

PHYSICS IN SCOTLAND

The newsletter of the Institute of Physics in Scotland

March 2003

Come and support Congress 2003

All Institute of Physics in Scotland members should by now be aware that The Physics Congress 2003 is being held at Heriot-Watt University from Sunday 23 to Thursday 27 March. It is therefore appropriate that this issue is largely devoted to highlighting those elements of Congress likely to appeal to our members.

I would encourage all members to give their full support to Congress, which is being held for the first time in Scotland, both as individuals and with their partners and families. I look forward to meeting many of you at our member's evening and reception on Sunday 23 March, as well as at the many other events throughout the week.

Please also note the date of our forthcoming AGM and Annual Dinner (see p4). In the meantime, any members wishing to stand for election to the committee at the AGM should contact the honorary secretary.

Alan Harper

Chair, Institute of Physics in Scotland

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The Institute of Physics, 76 Portland Place, London W1B 1NT, UK.
Tel. +44 20 7470 4800.
Fax +44 20 7470 4848.

Teachers go back to school in June

The third in the highly successful series of summer schools will be held principally at the University of Edinburgh from 23 to 27 June 2003.

The aim of the school will be to bring together physics teachers from across Scotland to give them the opportunity to discuss, among other things, contemporary issues related to physics, physics education and applied physics.

The school will also provide a forum for teachers to meet, share and discuss ideas, and enjoy physics together.

The summer school will comprise a five-day programme led by recognized experts in the field. The lecture programme is

designed to give attendees an insight into key areas of physics, while the laboratory sessions will give them an opportunity to handle new apparatus and try new experiments.

As a result of generous sponsorship from EPSRC and Scottish Enterprise, participants will be provided with samples of components and apparatus to take away with them.

Time will also be allowed for discussion, giving attendees the opportunity to reflect on teaching methodologies and on the skills shortage affecting physics-based industry.

Organized visits will demonstrate applications of physics and its role in

underpinning industry. These will include a morning at the Institute for System Level Integration, The Alba Centre, Livingston and a day in Glasgow to see cutting-edge research in a university physics department.

The summer school is co-supported by The Institute of Physics; the University of Edinburgh; the University of Glasgow; the Scottish Executive Education Department; and Scottish Schools Equipment Research Centre.

The cost of the summer school is £150. For more details, please contact Jim Jamieson (e-mail: psa@sserc.org.uk) SSERC, St Mary's Land, 23 Holyrood Road, Edinburgh EH8 8AE.

Potential energy: Institute responds to consultation paper on renewables

In its response to the Scottish Executive's consultation paper on Scotland's renewable energy potential, the Institute of Physics in Scotland stated that: "It recognized and supported the assumptions on which the consultation was based. In particular that: liberalized and competitive markets will continue to be a cornerstone of future energy policy; it is vital to maintain security of supply; greenhouse gas emissions will need to be reduced significantly during the 21st century, both globally and in the UK, and the energy system is crucial to achieving this and other environmental objectives; competitiveness and affordability are key drivers of energy policy; achieving

greenhouse gas emission reductions will need major technological innovation with the potential for Scotland to take a market lead in renewable and low-carbon technologies and in sharply improving energy efficiency."

The Institute concluded: "Any strategy to satisfy Scotland's energy needs should be based on a diverse and sustainable generating capacity incorporating supporting storage mechanisms/systems together with a base load capacity generating minimal CO₂ emissions. It must, however, be recognized that: the commissioning of significant additional generating capacity utilizing renewables technologies will require major

reinforcement of the transmission network and radical changes to the way it is managed; trading arrangements will need to change; energy costs will need to rise. Any such strategy should also include: measures to encourage and stimulate research into, and the development of, energy conservation and generation technologies; measures to protect and enhance the local, national and wider environments; measures to encourage energy conservation; be supported by a regulatory regime that is aligned with policy and strategic objectives."

The complete text of the response is available at policy.iop.org/Policy_submissions.html#energy.

