely to affect your work?

The summit was held as part of the consultation about the future of Scottish universities. Fiona Hyslop, cabinet secretary for education and lifelong learning, emphasised that the universities are the jewel in the Scottish crown. The government would like the universities to be managed with a lighter touch while focusing on government outcomes for the nation. It is proposed that a tripartite advisory group will be established to decide on funding matters. This group will consist of the Scottish Funding Council, the Scottish government and Universities Scotland.

University funding is important to the health of the economy.

Sir Muir Russell, convener of Universities Scotland, explained that this initiative had arisen from concerns about the tight comprehensive spending review settlement and from competition with English universities, which have different sources of funding. He emphasised that Universities Scotland would like to maintain the dual support model and would like funding for universities in Scotland to be comparable with the rest of the UK. He also wants universities' contribution to the economy to be recognised and for them to be seen as the seventh sector.



Major conference held in Scotland

An important optics and photonics conference was held at Heriot-Watt University in August. Photon08 incorporated the QEP-18 conference organised by the Institute's Quantum Electronics Group, an academic programme coordinated by the Optics and Photonics Division, and an industry technology programme aimed at physicists and engineers in the photonics industry. During the event, Prof. Miles Padgett from the University of Glasgow was awarded the Institute of Physics Optics and Photonics Division prize for a "distinguished record of achievement in research that spans fundamental aspects of optical, angular momentum and applied optical sensors".

The biennial conference, which this year attracted more than 400 delegates, included an exhibition and tutorials. The next event is planned for 2010.

Do you have any ideas for branch events?

If so, e-mail them to alan.walker@ed.ac.uk

Science stakeholders discuss the UK government's vision document

On 9 October, 32 people with a special interest in science came together to discuss the UK government's Department for Innovation, Universities and Skills consultation document "A vision for science and society". The event was organised by the Edinburgh Beltane and the Scottish Resource Centre for Women in Science, Engineering and Technology. To initiate the discussion, we heard from Anne Glover, chief scientific adviser for Scotland, Alison McLure from the Institute of Physics, Geoffry Boulton, a vice-principal of the University of Edinburgh and general secretary of the Royal Society of Edinburgh and Donna Chisolm, science, technology, engineering and medicine (STEM) director for the Highlands and Islands Enterprise.

Prof. Glover spoke first about the need for science to engage with the public and outlined some of the activity that is already taking place. She wants the public to feel that science is fun and part of their achievements. She also stressed the need for organisations, including universities and industry, to work together to focus efforts on public engagement.

Alison McLure focused mainly on gender issues and the under-representation of women in the science and engineering workforces. She said that there were practical steps that could be taken, including working with schools, universities and industry, to create environments more welcoming to women.

Prof. Boulton said that scientists should be persuaded of the importance of engaging with the public. He called for a debate, where scientists explained what they were doing and asked the public what they thought about it.

Donna Chisholm spoke about the challenges facing rural communities and the steps being taken to address them. Work is under way to promote science in schools and elsewhere, and to help transform the region into an economy based on knowledge and skills, which offers a future to its young people and to others. However, when communities are called on to engage with decision-making processes relating to energy production and other issues, the quality of these science-related consultations sometimes falls short.

The open discussion that followed was in three parts, covering education, women and science, and technology and rural issues. There was recognition that scientists had to be enabled to engage effectively with the public. Challenges (particularly to do with resources) of working with schools were acknowledged. There were questions about how other countries, such as Italy, have managed to have a better gender balance in the sciences and there were suggestions about how cultural changes could be effected. The importance of outreach, particularly for rural areas, was stressed, as was the necessity for scientists to talk to the public about what they do.

Edward de Bono's Six Hats system was used as a means of ensuring that all viewpoints were considered and respected (as well as having some fun). The discussion was captured on a colourful mind map, as well as by note taker Jennifer Trueland. The discussion took place in a Scottish context and the event was led by Jenny Tizard, manager of the Scottish Resource Centre for Women in Science, Engineering and Technology, and Heather Rea, project manager for the Edinburgh Beltane.

Key messages from the event were linked to the relevant section in the UK government's consultation document and broad conclusions were drawn, as summarised below.

A new vision

In Scotland there are many public engagement activities but organisations must work more closely together.

A society excited by and valuing science

Public engagement must start at an early age. Scientists must be prepared to share what they do to improve public understanding and listen to what the public has to say. In high schools, science is studied in subject silos. This is artificial and hinders students' understanding and ability to relate science to their world.

