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The Institute has been working to:

“develop, set and maintain standards and values, including ethical, professional and technical,
that relate to the application of physics and engineering in medicine and biology”

“promote and develop education and training, including continuing professional development”

“accredit degree courses and training centres”

“commission and publish scientific works to disseminate scientific knowledge and best
practice”

“promote and encourage research and development in the design, operation and safe and
effective use of medical equipment”

“inform the public and policy makers about the work of physics and engineering in medicine “

from 2009 Annual Report and Financial Statements on www.ipem.ac.uk

2009 Annual Review is also available
to download from www.ipem.ac.uk
Introduction

Scientists, engineers and technologists working in universities, hospitals and industry are involved in designing, constructing, clinically evaluating, commissioning, operating, prescribing and maintaining medical equipment which is vital for health and patient care.

Few people go to hospital, or even their GP, without an imaging investigation or the application of an electronic medical device. All of this equipment has been developed by scientists and engineers working in universities, industry or hospitals, frequently with groups of scientists working together across organisational boundaries.

Many IPEM members work to facilitate, innovate and interpret and all have a strong focus in their work on ensuring patient safety.

Those who facilitate ensure that the right equipment is in the right place at the right time. Their understanding of the technology enables them to advise clinicians and Trust managers when new equipment is being purchased. Many clinical engineering technologists maintain and monitor the performance of equipment and some train staff and patients to use them correctly and safely.

Innovative service development is an increasingly important role for both physicists and engineers as Trusts seek to develop new, more clinically and cost effective clinical services. Some members have a key role in translational research by linking relevant university departments and private companies undertaking the research and product development to relevant colleagues in the clinical environment where carefully controlled trials can be conducted. As new clinical services become established physicists and engineers in Clinical Technologists roles frequently provide these services as advanced practitioners.

Some Clinical Scientists in hospitals provide consultant advice on the interpretation of complex imaging investigations or therapies. They may also prescribe, for example, specialist seating for wheelchairs or develop complex plans for radiotherapy treatment of cancer.

The Institute supports the work of scientists, engineers and technologists working in medicine, or seeking to better understand human health or disease. IPEM has developed a committee structure capable of actively supporting research and educational activities through the Science Board, professional development and training programmes through the Professional and Standards Board and facilitating networking within specialist Advisory Groups each representing members working in different roles.

IPEM Structure – May 2009

[Diagram showing the structure of IPEM, including the Board of Trustees, Council, Advisory Groups, Professional and Standards Board, and other committees and committees.]

[Further information on IPEM's committees and roles, linking to the Science Board, Professional and Standards Board, and Advisory Groups, and their responsibilities within the IPEM framework.]
The Institute, through its members, volunteers and staff, brings together a wide range of skills and experience. Its aim is to facilitate the application of science and engineering to the development of knowledge and public benefit in health and wider human endeavour in the biological sciences.

This review presents some but not all of the Institute’s activities in 2008. Much of the detail is omitted because of a lack of space, as are initiatives that are still in embryonic development. More information can be seen in the Institute’s general publications such as SCOPE and the Newsletter and on its website. Although a number of areas are highlighted below in this President’s report, many others are equally of interest.

It is encouraging to see the quality of articles in the Institute’s journals, which is an indication of the ability and commitment of individuals to research. It is notable how much international work is published, indicating a healthy cross-fertilisation and interaction between research groups in the UK and overseas.

The Institute’s Annual Scientific Meeting in Bath showcased in a new format how much innovation is going on and stimulated lively and impassioned debate. The scope of topics falling under the Institute’s umbrella is very wide, which puts the Institute in a good position to support the development of science and engineering in its target areas as boundaries between disciplines become increasingly blurred, and to work in creative partnership with other professional bodies. For example, discussions were progressed during the year on planning a UK Bioengineering Congress, with links established to the newly-formed and academically-based Bioengineering Society.

The Institute is aware that it needs to develop its external profile. Appointing a Vice President for International Affairs in 2007 began to focus the Institute’s attention on improving the depth and breadth of its relationships with overseas bodies and societies, relationships that will increasingly underpin collaborative work across the professional spectrum.

This was followed in 2008 by appointment of a Vice President for External Affairs, to explore how the Institute might work with other bodies and groups in the UK to increase its profile and become more influential in the discussion and formation of government policy. This post enables the Institute to contribute more effectively to a number of policy issues, including working with other bodies on a response to the Wakeham report to highlight the importance of medical physics to the future of UK physics.

The Institute was aware of the need to equip individuals to engage with external issues. It encouraged individuals to become ambassadors for physics and engineering in medicine and biology, not only by sending scientists on media training but also by supporting the involvement of members in careers activities in schools and colleges.

A particularly valuable role is played in this area by more junior members of the profession and by trainees; for example, they provide a major input to courses run by the Smallpeice Trust to introduce bioengineering to school age students, a course which IPEM financially supports. Also a number of universities now have individuals who publicise the profession to undergraduates and postgraduates, targeting those on appropriate courses.

The strength of individual achievement, in successful completion of the Institute’s training schemes, is undergirded by the careful and caring supervision and assessment provided through local trainers and the Institute’s volunteers. ‘Train the trainer’ sessions were run for technologists and support networks funded for clinical scientists. The Institute recognises the importance of providing good mentoring and development to professionals at all stages of their career, and lobbied the Department of Health throughout the year to include funding for trainers and for individual development as part of future plans to modernise the NHS workforce.

An exploratory session on leadership was held as part of the ASM in Bath, and work continued on schemes for continuous professional development to help individuals retain voluntary and statutory registration with a number of external bodies.

There are positive signs that new entrants to the profession are of high calibre, which promises well for the future.
Improvements in governance arrangements for the Institute have been made possible this year following major changes to the Rules of the Institute.

At the Council meeting in October 2008 I was able to announce the approval of members by ballot for new Rules for the Institute. All trustees serving on Council then agreed to proposals to create a Board of Trustees which is separate and distinct in purpose from the Institute’s Council. As an interim arrangement for one year two Council members were appointed as trustees to work with the Honorary Officers on the Board of Trustees.

Joint meetings of the Board of Trustees and Council were held in October 2008 and January 2009. In April 2009 for the first time the Board of Trustees met separately on the day before Council.

At the Board of Trustees meeting in July 2009 the trustees formally appointed an external trustee and a new member trustee, both having been selected using the new processes developed by the Nominations and Appointments Committee. Over the next two years the Board will appoint a total of three external trustees and two member trustees able to provide independent scrutiny of Institute committees, the Secretariat and the decisions of the five honorary officers. In the interim the Honorary Secretary and elected Incorporated Member due to retire from Council in September 2009 have both agreed to serve as member trustees for a year.

Memorandum and Articles of Association for the Institute have been reviewed and updated this year to reflect recent changes in charity and company legislation and the new Committee Structure and Rules of Institute. These revised documents have been approved by the Board of Trustees and Charities Commission and the Engineering Council UK and Science Council have been notified.

Terms of Reference for the Board of Trustees, Council and their sub-committees have been reviewed and developed to provide detailed information about the committee membership, terms of office and inter-relationships with other committees. This process will roll out during 2009/10 until all sub-committees and panels have a clear appreciation of their role and responsibilities and how to communicate with other parts of the Institute to achieve their aims.

During my work updating and reviewing Institute documents over the last two years I have been reminded of many past colleagues who have helped to shape the Institute and predecessor organisations. The importance of earlier generations of scientists and engineers was highlighted at the Institute’s Annual Dinner in Bath in September 2008. Those attending had the opportunity to meet three founder members of the Hospital Physicist’s Association, formed sixty years earlier in 1948. The Institute celebrated their pioneering work by making each of them Honorary Fellows.

On behalf of the membership of the Institute I thank all our members who contribute their time and specialist expertise to working in IPEM committees and as IPEM representatives. This Annual Review highlights their achievements in the form of reports, publications, scientific meetings and the support of professional development which collectively improve the safety and effectiveness of healthcare delivery.