The Physics Congress 2003 – sele

CONFERENCE PROGRAMME

As always, many of the Institute's specialist and professional groups will participate in Congress, continuing a tradition of staging events to attract not only physicists but also scientists and engineers, involving leading speakers from the UK and abroad. There are nine major conferences (see congress.iop.org for details):

- Electrostatics 2003
- Single Biomolecule Physics
- Dielectrics for Emerging Technologies
- Preservation and Conservation Issues Related to Digital Printing and Photography
- Structured Optical Materials
- Waste Management
- Optics in Biomedicine and Life Sciences
- Worried About Nothing? – Measurement and Safety in Vacuum Practice
- Novel Light Sources and Displays

There is also a full programme to appeal to Institute of Physics in Scotland members, schools, teachers, PGCE/probationary teachers, undergraduate and postgraduate students, Young Physicists, members working in Industry and the general public.

Education Programme

Monday 24, Tuesday 25, Wednesday 26 March

The education programme includes organized activities for groups of S1/2 pupils on Monday and for P6/7 pupils on both Tuesday and Wednesday.

Details of these events, which are free of charge, have already been circulated to schools. Additional copies are available from Peter Ball (e-mail: peter.ball@iop.org).

A series of continuing

professional development programmes has been arranged for secondary science teachers, primary teachers and PGCE/probationary teachers on Monday, Tuesday and Wednesday respectively.

Details of these events have also been circulated to schools. Copies are available from Peter Ball (e-mail: peter.ball@iop.org). Monday and Tuesday's events for teachers cost £25 while the Wednesday event is free.

Science Policy Seminar

Tuesday 25 March 4.30–6.00 p.m.

Prof. Wilson Sibbett, the Scottish Executive's chief adviser on science and chairman of the Scottish Science Advisory Committee (SSAC); and Mr Roger McClure, chief executive of the Scottish Funding Councils for Further and Higher Education, will be the main speakers at this seminar, organized by the Institute's Department of Higher Education and Research Policy.

An open discussion will be chaired by Prof. David Wallace, the Institute's President, at which there will be an

opportunity to discuss the work of the SSAC; the role of the Scottish Executive and the Scottish Higher Education Funding Council in supporting physics higher education and research; and other general policy issues affecting physics in Scotland, such as the RAE 2001 and the government's new strategy for science.

Attendance at the seminar is free of charge but, because places are limited, prior registration at www.iop.org/cgi-bin/Confs/congreg2003a is recommended. For further details, contact tajinder.panesor@iop.org.

Sunday Family Science Funday

Sunday 23 March 10.00 a.m – 4.30 p.m.

This event provides free fun for all of the family, friends and guests. The activities on offer during the day include:

- astrodomes
- hands-on science exhibits and demonstrations
- robot demonstrations
- paper plane competitions – with prizes
- science panto – Thunderstruck
- arcs and sparks – electrifying demonstrations
- meteorite handling
- bouncy castles
- toddler science zone
- physics of ice-cream
- science in a suitcase – full of phacts and phun
- slime and chocolate

Fun for all of the family: there'll be something for everyone to enjoy at the Science Funday.



Institute of Physics in Scotland Member's Evening

Sunday 23 March 4.30 p.m.

Members and their partners are invited to a reception in the Scholars restaurant from 4.30 to 5.30 p.m. This will be followed by an entertaining lecture/debate from 5.30 to 6.30 p.m., entitled "Is Pluto a planet or an asteroid? What is a planet?"

Dr John Davies and Dr Suzie Ramsey-Howat from the Royal Observatory, Edinburgh, will conduct a lively debate about the evidence that Pluto may simply be an asteroid rather than the ninth planet in our solar system, as we have long believed.

Members and their guests are invited to join in the discussion and to share their opinions with the rest of the audience as opposing views clash in this light-hearted "astronomical" debate. The event is also

suitable for older children.