A society that is confident in the use of science

It has never been more important for scientists to engage with the public. Rural areas face particular and serious challenges, and also offer some creative models of how to engage with science. They offer opportunities for connecting science and the environment (e.g. food, energy) and for engaging business, schools and researchers in this.

A society with a representative, well qualified scientific workforce

Women are under-represented in the science, technology and engineering workforce, particularly at senior levels. Active steps can and should be taken to change this culture.

The meeting was attended by individuals from Edinburgh Beltane: Beacon for Public Engagement, Napier University, UK Resource Centre for Women in Science Engineering and Technology, ESRC Innogen Centre, Our Dynamic Earth, University of Aberdeen, Graduates for Growth, Queen Margaret University, University of Edinburgh, Heriot-Watt University, Royal Society of Edinburgh, University of St Andrews, Highlands and Islands Enterprise, Scottish Agricultural College, University of Strathclyde, Institute of Physics in Scotland, and Scottish Resource Centre for Women in Science Engineering and Technology.

Heather Rea

What the Institute can do for you

At the Institute of Physics we are constantly looking for new ways to support our members, but I think that we sometimes forget to remind them of the benefits already available. I have outlined many of these below and, for further details, the Institute site (www.iop.org) is a good place to find out more.

As a reminder, the following are available to members:

- *Physics World* – the highly respected monthly magazine, reporting the latest news and developments in the world of physics.
- *Interactions* – the member newspaper of the Institute of Physics.
- Dedicated websites – for members, students, graduates, teachers and children.
- Conferences – in all areas of physics, from half-day briefings to large international events.
- Technical and professional groups and divisions – specialist subject groups provide a forum for discussion about progress in research and development, in pure and applied physics. Several groups working together form divisions, which promote an interdisciplinary approach.
- Journals – a range of more than 50 journals covering most areas of physics. Members can subscribe to up to three journals per year at discounted rates.
- Surveys and policy representation – an opportunity to express your views through periodic surveys for aggregation in Institute policy representation.
- Dedicated careers information – one-to-one support, as well as online and printed careers resources.
- Continued professional development – access to a range of general short courses for physics graduates.
- Chartered status – represents the highest standards of professionalism.
- Regional branch events – activities in your local area.
- Discounts and bursaries – discounted registration fees for conferences, journals and software. Travel bursaries for young members.
- PhysMail – a full web-based e-mail facility for members, including a forwarding service.
- 76 Portland Place – access to the Institute's members' room, as well as the opportunity to hire the professional meeting and conference facilities.
- Member diary – a 16-month diary and address book containing useful scientific data.
- Online services – convenient renewals and amendments of your member records.

Physics World, *the Institute's magazine, recently celebrated its 20th birthday. The website is a gateway for people of all ages and at all levels of their involvement with physics.*

Conference addresses ethical dilemmas in professional practice

The Institute's national officer for Scotland attended the annual conference of the Scottish Forum for Professional Ethics in early September. The forum is a voluntary association of professional bodies and interested individuals in Scotland, which aims to sustain dialogue and exchange between professions on the ethical basis and dilemmas of working life. The objectives of the forum are:

- to support professional bodies in Scotland and their members, as well as interested individuals, in serving the public interest through the highest standards of ethical practice;
- to nurture dialogue, exchange and collaboration between them;
- to maintain a network of professional bodies and their members, and of interested individuals in Scotland to promote the sharing of perspectives on the ethical dilemmas that are encountered in professional practice;
- to contribute to the public debate about the role of professional bodies in a changing society.

The conference set out to answer the following questions: What is the role of professional bodies in 21st-century Scotland? Are there professional values that they share in common? How can they best serve the public interest? Are there ways in which they might fruitfully collaborate? How can they promote higher standards of ethical practice in public life?

Most of the participants were from legal, medical or teaching backgrounds, but the questions above equally apply to those in a scientific field. Have you ever had to deal with an ethical dilemma through your job? I would be interested to know if you have any opinions about the ethical considerations in your field of work. As always, contact me (e-mail alison.mclure@iop.org) if you would like to contribute to the debate.

Alison McLure

Branch offers money for physics projects

The Institute of Physics in Scotland actively encourages its members and others to communicate exciting aspects and applications of physics to a wide audience. The branch's grant scheme is designed to give financial support of up to £2000 to individuals and organisations running physics-based events and activities. Examples of the kinds of events that we have funded are highlighted in most branch newsletters.

The aims of the grant scheme are to encourage and support the development of projects that:

- raise public awareness of, and engagement with, contemporary physics;
- inspire and enthuse young people, especially those not previously interested in physics;
- develop individuals' relevant communication skills;
- reach audiences beyond the classroom and workplace.