Membership of the Institute

At July 2009 includes:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellows, including Honorary Fellows</td>
<td>290</td>
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<tr>
<td>Corporate</td>
<td>1302</td>
</tr>
<tr>
<td>Incorporated</td>
<td>583</td>
</tr>
<tr>
<td>Associate (Scientist)</td>
<td>659</td>
</tr>
<tr>
<td>Associate (Technologist)</td>
<td>341</td>
</tr>
<tr>
<td>Student</td>
<td>173</td>
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<tr>
<td>Affiliate</td>
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<td>Overseas Affiliate</td>
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</tr>
<tr>
<td>Medical Fellow</td>
<td>1</td>
</tr>
<tr>
<td>Medical Associate</td>
<td>1</td>
</tr>
<tr>
<td>The total individual membership stands at</td>
<td>3478</td>
</tr>
</tbody>
</table>

It is with regret that we record the deaths of the following members notified during the past year: Mr David Preece, Dr Michael Glabus and Mr Brian Godfrey.
Honorary Treasurer’s Report
Mr Alan Thompson

The financial position has remained strong through 2008. Income has continued to achieve levels above budget expectation. Expenditure remains in line with budgetary expectations however as in previous years some expenditure has been deferred until the next financial year.

The financial situation remains strong with income outstripping expectations and the expenditure remaining in line with the budgetary forecast. The outcome shows for the second year a significant predicted £121k deficit being turned into a £222k surplus.

The income received as gift aid from IPEM Enterprises Ltd (IEL), showed a record income of £165k which was over 113% above budgeted expectation. Interest from reserves also showed an increase of £15k (30%) above the budget prediction (EXT income stream on the graph below).

The Professional Standards and Development income stream (PSD) also showed a healthy increase of nearly £54.5k over budget. Each main area of income contributed to the overall increase.

However, income from the ASM really did perform above expectations but this was matched by an increase in expenditure.

Expenditure on Professional Standards & Development was £20.7k (12.1%) below expectation, whereas expenditure on Publications and Science & Technology was above expectation by £23.4k (29.2%) and £17.7k (9.5%) respectively.

It is only after allocating the internal support costs; which are basically made up from staff, buildings and administration costs; that the true picture emerges as shown on the graph opposite. When comparing Actual Income with Expenditure inc staff and support only Publications are in net surplus and Science & Technology income (essentially meetings income) would have to double before that income stream showed a surplus against the expenditure essentially the cost of the meetings and activities like the Science Board and the Special Interest Groups). See graph opposite.

Governance costs (GOV) showed a small deficit against budget whilst Staff and Support costs (S&S) were inline with predicted costs.

We have been fortunate that the income streams have held up in 2008 and look as if they will remain strong in 2009. However in the current economic climate and with MSC and other initiatives in the pipeline we cannot be complacent and the need to develop new income streams remains as important as ever.

2008 also saw major refurbishment work on the office building in York and this will continue in 2009. A major financial commitment was also taken by Council and the Trustees to improving the public facing side of the Institute as well as providing the back office facilities to both the staff, committees and members through the commissioning of a new website platform. It is expected that this will be completed by the end of 2009.

Finally, I would like to thank all members for their valuable contribution in making IPEM a financially viable organisation.

I would also like to thank the members of the Finance and Business Planning Committee, Neil Macdonald, Finance Manager and Nicola Parkinson, Finance Assistant for their diligence, patience and advice.
Communications Committee  
  
Dr Diane Crawford  

Formed by Board of Trustees and Council in October 2008 this committee comprises previous members of the Communications Working Group and the Vice President of External Affairs.

Our remit is to oversee the development of external and internal communications for the Institute and we are responsible for optimising the channels of communication with members, the media, the public, policy makers and other organisations.

A major focus over the last year has been to support the Website Editor in the planning, commissioning and development of a new membership records system and website (see website Editor’s Report). Our focus has been to ensure that key people within the IPEM office and Institute’s committees are able to contribute to this process to ensure that the new website will better meet the needs of members, office staff and the general public. We are also taking the lead role in ensuring that updated text and images are prepared so the new public access website will be attractive and informative.

Other activities include: supporting the Assistant Honorary Secretary and Regional Chairs in developing regional activities and preparing for the Annual Regional Consultation Meeting; supporting the Vice-President for External Affairs and updating the IPEM logo.

Finance and Business Planning Committee  
  
Mr Alan Thompson  

This committee enables detailed discussions on financial and business planning issues between the President, President-elect, Honorary Treasurer, Honorary Secretary and two elected members of Council with the General Secretary and relevant members of the Secretariat, usually the Finance Manager and International Manager.

See Treasurer’s report for more details

Nominations and Appointments Committee  
  
Dr Diane Crawford  

This committee was formed by the Board of Trustees and Council in October 2008. Interim committee membership this year comprises Honorary Secretary, President Elect, Dr Peter Jackson and Ms Christine Segasby to ensure broad representation.

Our work has focused on establishing robust processes for seeking and appointing independent trustees to work with Honorary Officers on the Board of Trustees.

A skills-gap analysis was used to identify desirable characteristics for external trustees to achieve a good balance of skills and experience on the Board. This provided the basis for an advertisement seeking external trustees (non-members interested in the aims and activities of IPEM and who have previous experience in being charity trustees). The application, selection and interview process we have developed for the Institute adheres to best practice guidance. Seeking a member trustee independent of the principal committees was achieved through internal advertisement to the membership and Trustee review of the applicant’s Curriculum Vitae and references.

Professional Conduct Committee  
  
Professor Peter Williams  

The Professional Conduct Committee (PCC) Constitution and Terms of Reference approved by Council in 2007, included a provision that up to three members of the Committee should be independent of the Institute’s membership and not employed in the NHS or universities, from which the majority of the Institute’s members are drawn. This was an incremental change in moving towards best practice.

At the Annual Meeting of the PCC held in September 2008, it was agreed to recommend to the Trustees that two people who had served as Independent Chairs of previous Disciplinary Panels, and whose contributions had been highly regarded by the IPEM members of those Disciplinary Panels, should be appointed as independent members of the PCC. This recommendation was approved by the Trustees in January 2009.

One complaint concerning members’ professional conduct was received in 2008. An Investigating Panel considered information submitted by the complainant and the subject member, and concluded that that the matter about which the complaint was made, if proven, was not one which was a clear breach of the Institute’s Code of Professional and Ethical Conduct and that no Disciplinary Panel hearing was justified.
Science Board

Dr Nick Stone

Science Board (SciB) is responsible for advancing physics and engineering as applied to medicine and biology and this work is mainly delivered by special interest groups (SIGs). SIGs organise scientific meetings, develop guidelines to improve service quality, contribute to professional issues, provide expert input to external organisations and key consultations and this year SIGs are more involved in organising the annual scientific meeting.

Other committees contributing to the work of Science Board are the MPEC Organising Committee and the Prizes and Awards Committee.

The Science Board (SciB) is responsible for the scientific work of the Institute. This work is delivered by the special interest groups of IPEM. The SIGs have been given a wider role this year in delivering scientific meetings; providing increased input to the annual scientific meeting; responding to professional issues; developing guidelines to improve service quality; and providing expert input to external organisations and key consultations. All of these outputs make a strong contribution to the Institute’s objectives of advancing physics and engineering as applied to medicine and biology.

This year has involved a transition from the previous complex committee structure within IPEM to a more streamlined approach with greater transparency and reporting structures. This followed a review of the Institute’s structures to make sure that they remain as effective as possible at delivering our charitable objects. Increasing calls on volunteers time when representing IPEM has led us to reduce our meeting cycle from four to three per year. This will begin fully from September 2010. This will involve the rescheduling of all committee meetings to synchronise carefully with each that we report into and enable rapid response and approval of key issues. We will continue to consult and discuss within the committees using electronic means and seek to improve and streamline approval processes.

Through Science Board and the SIGs, the Institute is represented on a diverse range of external bodies and committees allowing IPEM to have influence in a myriad of areas related to the Institute’s objectives. This is my first year as the Chair of Science Board and it doesn't cease to amaze me how much time and effort is provided in supporting our objectives through the SIGs and Science Board.