After the lecture/debate there will be a comet-making demonstration and an opportunity to handle some of the observatory's collection of meteorites.

Members and their partners may then, if they wish, enjoy a three-course evening meal with wine in the College Lounge. The meal, which costs £15 per head, should be prebooked by ticking the appropriate box on the Congress registration form (see www.iop.org/cgi-bin/Confs/congreg2003a).

It would help us with our catering arrangements if members wishing to attend the reception would indicate this to Peter Ball (e-mail: peter.ball@iop.org) by Friday 14 March, if possible. It would also help if members who are intending to stay for the meal could prebook by the same date.

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Young Physicists Dinner

Monday 24 March

Join students and young professional Congress attendees for an evening of good food, fine wine and great conversation at "A room in the town", a bustling Scottish bistro in the heart of Edinburgh's new town (see <http://www.aroomin.co.uk/thetown/>).

There will be a quiz after the meal. Some wine is provided but the bistro is "bring your own", so feel free to do so. Mature

students are very welcome.

Tickets cost £20. Please tick the appropriate box on the Congress registration form (www.iop.org/cgi-bin/Confs/congreg2003a) and you will receive details by e-mail.

Young professionals and students registered for any of the Electrostatics, Dielectrics or Digital Printing conferences can attend free of charge, but please let Sam Rae know in advance (e-mail: sam.rae@iop.org).

Physics in Action Evening

Monday 24 March
4.00 – 7.30 p.m.

This free event is open to all, including families, Brownies, Cubs, the Boy's Brigade and other after-school clubs. It will offer another opportunity for people to experience the Astronomes and Science in a Suitcase, and to enter a paper plane flying competition.

Young Physicists Social

Tuesday 25 March

Young professionals and Nexus members are invited to a night out at a funky bar in Edinburgh. For details, contact Joseph Hines (e-mail: joseph.hines@iop.org) or select the relevant box on the Congress Registration Form (www.iop.org/cgi-bin/Confs/congreg2003a). You will then receive details by e-mail.

EPSRC Student/RA Workshop

Wednesday 26 March

In this morning session, representatives from EPSRC will be present to make brief presentations and answer questions on issues relevant to the training of graduate students and postdoctoral research assistants. This event is free of charge. All students and postdocs are welcome. Issues to be considered will include:

- stipend levels
- prospects for the future
- development of career structure
- training courses
- changes in the employment regulations

For further details, please contact Peter Main (e-mail: peter.main@iop.org).

Plenary Sessions

All plenary sessions will be held in James Watt Centre I at 12.00–1.00 p.m. They are free of charge and open to all members.

Monday 24 March

Electrostatics and the lab-on-a-chip

Prof. Tom Jones, University of Rochester, USA

Tuesday 25 March

Science policy in government

Mr Tam Dalyell MP, Father of the House and MP for the Linlithgow

- How scientific learned societies, such as the Institute, can influence government policy on science.

- What activities the Institute could undertake to effectively raise the profile and awareness of physics research to government and its agencies.

- Science in society: what is the general public's perception of science and what more can be done to improve the public's understanding of scientific issues, such as climate change, mobile phones and nuclear waste?

Wednesday 26 March

Presidential address

Prof. David Wallace, vice-chancellor, Loughborough University and President of The Institute of Physics

Industry Day

Tuesday 25 March

The Industry Day will highlight the contributions of physics and physicists to the wider modern economy. It will embrace contributions not only to wealth creation but also to business processes, quality of life and wider society in general, and it will feature companies large and small.

Keynote addresses will be followed by case-study presentations and panel question sessions. Attendees will have ample opportunity for networking and to enter into discussion with others from the business and industry communities.

Details of the programme for this event are available at physics.iop.org/IOP/Congress/2003/Industry/programme.pdf. The one-day conference rate (see physics.iop.org/IOP/Congress/2003/Registration/index.html) applies.