The committee has recently developed guidelines for these grants and would encourage all members to see if their great ideas might be able to attract our funding. For further details and an application form, visit www.iopscotland.org/activity/Engaging%20the%20Public/page_25699.html or contact Alison McLure (e-mail alison.mclure@iop.org).

Alison McLure

Don't forget to update your details at www.iop.org

Calendar of events 2008–2009

For an up-to-date listing of branch meetings, visit http://whatson.iop.org or www.iopscotland.org.

THE ROYAL SOCIETY OF EDINBURGH'S CHRISTMAS LECTURE

10 December 2008, 7.00 p.m.
Science and Arbroath in the 21st century
Prof. Anne Glover, chief scientific adviser for Scotland.
The Assembly Hall, Arbroath High School, Keptie Road, Arbroath DD11 3EA.
Chaired by Lord Wilson of Tillyorn, president of the Royal Society of Edinburgh.

A joint lecture with the Institute of Physics. Refreshments from 6.00 p.m.

IOP EDINBURGH EVENTS

These are held at the Royal Society of Edinburgh, 22–26 George Street, Edinburgh EH2 2PQ, and organised by Prof. Derryck Reid, Heriot-Watt University (e-mail d.t.reid@hw.ac.uk). A sherry reception is included starting at 7.00 p.m.

2 December 2008, 7.30 p.m.
Universal quantum computing
Dr Elham Kashefi, University of Edinburgh

20 January 2009, 7.30 p.m.
What next for nanotechnology?
Prof. Richard Jones, University of Sheffield

24 February 2009, 7.30 p.m.
Small satellites for environmental monitoring, defence and security
Dr Craig Underwood, University of Surrey

SENIORS GROUP

27 January 2009, 10.00 a.m.
Lunchtime rendezvous: University of Glasgow
Melville Room, Gilbert Scott Building (Main Building), University Avenue, University of Glasgow, G12 8QQ.
Programme:
10.00 a.m. Arrival and coffee/tea in the Melville Room.
10.15 a.m. Welcome and introduction by the Seniors Group coordinator.
10.20 a.m. Lecture: "Successful major construction projects can act as vehicles for research, innovation and education" by Roger Remington, formerly project director of Thames Water International, Reading, Berkshire.
11.10 a.m. Lecture: "Does God play dice with angels?" by Prof. Miles Padgett, head of the Optics Group, Department of Physics and Astronomy, University of Glasgow.
12.00 p.m. Guided tour (visit) of the Bute Hall.
12.30 p.m. Four-course lunch with wine (waitress service), with partners and friends.
3.00 p.m. Finish.

This is primarily a social occasion for the Seniors Group, but the talks are intended to be of interest to all. There will be an opportunity to discuss possible future events while breaking for coffee and lunch.

The cost, including coffee and a four-course lunch with wine, is £28 per person for members and their husbands or wives. Friends of members are welcome at a cost of £33 per person. A booking form can be downloaded from www.iopscotland.org/Conferences%20&%20Events/West%20of%20Scotland%20Events/page_31948.html and must be received by the Seniors Group coordinator before 22 January 2009.

ROYAL METEOROLOGICAL SOCIETY SCOTTISH CENTRE

Meetings are held at the Institute of Geography, University of Edinburgh, Drummond Street, Edinburgh EH8 9XP. Tea and biscuits are served at 5.00 p.m. and the meetings start at 5.30 p.m. Non-members of the society are welcome at the meetings.

12 December 2008
The future of the Royal Meteorological Society and our role in influencing public policy
Paul Hardaker, chief executive, Royal Meteorological Society.

9 January 2009
The Margary Lecture: Why observe climate change?
Simon Tett, chair of earth systems dynamics, University of Edinburgh.

13 February 2009
Postgraduate student evening
A climate impact of aviation: water vapour emissions from aircraft
Laura Wilcox, University of Reading
Relating forced climate change to natural variability
Owen Kellie-Smith, University of Exeter

The AGM of the Royal Meteorological Society Scottish Centre will take place at the start of the meeting.

13 March 2009
Landslides, rainfall and climate change
Mike Winter, regional director, Transport Research Laboratory

12 June 2009
Summer visit: Forth Ports, Leith
A coach will depart from Edinburgh at 2.00 p.m. Places can be reserved from 13 March. For further information contact the secretary, Richard Tabony (23 Pendicle Road, Bearsden, Glasgow G61 1PT, tel 0141 943 0523, e-mail rtabony@btinternet.com).

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