Over the past year, almost 20 one-day meetings have been run or supported by the SIGs. The range of these meetings covers both improvements in service delivery and novel scientific developments to provide for the needs of both clinical and academic members. Some of the most successful include those on topics ranging from ‘Clinical Engineering: Working like clockwork’, ‘Practical Dicom’, ‘Current and future directions of NM’, ‘Managing motion in radiotherapy’ and the ‘Biennial ultrasound meeting’.

The Annual Scientific Meeting in Bath was rated very highly by most attendees and was a first step in the process to move from a purely local organising committee to a SIG supported and led meeting. Mark Tooley successfully chaired the meeting and melded together SIG and local representatives to produce an excellent programme. This involved the innovative use of proffered sessions incorporating a plenary overview, oral presentations of posters and discussion.

Highlights of the first-rate programme of invited lectures were the Woolmer Lecture, delivered by Professor Clive Hahn on the ‘Bioengineering Aspects of the Lung: Models and Measurements.’ and the Klevenhagen Lecture, delivered by Professor Jan Langendijk. IPEM also makes an important contribution to the UK Radiological Congress (UKRC), sponsoring the John Mallard lecture.

This year Dr John Cunningham presented a talk on ‘Terahertz imaging and spectroscopy - current and future modalities’.

Science Board supports a wide range of working parties, reporting via the SIGs, involved in development of practice guidelines to support members in delivering high quality services to the public. Furthermore, Science Board members have contributed to a number of externally produced documents such as ‘Sense about Science: Making Sense of Radiation’ and the RCR/IPEM/COR ‘Guide to implications of Ionising Radiation (Medical Exposure) Regulations in Radiotherapy’.
Prizes and Awards Committee

Dr Chris Gibson

The Prizes and Awards Committee supports the charitable activities of IPEM by providing bursaries to assist with communication and dissemination of research findings, together with a number of prizes to encourage excellence and innovation in healthcare.

The majority of bursaries are awarded to assist with attending scientific meetings in the UK and abroad.

For the year ending 31st May there were 10 successful applicants, sharing a total of £6,043.52. However, this is not the only purpose for which bursaries can be awarded, and the scheme has recently been extended to include International Awards specifically to support physics and engineering applied to healthcare in the developing world.

The Committee has also reviewed the initial outcomes of the IPEM Research Fellowship scheme, and with only two awards fully completed to date the Committee is cautious about recommending further immediate investment on this scale.

ASM 2008 Organising Committee

Dr Mark Tooley

THE 2008 Annual Scientific Meeting (ASM) was held at Bath University, with around 200 delegates attending the mixture of lectures, interactive poster displays, manufacturers’ exhibition and social events. The conference was themed around the letter ‘B’ for Biology, demonstrating the many multidisciplinary interfaces with physics and engineering.

Delegates who braved the howling wind and rain, on the night before the conference began, were rewarded with a hot meal at the ASM welcome buffet. For those who were taking the networking opportunity in earnest, the Parade bar beneath the restaurant was open until late. One West Midlands trainee later described the event as ‘fantastic’. A successful start to the conference!

On Tuesday 2nd September, delegates awoke to a bright sunny morning. Mark Tooley (Chair of the Organising Committee, Bath) extended a warm welcome to delegates for both the IPEM conference and the Radiotherapy Biennial Meeting.

Kevin Edge (Deputy Vice Chancellor, University of Bath) spoke briefly about research currently being performed at Bath University and stressed the importance of the promotion of science and engineering to young people. He wished all participants an informative, stimulating and enjoyable three days.

MPEC 2009 Organising Committee

The Medical Physics and Engineering Conference (MPEC), formerly Annual Scientific Meeting, for 2009 will be held from 14-16 September at Liverpool Hope University.

SPECIAL INTEREST GROUPS

Clinical Engineering SIG

Mr David Hyde

The most notable achievements of the committee have been three highly successful conferences, plus the continuation of the very popular Medical Engineering Technologists Study Day.

The subject of equipment management databases may sound mundane, but these systems are highly critical to the running of departments and much interest was generated in this well attended conference (“Working Like Clockwork – the Equipment Management Database”, Birmingham, October 2008). Many examples of innovative use of systems were presented.

Keeping up a profile in device development was the topic of a conference held at the Innovation Centre in Coventry (“Challenges in Device Development”, Coventry, December 2008). Delegates were given excellent guidance on the process surrounding development, such as routes for support, how to get commercial partners, how to approach CE marking. The day was capped with a worked example of a design successfully taken to market from a NHS-based Medical Physics group.
The third conference again broached a hot topic in equipment management ("Playing Poker on the Bench – Risk Based Maintenance", Birmingham, March 2009). Several stimulating talks were presented, including one by a clinical engineer from Australia describing an international strategy to obtain reliability data from manufacturers.

Diagnostic Radiology SIG

Mr Steve Mutch

The SIG has been working to improve scientific practice in many areas of diagnostic radiology, working closely with external organizations where appropriate. A "QA training day for radiographers" was held for a second time in November last year. This meeting continues to prove popular and remains an important source of training in this area. A one day scientific meeting about fluoroscopic imaging was held in May and was very well received by attendees. New technology and ways of working were discussed in this open forum for the first time. Future topics for scientific meetings include dental radiology and the development of an automated image analysis software tool (IQWorks).

The SIG continues to develop important advice and has been working closely with the HPA on new guidelines for dental cone beam CT. New arrangements for updating and extending the ImPACT CT Dose Calculator are being developed with ImPACT and HPA. The SIG has also been working with an eye to the future and is currently working with the National Imaging Board on new device evaluation and general guidelines in the area of cardiac imaging.

Emerging Technologies SIG

Dr Elizabeth Dymond

ETSIG has been concerned that its activities did not fit well within the SIG format as its brief was wider ranging across all SIGs and also less well defined than by a single specialty. Discussions within ETSIG and Science Board emphasised that IPEM still needed a resource on innovation and Council accepted the proposal from Science Board to disband the Emerging Technologies Special Interest Group and thanked the current SIG members for their contribution to the work of the Institute.

Council also asked Dr Liz Dymond to prepare a proposal for forming a Research and Innovation Advisory Group to support the work of Council and appropriate Institute sub-committees as both the research and innovation landscapes are changing rapidly and such changes represent opportunities for IPEM and its members.

At the time of the Annual Review going to press, this work is still in progress.

ETSIG will continue to run until the AGM in Liverpool in September. Louise Shaw has organised our IP clinic session and we've assisted in planning the Innovation & Leadership session.

Informatics and Computing SIG

Mr Ed McDonagh

ICSIG organised a well-received meeting on “Practical DICOM” last October. We are planning “Automating your QA image analysis - IQWorks” jointly with DRSIG for October 2009, followed by "IQWorks for developers" early next year. November will see a meeting entitled “Practical Networking: establishing trust and responsibility between IT and Medical Physics”. Future topics include 'Oncology Management Systems', followed by 'High performance clusters for modelling'. We have also established a Working Group to produce software-development guidelines which should result in a free electronic publication in 2010, followed by a scientific meeting on the topic.

The training and recognition of Computational Physicists as Clinical Scientists is an on-going concern: we have re-examined existing training competencies and contributed to the MSC Curriculum Workshops. To further raise the profile of scientific computing we are organising training sessions at MPEC in Liverpool including networking, DICOM and the use of web-based tools. ICSIG has also agreed to start a computing tutorial series in SCOPE, and has had an article on Oncology Management Systems published in three European journals.

We continue to investigate how Open Source Software can be used clinically, attempting to engage with recent Government proposals for the use of OSS in the public sector.

Magnetic Resonance SIG

Dr Glyn Coutts

A working party is now established to produce a report on “Quality Assurance in MR” to replace the now withdrawn Report 80.

An impact assessment is currently underway of various proposed amendments to the delayed EU (EMF) Physical Agents Directive, due to report in September 2009, and the MR SIG has provided input to this process.