Student Careers Workshop

Wednesday 26 March

This afternoon session will comprise a series of presentations and workshops on careers in physics aimed at undergraduate and postgraduate students.

Topics to be covered include:

- creative job hunting
- CVs
- interviews

There will also be a World of Work session in which young graduate physicists will be available to talk about their chosen careers. This event is free of charge. For details, please contact Sam Rae (e-mail: sam.rae@iop.org). Those attending should bring a copy of their CV with them.

If any members are willing to assist at any of the events at Congress, please contact Peter Ball (e-mail: peter.ball@iop.org).

For further information about any of these events, visit the Congress website at physics.iop.org/IOP/Congress/ or see the "Free fun with physics" flier enclosed with this newsletter.

CALENDAR OF EVENTS FEBRUARY TO SEPTEMBER 2003

Programme details of all Institute of Physics in Scotland meetings together with other physics/science-related talks are available at whatson.iop.org.

Please send your suggestions for both topics and venues for future talks and other events to your local organizer.

Monday 24 February 2003

10.30 a.m.–2.00 p.m.

Paperclip Physics 2003 Scottish Final

Reid Concert Hall, University of Edinburgh

5–7 March 2003

Science Education 2020 – Science Education in a Changing World

Edinburgh International Conference Centre
www.conference2020.org

9–16 March 2003

National Science Week

Tuesday 11 March 2003

Review of Optical Micromanipulation

Dr Kishan Dholakia, University of St Andrews
Informal sherry reception 7.00 for 7.30 p.m.

**Institute of Physics in Scotland
Annual General Meeting and Annual Dinner 2003**

Friday 30 May 2003

Glasgow – time and venue to be confirmed
Make sure your voice is heard on the future of the Institute in Scotland. Volunteers to serve on local teams and the committee are most welcome. The meeting will be followed by the Annual Dinner.

Full details will be circulated with the calling papers for the AGM with the April issue of *Physics World*.

**Institute of Physics in Scotland
Stirling Physics Meeting**

Wednesday 4 June 2003

Topics will include science policy in Scotland; improving science education 5–14, embedding assessment into learning and teaching; Intermediate 1 as an alternative to Standard Grade science; and teaching physics with digital content.

Further details will be sent to schools in late March.

Royal Society of Edinburgh,
22–24 George Street, Edinburgh

see pp2–3
congress.iop.org

23–27 March 2003

The Physics Congress 2003
Heriot-Watt University

9–11 April 2003

Institute of Physics Nuclear Physics Conference 2003

University of Glasgow
<http://nuclear.gla.ac.uk/iopnpconf>

11–22 April 2003

Edinburgh International Science Festival

www.sciencefestival.co.uk

23–27 June 2003

Summer School for Physics Teachers

University of Edinburgh

9–11 September 2003

Modern Practices in Stress and Vibration Analysis

University of Glasgow
www.mech.gla.ac.uk/Research/Dynamics/MPSVA2003.htm

Further information regarding the Institute of Physics in Scotland can be found at scotland.iop.org or obtained from Peter Ball, the representative of the Institute of Physics in Scotland.

Tel: (0)1383 853207

Fax: (0)1383 852856

E-mail: peter.ball@iop.org

The contact details of local organizers are given below.

BRANCH COMMITTEE MEMBERS 2003

Chair

Eur Ing **Alan J Harper** FInstP
Avecia, Earls Road, Grangemouth
FK3 8XG

Tel: (0)1324 494 072

Fax: (0)1324 494747

E-mail: alan.harper@physics.org

Vice-chair

Prof. D H Saxon FInstP

Faculty of Physical Sciences,
Kelvin Building, University of
Glasgow, Glasgow G12 8QQ

Tel: (0)141 330 4673

Fax: (0)141 330 4371

E-mail: Dean@physics.gla.ac.uk

Past chair

Heather M Reid FInstP

Broadcast meteorologist, BBC
Scotland, Broadcasting House,
Queen Margaret Drive, Glasgow
G12 8DG

Honorary treasurer/Aberdeen local organizer

Dr Alistair Flett FInstP

Easter Crichtie Cottage, St
Katherines, Inverurie,
Aberdeenshire AB51 8SR

Tel: (0)1651 891620

E-mail: amflett@hotmail.com

Honorary secretary

Dr Duncan P Hand FInstP

School of Engineering and
Physical Sciences, Heriot-Watt
University, Riccarton, Edinburgh
EH14 4AS

Tel: (0)131 451 3020

Fax: (0)131 451 3088

E-mail: D.P.Hand@hw.ac.uk

Media representative

Dr Gillian Lang MInstP

Glasgow Science Centre, Pacific
Quay, Glasgow G51 1EA

Tel: (0)141 420 5000

Fax: (0)141 420 5001

E-mail: gillian.lang@gsc.org.uk

Education representative/ ordinary member

Mr Michael McVey

Lourdes Secondary School, 47
Kirriemuir Avenue, Cardonald,
Glasgow G52 3DF

Tel: (0)141 883 4711

Fax: (0)141 810 5441

E-mail: mpjmcvey@hotmail.com

Industry representative

Mr Hillary G Sillitto FInstP

Chief engineer, Thales Optronics,
1 Linthouse Road, Glasgow G51
4BZ

Tel: (0)141 440 4951

Fax: (0)141 440 4051

E-mail: hillary.sillitto@uk.thalesgroup.com

Public understanding of science coordinator

Mrs Dorothy McMurrich MInstP

Physics and Astronomy,
University of Edinburgh, James
Clerk Maxwell Building, The King's
Buildings, Edinburgh EH9 3JZ

Tel: (0)131 650 5292

E-mail: d.mcmurrich@ed.ac.uk

Student representative

Mr J Glenn Davanna AMInstP

School of Engineering and
Physical Sciences, Heriot-Watt
University, Riccarton, Edinburgh
EH14 4AS

E-mail: j.g.davanna@hw.ac.uk

Ordinary member

Dr Norman E Fancey FInstP

Department of Physics and
Astronomy, University of
Edinburgh, James Clerk Maxwell
Building, Edinburgh EH9 3JZ

Tel: (0)131 650 5275

Fax: (0)131 650 5902

E-mail: n.e.fancey@ed.ac.uk

Ordinary member

Mr Gemmill Millar FInstP

Stewart's-Melville College,
Queensferry Road, Edinburgh
EH4 3EZ

Tel: (0)131 332 7925

Fax: (0)131 343 2432

E-mail: gemmell@2millar.freereserve.co.uk

Ordinary member

Mr Iain Ross

Tel: (0)7710 195691

E-mail: iain_ross@compuserve.com

Ordinary member

Dr Jo Beswick

Glasgow Science Centre

Pacific Quay

Glasgow G51 1 EA

Tel: (0)141 420 5010 x303

Fax: (0)141 420 5011

E-mail: Joanna.beswick@gsc.org.uk

**Dundee area local organizer
(co-opted)**

Dr David J Keeble MInstP

Department of Electronic
Engineering and Physics,
University of Dundee, Dundee
DD1 4HN

Tel: (0)1382 344561 (office)

Fax: (0)1382 348313

E-mail: d.j.keeble@dundee.ac.uk

**Edinburgh area local organizer
(co-opted)**

Dr Derryck Reid

School of Engineering and
Physical Sciences, Heriot-Watt
University, Riccarton, Edinburgh
EH14 4AS

Tel: (0)131 451 3652

Fax: (0)131 451 3136

E-mail: D.T.Reid@hw.ac.uk

**St Andrews area local
organizer (co-opted)**

Dr Bruce Sinclair MInstP

School of Physics and Astronomy,
University of St Andrews,
St Andrews, Fife KY16 9SS

Tel: (0)1334 463118

Fax (0)1334 463104

E-mail: b.d.sinclair@st-andrews.ac.uk