We remain attentive to developments as well as all aspects of MR safety. We are represented on the BIR MR Safety Working Party, and the next biennial MR Safety meeting is due to take place in November. The MR SIG is working on a proposal for registration of MR Safety Advisors to be put to RPA2000 by the Accreditation Working Party. In conjunction with this we are investigating the current provision and likely demand for recognized safety advisors in clinical MR services as well as research groups and industry.

The MR SIG is continuing to forge links with the wider community of MR scientists. In February IPEM provided sponsorship for the Annual MR Symposium for PhD students and Post-Docs, and in September we will be running a workshop at the British Chapter of the International Society of Magnetic Resonance in Medicine annual conference in Cardiff on research opportunities in the clinical setting.
Nuclear Medicine SIG
Ms Wendy Waddington
The SIG works to actively promote and support good scientific and technical practice in Nuclear Medicine Physics. In February we ran a successful meeting on “Developments in Nuclear Medicine Imaging Technology” attended by nearly one hundred people - despite London experiencing its worst snowfall for nearly twenty years the previous day.

In late 2008 a global 99m-Technetium supply shortage occurred, whose effects are now being felt more regularly due to the increasingly fragile supply of its parent nuclide 99-Molybdenum; being dependent for production on a very small number of now aging nuclear reactors. Critically, 99m-Technetium is the most heavily used radionuclide in nuclear medicine and urgent steps are being taken by governments and international bodies to provide solutions. The SIG is continuing to work with the British Nuclear Medicine Society to promote strategies that can assist in reducing its effects on the delivery of a clinical nuclear medicine imaging service.

Recognising significant current developments in nuclear medicine; the rapidly increasing utilisation of PET, multi-modality imaging and radionuclide therapy, and the severe shortage of trained nuclear medicine scientists and technologists, the SIG is actively engaged with the Department of Health Modernising Scientific Careers programme to reconfigure its training schemes for these groups. The SIG has also responded, both alone and with other SIGs, to various requests for formal consultation by the DH, the Health and Safety Executive, the Environment Agency, and the Health and Safety Executive.

Physiological Measurement SIG
Dr John Pickett
The Physiological Measurement Special Interest Group (SIG) has been active this year in organising and co-sponsoring a diverse range of scientific meetings. A very successful and well attended meeting on “Neurophysiological Intra-operative Monitoring” ran in November, stimulating the formation of Neuromonitoring-UK, a new group for technologists, physiologists and scientists with interests in intra-operative monitoring. Further meetings are planned on thermal physiological measurements, patient safety and urodynamics, in addition to a study day addressing the needs of Part 1 trainees in physiological measurement.

We also continued our association with the Institute of Physics Instrument Science and Technology Group through co-sponsorship of the annual “Optical Sensors in Physiological Measurement” meeting and have contributed to the organisation of two sessions at the new format “Medical Physics and Engineering Conference”.

The Group has provided representatives for a number of consultation events related to the Department of Health’s Modernising Scientific Careers programme and we are also involved in the ongoing process of curriculum development.

The past year has seen the evolution of the group with a new chairman and secretary. For the coming year we look forward to welcoming new members to the core SIG group and also to adopting the new SIG structure which will allow us to draw on the wide experience of new corresponding members.

Radiation Protection SIG
Mr Eddy Rafiqi
RPSIG continues to be actively involved in Radiation Protection issues at meetings, workshops, responding to enquiries, corresponding with legislators, and liaising with other IPEM SIG’s and external organisations.

The annual “RPA Update” meeting, normally held in June, is the main event organised by RP SIG. IPEM members involved with Radiation Protection Advisory work, or those who are training to become RPAs, together with legislators, attend this meeting and discuss legislation and practical issues, including incidents.

The Department of Health’s (DH) Emergency Planning Guidance document has had input from a number of organisations, including RPSIG. It will be published on the DH website after it has been approved by Parliament.

The Health and Safety Executive (HSE) will be forming three stakeholder working groups covering; Public and Environmental radiation exposures, and Medical and Occupational radiation exposures. This is in preparation for a UK response to the forthcoming European Communities (EC) proposal to recast the Basic Safety Standards (96/29), and other Euratom Directives. It is expected that RPSIG and other SIG groups, and/or IPEM members, will participate in the working groups.

RPSIG has responded to the second phase of the Environmental Permitting Programme (EPP2). RPSIG will be required to respond to the remaining consultations for the Environmental Permitting Regulations (England and Wales) 2010; the new regulations are likely to replace 95% of the Radioactive Substances Act 1993 (RSA93). A review of the Exemption Orders (EO) is also taking place.

At the present time, RPSIG members are discussing topics for future meetings, e.g. radiation protection in the design of departments using ionising and non-ionising radiations.

Representatives from RPSIG sit on a number of external committees, e.g. the Society of Radiation Protection (SRP) and the British Institute of Radiology (BIR), and working parties. Work of this nature leads to publications.

Radiotherapy SIG
Dr Carl Rowbottom
The Radiotherapy Special Interest Group has provided a number of scientific meetings over the past 12 months on topics such as “Managing Motion in Radiotherapy” and “Current Developments in the Design of Radiotherapy Treatment Room Facilities”. We have also organised a “Codes of Practice Study Day” in collaboration with the NPL and it is hoped that
this will be a recurring event. Meeting topics for the next year include PET/CT in radiotherapy, and Brachytherapy.

Two joint RCR/SCoR/IPEM reports relating to radiotherapy have been published this year; “On Target: Ensuring Geometric Accuracy in Radiotherapy” and “A Guide to Understanding the Implications of the Ionising Radiation (Medical Exposure) Regulations in Radiotherapy”. A number of other IPEM working parties are close to completion and reports on Small Field Dosimetry, HDR Brachytherapy Calibration and Staffing Guidelines for a Radiotherapy Physics Service are nearing publication.

The SIG has maintained its focus on professional issues with RTSIG nominees involved in a range of activities including the Cancer Peer Review Standards update and an NCEPOD study into radiotherapy, as well as the Radiotherapy Development Board and National Radiotherapy Implementation Group. The SIG has also been involved in the Modernising Scientific Careers curriculum group.

The SIG is keen to maintain its current portfolio of interests whilst also looking at ways of providing new CPD opportunities and support for the radiotherapy physics community, for example by organising study days for technologists and trainee clinical scientists.

**Rehabilitation and Bio-mechanics SIG**

*Mr Richard Caley*

Following on from last year’s spotlight success REBSIG has another exciting perspective on: “Electronic Interfacing Devices for Specialist Tissues” in the pipeline. Our wheelchair stability conference was a great success and we are now planning a specialist seating workshop, and other conference topics including gait analysis, user centred design and robotics. Professor Yorick Wilks (Robotics & Artificial Intelligence, University of Sheffield) will be providing the keynote lecture at ASM2009 on “Software agents and applications in medicine”

REBSIG has proactively supported this year the development of NICE guidelines, workforce planning, National Occupational Standards, and educational courses for Clinical Technologists. We are also forging new links with the Society for Research in Rehabilitation, and the UK & Republic of Ireland chapter of the International Functional Electrical Stimulation Society. REBSIG has also developed close contact with ATCare, a design & development resource which aims to speed up the process of getting more assistive technology products to the commercial market place.

There will be an injection of new members in December to continue driving on REBSIG’s exciting agendas to stimulate and support the development interests of our IPEM membership.

**Ultrasound and Non-Ionising Radiation SIG**

*Mr Trevelyan Foy*

Physicists and engineers within this Special Interest Group (SIG), by definition, deal with the medical uses of forms of energy which do not have the ionising effects of ‘X’ and ‘gamma’ rays. These include ultrasound (a mechanical form of energy), the electric and magnetic fields used in Magnetic Resonance (MR) and the optical radiation used in lasers and phototherapy. Some of the techniques are now well established for both diagnosis and therapy but this field is exciting because it also contains technologies which are “emerging”.

Whether established or emerging, the demands of modern healthcare are for technologies to be clinically effective, cost efficient and safe. In the last year, our SIG has been active in addressing these demands by:

- Organising a conference on the “Physics and Technology of Medical Ultrasound”
- Following up the issues highlighted by the “Illuminated and Enlightened” conference regarding the implementation of the European directive on artificial optical radiation (dealing with occupational exposure to light) and with the consequences of the proposal to de-regulate the non-surgical use of lasers in the private sector
- Overcoming difficulties in arranging insurance to allow a proposed workshop in measuring laser power output to take place

Our group has benefited from good cooperation with other agencies to achieve these aims.

Looking to the future, the UNIRSIG will actively foster a range of publications, scientific meetings and practical workshops to assist healthcare employers in meeting the requirements of the UK implementation of the Artificial Optical Radiation Directive (AORD). Already in the pipeline are publication of a revised version of IPEM Report 76 “Phototherapy Physics: Principles, Dosimetry, Sources & Safety”, a laser measurement workshop, and the biennial LPA update day scheduled for spring/summer 2010.
The activities of PSB, like in previous years, are centred around the provision of Clinical Scientist and Technologist training, mainly in the United Kingdom but also increasingly in a few centres abroad. The Professional Standards Board, as can be seen from this report, consists of many constituent panels and committees covering all aspects of training. The training centre accreditation sub-panel, for example, review the ability of training centres to be able to provide work based training to an appropriate standard whilst the course accreditation sub-panels ensure that the academic courses in Medical Physics and Clinical Engineering accredit MSc programs for Clinical Scientists and BSc programmes for Technologists.

Summary of Key issues / Events Over the Last Year:

- ECuk invited institute to become professional engineering institution responsible for accrediting recently established professional engineering MSC courses;
- CSETP developed Caldicott guidance to Part I trainees to ensure their portfolios are compliant with their employing trusts requirements;
- Provision of series of workshops for those involved on the Technologist Training Scheme
- Continue to develop and refine electronic on line guide for Technologist Training Scheme
- PSB contributed to the Modernising Scientific Careers Listening events held by the Chief Scientific Officer, Professor Sue Hill and contributed to the consultation report produced by the Institute, in line with other Professional Bodies. We still eagerly await the implications that Modernising Scientific Careers will have on our current training schemes.

Dependent on the outcome of MSC it might be timely to review structures within PSB in line with MSC thinking. Careful consideration needs to be made as to whether the accreditation panels for both courses and training centres need to be amalgamated so that Clinical Technologist and Clinical Scientist accreditation is done by a single panel for course or centre accreditation. This would ensure a greater pool of people than currently exists. Over the year it has become difficult to undertake some course accreditation, especially that for Technologists, within the timeframe required by HEI's.

With increasing workload in our everyday work future models need to be investigated, which may financially recompense departments for their staff expertise. The positive and negative implications of such a move need to be carefully reviewed in more detail over the next year. Unfortunately progress on the introduction of Clinical Technologists onto a statute register has almost been non-existent.

Whilst considerable changes are occurring we should grasp the opportunities to influence the process and identify where our current schemes have been successful but equally identify weaknesses. The report of the constituent panels follow this report.

As this is my last report as Director of the Professional Standards Board I would like to thank the CSETP and CTETP chairs and associated sub-panels for their help and support during my tenure. I would also like to thank the secretary of PSB, Sam Morris for her support along with Cathy Brown in the office at York.

The Professional Advisory Group (now to be called the Professional Committee) takes an overview of professional issues across the Institute and provides coordination of effort between different committees and groups.

The Group prepared guidance on the management of Medical Physics departments, which was issued by Council. There was particular concern about possible consequences as experienced staff retire and the clear but unmet need for effective succession planning, both to equip individuals for the future and to ensure continued professional input to management.

The Group worked more closely with the Workforce Review Team to look at survey data and plan the collection of data from members in 2009. Representations were also made to include radiation physics and rehabilitation engineering staff on the Home Office shortage occupations list.

Work continued to provide input to the Modernising Scientific Careers project being run by the Department of Health and the three other UK administrations.

The importance of UK-wide representation on the Group was recognised by the addition of individuals to the membership from Wales and Northern Ireland.
Membership Committee

Professor Dick Lerski

The membership committee was resurrected in 2008 and has met once so far (February 2009). The meeting scheduled for June was cancelled due to the number of apologies from members. Another meeting is being arranged for September/October 2009.

The role of the membership committee is being discussed and new Terms of Reference written. There is active consideration of the categories of IPEM membership and whether there is any scope for rationalisation of the various categories. Proposals will be available in the autumn.

There is some difficulty with overseas candidates for membership concerning the issue of ‘supporters’. This is also being considered.

Professional Development Panel

Ms Claire Hardiman

Continuing Professional Development (CPD)

This year was the third full year for the operation of the Institute’s new CPD Scheme. The Professional Development Panel carried out the third annual audit in May 2009. The outcomes are being communicated to the members involved. As in previous years, the audit findings will be published in the newsletter and on the website.

Arrangements for the monitoring of the CPD of all Chartered Scientists registered by IPEM, to facilitate CSci revalidation, were agreed with the Science Council Registration Authority.

Post Registration Training

Work is on-going on the development of a Training Course to address professional training that is not specifically addressed by the Scientific Interest Groups (SIGs). This course aims to cover some of the subject matter that was requested by the membership through the Post Registration Training Questionnaire.

Accreditation of Short Courses

The Panel has submitted a proposal to develop a process to commission and accredit short courses, this is being actively developed.

Ionising Radiation (Medical Exposure) Regulations 2000 Course Approval

Mrs Karen Goldstone

The IRMER Approval panel has had another quiet year. It re-approved a course for operators of bone densitometry equipment organised by the National Osteoporosis Society. No other courses were submitted for approval or re-approval.

A proposal was submitted to the Professional Standards Board suggesting that the Panel review its purpose and remit in the light of changes in clinical practice and developing staff roles. This work is now underway.

In England, the Care Quality Commission is now the enforcing body for IRMER and this may have some impact on the way training is delivered, recorded and audited. It is therefore timely for IPEM to review, with interested parties, the role of the panel and its membership.

Clinical Scientist Education and Training Panel (CSETP)

Dr Chris Callicott

The purpose of CSETP is to coordinate and develop those activities of the Institute which relate to the training and examination of trainee clinical Scientists for Membership, and assist in their preparation for their meeting the requirements for registration with the Health Professions Council. CSETP also provides advice on these and related matters to the Institute.

Earlier this year, Engineering Council UK invited IPEM to become the Professional Engineering Institution responsible for the accreditation of recently established professional engineering MSc courses. These courses are designed to enable employees to continue their studies to postgraduate level whilst remaining in full-time employment and may provide a route by which some members of our profession gain the educational qualifications necessary to obtain CEng. Following the acceptance by Council of this invitation, CSETP is working with the Undergraduate Engineering Course Accreditation Panel and the Engineering Board to define the Institute’s course accreditation requirements.

At the request of Council, CSETP prepared a paper setting out its recommendations regarding how the Institute might develop its accreditation of overseas training, whilst taking into account likely changes in UK requirements as part of the Modernising Scientific Careers project.

During the year, CSETP has also developed guidance to Part I examination candidates to help ensure that their portfolios are compliant with the patient anonymity requirements of the Caldicott Report as set out by the Trainee’s Employing Trust.

Training Centre Accreditation Sub-Panel (Scientists)

Mr Andy Rogers

The Sub-Panel has continued its work to ensure trainee clinical scientists and engineers engaged upon Part I training receive quality training. This work includes assessing applications from centres to train, receiving reports from External Training Advisers (ETAs) and Examiners, and conducting our own audits of centres.

Last year, it was reported that a proposal had been made to strengthen the Sub-Panel’s ability to monitor quality. That proposal was accepted and the membership of the Sub-Panel increased to include an External Training Adviser (ETA) representative, and a Training Co-ordinator representative. This has already resulted in the development of direct email communication links with ETAs and Training Co-ordinators. An audit tool for ETA visits to training centres has been developed to ensure the Sub-Panel receives data to provide assurance regarding the quality of training delivered.
The Sub-Panel is also keeping an eye on the DoH project to modernise scientific careers to ensure that, where appropriate, IPEM will have systems for any new proposal for pre-registration training of clinical scientists and engineers.

Course Accreditation Sub-Panel  
**Dr David Parker**

The Sub-Panel’s role is to accredit MSc programmes in Medical Physics or Medical Engineering in connection with the Clinical Scientists’ Part I Training Scheme. The list of currently-accredited programmes appears on the IPEM website, and accreditation usually lasts for 5 years. This has been a light year for the sub-panel: two courses whose previous accreditation was due to expire and one course which had been substantially revised were assessed and reaccredited. Hamish Porter has left the sub-panel and been replaced by Andy Nisbet; David Bradley also retires from the sub-panel this year having served for 5 years.

Chief Examiner  
**Dr Steve Pye**

IPEM objectives include the promotion of education and the development and maintenance of training standards. Members of the Board of Examiners play a key role in delivering these objectives through their involvement in the Part I Training Scheme, and particularly by carrying out end-point assessments of Medical Physics and Clinical Engineering trainees.

Trainees undertakes three clinical placements and are assessed by portfolio and viva in each subject. The purpose of these assessments is to test scientific ability and to allow trainees to proceed to Part II Training and subsequently to registration as Clinical Scientists with the Health Professions Council.

The majority of trainees presenting for examination during 2008 were trained in a combination of Radiotherapy Physics with either Nuclear Medicine, Diagnostic Radiology or Radiation Protection. This is in line with the requirement for skills in these areas and broadly matches the vacancies advertised for clinical scientist posts. 79 trainees took Part I examinations during 2008, and there are currently 47 examiners covering the 15 specialist subject areas within physics and engineering.

The requirements for Part I assessment continue to be disseminated via presentations at the Trainee Induction Day, Regional Trainee Meetings, and articles published by APEN in the IPEM Newsletter.

Part I Registrar  
**Ms Karen Venables**

Part I Training is undertaken in a range of subject areas within medical physics and clinical engineering. Training is carried out within an accredited training centre and provides a base from which further training and the prospective scientists/engineers career can develop. Successful completion of the Part I Training leads to the award of DipIPEM.

The Part I Registrar reviews both Part IA and Part IB forms to check that training is taking place in accredited subjects and centres. This year has seen over 90 candidates in 21 training centres register for the scheme.

Discussions have taken place regarding candidates who wish to undertake training on a part time basis and changes have been made to the forms to highlight trainees who wish to pursue registration for CEng via the IPEM scheme.

Part II Registrar  
**Dr Geoff Lawrence**

Part II Training prepares Associate Members of IPEM for recognition as competent professionals by attaining registration with the Health Professions Council, Corporate membership of IPEM and Chartered Status as a scientist or engineer. Each trainee follows an approved individual plan of structured advanced training and supervised experience in a specialised area of medical physics or clinical engineering.

In February the first Part II Induction Day took place with considerable success. It gave new and prospective trainees an understanding of the whole process from enrolment through to final assessment. Different aspects were addressed by invited speakers, followed by lively discussion prompted by questions from the audience.

During the coming year a workshop is planned for IPEM-nominated assessors and directors of the Association of Clinical Scientists, which undertakes the final assessment of nearly all trainees. This would aim to achieve consistency of approach in some areas where published guidance is open to different interpretations, e.g. the assessment of breadth and depth of competence for those trainees with experience in more than one sub-modality. Most assessors also act as External Advisers for Part II Training, so this workshop should enable them to give consistent advice on these matters.

External Advisers play an important role in maintaining training standards and IPEM is always very pleased to receive offers to serve in this capacity from suitably qualified and experienced members.

Clinical Technologists’ Education and Training Panel (CTETP)  
**Mr Paul Robbins**

The Clinical Technologists Education and Training Panel oversees all aspects of training for Clinical Technologists. The panel manages the Institute’s Technologist Training Scheme, accredits academic courses provided by higher education institutions and accredits local training centres and consortia to provide practical training. Activities which show the practical delivery of the Institute’s prime objective – the advancement of physics and engineering in medicine and biology - by developing a modern, skilled, effective workforce.
Amongst the successes for 2009 have been:

- Provision around the UK of a series of skill workshops for all those involved in making the scheme work.
- Continuing to develop and refine the electronic on line guide to the training scheme.
- Developing further detailed training opportunities for training scheme supervisors, and moderators to be given on an annual basis – watch out for details of these in the coming months through the IPEM meetings programme.
- Working with a private sector training provider and their HEI partner to add to their foundation a 3rd year top up to BSc level – this is a major piece work still progress watch out for future news of this initiative in the Institute’s Newsletters.
- Development of Rehabilitation Engineering technologist competencies – hopefully these will be on line shortly.
- Promotion of technologist learning through support through the provisional of discipline specific meetings.

Still to do and forming part of the panels aims for the next 12 months are:

- Adding to our developing range of engineering competencies by developing Clinical Engineering, and Radiotherapy/Radiation Engineering technologist competencies. This will be a major piece of work that needs to reflect now and the future. As such to be successful this project needs a dedicated team to do it, so if you have strong views on what makes a competent engineering technologist we want to hear from you.
- Adding to the number of accredited courses in the applied medical physics sector.
- Responding in conjunction with the Technologist Advisory Group to requests from PSB and Council to technologist (practitioner) related issues surrounding the Modernising Scientific Careers Programme.

Any training scheme is only as good as the people committed to it, and there are currently opportunities to work with CSETP itself, or one of its sub-committees, or in a specific area of work such as, a moderator, the IPEM office has details of roles available.

Training Centre Accreditation Panel (Technologists)  
Mr Alan Thompson

As anticipated, over 10 Training Centre applications were received in 2008 due to the ending of the transitional arrangements introduced when the Clinical Technologist Training Scheme was first launched.

Due to the nature of the Clinical Technologist Training Scheme the proportion of departments waiting to have a single person or a small number of individuals join the training scheme is high. Whilst this is not a problem it does raise issues about the consistency in the planning and delivery of training.

Training Centres are encouraged to use existing competency documents that are available through IPEM. Ideally all work placed trainers should have appropriate workplace training qualifications. It would be wise for Training Centres to consider allowing their trainers to gain qualifications as this will be likely to be a growing requirement in the future.

It was planned to separate the accreditation panel from the Clinical Technologist Training and Education Panel (CTETP) however since the membership is almost identical it was been agreed for the immediate future to deal with training scheme applications electronically and discuss them at CTETP when necessary.

Course Accreditation Panel  
Mr Paul Robbins

This panel exists to support the Institutes’ charitable aims of a safe professional workforce by providing a mechanism for independently confirming that courses provided by Higher Education Institutes fulfil the requirement of meeting the ideal syllabus content as found on the VRTC website.

The panel itself meets and operates on an ‘as required’ basis, to date this year members of the panel have spent time through the Technologist Advisory Group and CTETP itself working with Eastwood Park and Kingston University over the development of a BSc top up for their established Foundation Degree.

The panel continues to work with Eastwood Park and hopes for an application for accreditation for both the foundation degree and the BSc top up in due course.

It is also a pleasure to advise the membership that the panel has recently undertaken accreditation exercises at Coventry University in relation to their Rehabilitation Engineering program.

As a result, subject at this point in time to formal ratification by the Professional Standards Board, formal accreditation has been given to the Coventry University Diploma in Rehabilitation Engineering and accreditation in principle has been given to the Universities BSc Rehabilitation Engineering Program.

Registrars  
Mrs Diane Allen & Mrs Barbara Dawson (Physics)

2008/09 has again seen an increase in the number of students on the technologist training scheme.

Unfortunately the number of moderators has decreased, mostly because of retirement, so we have had difficulty is coping with the demand.

We will, during the next 12 months, be contacting departments who are accredited by IPEM for technologist training to ask them to supply names of people to act as moderators (as agreed in the application for accreditation).
Mr Lindsey Yuile (Engineering)

The last year has seen a noticeable increase in activity. Not only in numbers of trainees for different Scopes of Practice but also in numbers of Training Centre Applications. Further progress has been made with more Higher Education Institution involvement, especially with respect to Medical Engineering at one Institution and Rehabilitation Engineering at another. In these early stages of establishing HEI qualifications some problems have still to be addressed and ironed out.

Uncertainty with the final outcome of the Modernising Scientific Career programme has been another issue that has impacted on the IPEM training scheme. Never the less the best reference point that we have right now is the Draft Scopes of Practice published by the VRCT (Voluntary Register of Clinical Technologists).

VRCT has recently announced that it has accepted the Clinical Technologist Training scheme organised by the Association of Renal Technologists (ART), which is an Affiliated Society of IPEM. Therefore, ART should be approached by any technologist wanting training in Renal Engineering. At present there are 22 Medical, 10 Rehabilitation and 6 Radiotherapy Engineering trainees registered with the IPEM scheme.

In the last year 8 Certificates and 32 Diplomas for Engineering Clinical Technologists have been awarded.

Chief Moderator

Ms Tina Jones

I would like to start my report by thanking all those involved in the training to our Clinical Technologists. In 2008/09 we were able to at last deliver the much needed training days for supervisors, co-ordinators and external moderators. The training days were well attended with venues in York, Birmingham, Glasgow, London and Bristol. Feedback from these days is being reviewed and changes being incorporated into the electronic handbook. Further changes will be made following comments from members now using the handbook.

Whilst the training scheme is running relatively smoothly, it has been noted again that a number of students are requesting Viva deferment. We believe the amount of college work, and clinical work is impacting on the student’s ability to deliver their portfolios. Departments are reminded that there is a commitment, at accreditation, to allow students study time in addition to educational leave. Equally students need to manage their time appropriately.

Finally I am sure you are all aware that we are in changing times with regard to the impact on training on the Modernising Scientific Careers project. CTETP are watching closely the proposals and working with everyone at IPEM to make the concerns of the Clinical Technologists known.
The four journals serve constituencies in the broad scientific community that IPEM represents. All are produced by established scientific publishers, Institute of Physics Publishing in the case of PMB and PM, Elsevier for MEP and Informa for JMET.

I must acknowledge the excellent support that we receive from the publishers - without this, the journals could not be the successes they are.

In last year’s report, I announced the appointment of Professor Richard Bayford as Editor in Chief of Physiological Measurement. Richard is now well established in that role, and we are seeing his plans start to bear fruit. The journal continues to develop, and we look forward to further growth.

*Physics in Medicine and Biology*’s position as the premier medical physics journal is well established. Professor Steve Webb has recently accepted reappointment as Editor in Chief, which is excellent news. Steve’s influence on the journal, and the innovations that he, his editorial board and the team at IoPP have made all point to continued success.

At *Medical Engineering and Physics*, Sally Clift has continued developing the journal, which has seen another substantial increase in Impact Factor. This is a key indicator of the prominence of the journal.

John Woodcock, Editor in Chief of *Journal of Medical Engineering and Technology*, has been working diligently with the publisher, Informa, to establish the journal in its market. There have been a number of changes at Informa that have caused some disruption, but I am pleased to say that these are now behind us. Marc Miquel, the new (this year) Editor of SCOPE, has single-handedly made a number of small but important changes to the journal.

The quality of SCOPE is outstanding, but currently relies heavily on Marc’s commitment and that of a very small team.

Much of PubComm’s work this year has been rather inward-looking, responding to the major changes in IPEM’s organisation, and updating the processes, particularly for publishing reports. As chairman, I am delighted – and somewhat surprised – that the Committee has maintained its focus, commitment and good humour throughout some rather tedious tasks.

In the revised structure, PubComm is changing to becoming a sub-committee of the new Communications Committee. This recognises that publication is one, essential, component in IPEM’s communication with members, the profession and the public.

Since this is my final report as PubComm Chair, I should like to record my sincere thanks to all my colleagues on the committee, whose help, support and cheerful comradeship have made the job very easy.

My special thanks go to our secretary, Peggy Arnell. Without Peggy’s guidance and help, I should certainly have lost the plot! I am grateful, too, to Marie, Elaine and Robert from the office in York for their support.

**SCOPE Editor**

*Dr Marc Miquel*

Once again, this year saw a lot of changes in the editorial team. Both Dr D Cowan, engineering editor, and Mrs S Misson-Yates, book review editor “retired” after years of loyal service. Recruiting replacements and new editors has been a struggle but no less than 5 new members have joined our team. Dr Constantinos Zervides is our new engineering editor and kindly agreed to double-up as academic editor. The members’ news section has now a dedicated editor in the person of Matt Gwilliam. A new international news section appeared this year. Its aim is to keep us up-to-date with anything related to Medical Physics and Engineering abroad; from conferences to call for international proposals, publications to revolutionary discoveries. To cover the world and so many topics no less than three editors were recruited: Mr Andrew Gammie (Developing countries), Mr Richard Amos (North America) and Dr Ryan Lewis (rest of the world). We have been quietly working away on the new online publication and hoping it will become live in the not too distant future.

**Website Editor**

*Mr Geoff Cusick*

In last year’s report, I wrote that we had been working on a requirements specification for a major redevelopment of IPEM’s website. I am pleased to report that substantial progress has been made with that project, and that the new system should be up and running before the end of 2009.

We have contracted with Content and Code Ltd to develop a new website and a number of associated systems, most notably a new membership database. The new site will be based on Microsoft SharePoint, a widely used platform that provides not only web content management but also tools for collaboration, document libraries and so on.

The first phase of the project has been completed, filling in more detail of our requirement and planning the phases of the project. The development method that Content and Code use means that they will deliver functional parts of the system at quite short intervals.
We will have to test and evaluate discrete parts of the system as they are developed, with the feedback from the evaluation informing subsequent parts of the development. The new site will be launched, we expect, before the New Year.

IPEM JOURNALS

Journal of Medical Engineering & Technology  
Professor John Woodcock

Over the last twelve months the number of submitted papers has increased by 40%. This increase approximately coincides with a change to an all electronic submission system. There were a number of teething problems to the new system, including non-delivery of papers to referees, but these have now been overcome, and the system appears to be working well. The rejection rate currently stands at 26%.

The number of issues per year has increased from 6 to 8, from January 2009. Following a dramatic increase in the number of submissions from the UK, and a large increase also from the United States. The average time from submission of a paper to the final decision stands at 69 days, but this is biased by the huge delays which occurred in the changeover to all electronic submission. This should decrease dramatically in the next year. One instance of plagiarism was discovered, where whole paragraphs were taken without reference to the authors.

Medical Engineering & Physics  
Dr Sally Clift

Medical Engineering and Physics (MEP) has continued to grow in status in the past year. The impact factor for 2008 is 2.216, an encouraging increase on the 1.471 for 2007. Ranking in the Engineering/Biomedical subject category has now moved up to 17th position out of the group of 51 journals, compared with the 25th position occupied last year.

There were 451 manuscripts submitted in 2008. Acceptance rate has remained very steady; in both 2007 and 2008 it was 27%. Consistent with many publications, online usage figures have also shown strong growth; during 2008 there were approximately 180,000 full text article downloads.

We have an annual journal prize, the Perkins Prize, which is awarded to the best paper published in MEP in a given year. For the 2008 issues of the journal, this paper is awarded to: Inhomogeneity of tissue-level strain distributions in individual trabeculae: Mathematical model studies of normal and osteoporosis cases Medical Engineering & Physics, Volume 30, Issue 5, June 2008, Pages 624-630 Amit Gefen, Sigal Portnoy, Idit Diamant

Finally, I wish to thank our Editorial Board, international reviewers and all the Elsevier MEP staff: Tamara Lucas, Jacqui Merrison, Gaynor Jones and Frankee Woodham-Kay for their continuing hard work.

Physics in Medicine & Biology  
Professor Steve Webb

Having served as Editor in Chief for 3 years (2006-2008) I was happy to accept to serve for a further 3 years until end 2011. In 2008 PMB published 531 contributions in 7276 pages, two volumes per month. The mean receipt to first decision time was 53 days, mean receipt to acceptance time was 122 days and mean receipt to publication time was 144 days. The acceptance rate was 46% ensuring high quality. The total article annual downloads passed the half million mark this year, up 12% overall on 2007. Featuring key papers on MedPhysWeb is known to assist this result. PMB continues to be regarded as the key international journal for medical physics.

The Board met twice in 2008. As key Board members have concluded their appointments we have been fortunate to replace them with equally well-qualified international members. Both the Board and International Advisory Board are strong and complete. The Board regularly debates all aspects of journal management and improvement and secures an excellent rolling programme of review articles.

The Rotblat Medal for most cited paper was awarded to S Jan et al (PMB 49, 4543) and the Roberts Prize for best paper (by FIPEM College vote) to JP Schlimoka et al (PMB 53, 4031)

As Editor I am in daily, sometimes hourly, contact with a really excellent publishing team in the Bristol IOPP Office, headed by Simon Harris and assisted by Jon Ruffle. Without them the journal, IPEM and Editor would have a hard time. I wish to record my heartfelt thanks

Physiological Measurement  
Professor Richard Bayford

The journal is continuing to grow in size and stature. Submissions are now received in a steady rate and show an encouraging increase each year, and the total article downloads also continue to increase year by year. The Impact Factor (IF) is down 2% on last year, which is not significant, considering that the 2006 IF had actually risen by 35%.

It was also noted that almost all the journals in the Biomedical Engineering field were suffering from shrinking IFs. The current Impact Factor is 1.412 however there are signs that the next reported Impact factor will rise. It was also noted that some of the articles published in Physiological Measurement are still cited after the first two years of their publication date. It was acknowledged that this was good for the journal. In summary, Physiological Measurement continues to do well and grow.

The 2009 Martin Black Prize for best paper in Physiological Measurement in 2008 has been awarded to Q Li1, R G Mark and G D Clifford for “Robust heart rate estimation from multiple asynchronous noisy sources using signal quality indices and a Kalman filter”.

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Advisory Groups

The Institute is almost unique in bringing together engineers, technologists and physicists into a single broad national society. Advisory committees enable each professional group to work together on issues of common interest. A representative from each Advisory Group, usually the Chair, is a member of Council.

Academic Advisory Group

Professor Jeff Hand

The remit of this Committee is to provide advice to Council on academic and associated issues and to promote IPEM as the learned society of choice for academics engaged in physical sciences, engineering and technology applied to medicine and biology. AAC met in October 2008, February, and July 2009.

With the help of the York office, we have identified 28 academic ambassadors in university departments to promote careers in physics and engineering in medicine and biology and effort in increasing this outreach is continuing. During the year IPEM became a corporate member of the Engineering Professors' Council (EPC). The General Secretary represented IPEM at the EPC Annual Meeting held in Edinburgh and there are ongoing discussions regarding creation of a sectorial group entitled Universities Medical and Biological Engineering Network.

Prof Perkins and Dr Chambers organised a meeting on Managing Grant Funded Medical Research held on 28 May in London. Prof Perkins wrote an article entitled "To PhD or not to PhD" that was published in SCOPE.

AAG contributed to IPEM’s response to the Wakeham Review of UK Physics and in the coming year we shall work with the Institute of Physics to identify how physics is being used in medicine primarily but not exclusively within university departments. Ways in which IPEM can catalyse interaction between academics, NHS staff, and industry in order to maximise knowledge transfer and health benefits have been investigated and discussions with senior academics are also planned.

Engineering Advisory Group

Mr Justin McCarthy

The Engineering Advisory Group of IPEM continues to advise on the processes necessary for formal engineering registration with the Engineering Council (ECUK) for those members who qualify and wish to register. Engineering Advisory Group, working collaboratively with Professional Standards Board and its panels and with Science Board also contributes significantly to the processes for training and for accreditation of courses and centres. Through these activities, the processes and their implementation are assured as meeting the requirements for engineering formation leading to registration as set down by ECUK.

A significant milestone in 2008 was the renewal of the licence which the Institute has from ECUK to award engineering registration. The licence renewal audit visit was carried out jointly with Science Council representatives and both licences were renewed for a further five years. The feedback from the audit was generally very positive with the only concern being the small numbers of registrants put through. Once again the majority of applicants have been in the Chartered Engineer category. ECUK are promoting the Eng Tech category and EAG feels that there are many members or potential members who would qualify for this stage of engineering registration. Furthermore ECUK are making it clear that the three levels of registration should be seen as a continuum. Experience gained at one level is likely to be relevant to demonstrating certain competencies for a higher level, subject to the nature of the job being done and qualifications gained. This is very much in line with the Modernising Scientific Careers thinking.

A development new to the Institute is the accreditation of undergraduate engineering courses. Working with PSB and its panels, EAG has responded to requests from universities to accredit medical engineering degrees or medical engineering streams within engineering degree programmes. The Institute is working closely with other Institutions through the ECUK Engineering Accreditation Board. This has raised the profile of IPEM within ECUK and with the other, larger Institutions.

Engineering Advisory Group will continue to provide a focus for engineering activities in the Institute, dealing with and promoting registration but also looking at the wider promotion of engineering applied to medicine and biology in healthcare, academe and industry.

Regional Advisory Group (Regional Chairs)

Ms Laura Sawyer

The Regional Advisory Group comprises the 12 IPEM Regional Chairs drawn from separate IPEM geographical regions.

During the first Regional Consultation Meeting in July 2008 the Regional Chairs discussed a range of issues with Council Officers. Great emphasis was placed on their need for more information about future changes to scientist and technologist training and registration.

Other key issues included suggestions for website improvement and questions about research funding. Following this meeting IPEM Committee Chairs have...
responded to and acted upon these concerns and the Assistant Honorary Secretary has ensured that Regional Chairs have been kept in touch with IPEM actions, so they can inform their local members using email and ‘coffee room’ chats. All member comments have been directed back to the appropriate IPEM committee.

During the last year Regional Chairs have been involved in local scientific meetings in Wales and the South East, both being held at minimal cost through commercial sponsorship and at both meetings the Regional Chair raised professional issues with members. Council also fully supports Regional Chairs holding meetings in conjunction with other professional institutions. In the North West, links have been made with meetings of the Institute of Engineering and Technology. The London Regional Chair and the Royal Society of Medicine jointly hosted a meeting open to all IPEM and RSM members. In addition, Regional Chairs have suggested building links with their local Strategic Health Authority.

Over the last year the Modernising Scientific Careers programme has been of considerable interest to members of the Institute. Regional Chairs have helped considerably by promptly passing requests for information to local members, holding local meetings across the country to gather views and opinions and collating consultation responses. These comments contributed to the official IPEM response prepared by the Professional Advisory Group working party.

At the second Regional Consultation meeting this July, Regional Chairs will share information about their local activities and how they have been achieved, and encourage other Regional Chairs to ‘have a go’. There will also be extended discussions about the planned improvements to the IPEM website and how the Institute is seeking to communicate better with the general public and other organisations.

Technologist Advisory Group

Mr Paul Robbins

Welcome to this the first ever Technologist Advisory Group Report. Created during the Institute’s recent restructuring, the Technologist Advisory Group is one of the Advisory Groups to Council and acts as the primary technologist voice within the institute. It is there to promote active technologist participation in the affairs of the institute and to deal with professional issues relating to the whole of the Clinical Technologist workforce. That is issues that are of direct relevance to you. To this end TAG actively encourages all technologist members to get in touch and make us aware of those issues of burning concern to you.

So what’s been happening this year? Well like all newly born toddlers mostly we have been finding our feet within the new structure as we strive to develop into a more learned society role. But that’s not all, this year:

- We have been working with the current Incorporated Membership Registrar and the Membership Committee to discuss the possibilities of rationalising membership grades.
- In conjunction with the Nominations and Appointments Committee we have been seeking individuals to take on key roles within the Institute’s structure.
- In conjunction with the Clinical Technologist Education and Training Panel we have been proactively working on MSC issues as they affect the technologist workforce.
- We have striven to encourage Science Board to organise more meetings of direct appeal to technologists with such meetings based around areas of the technologist training syllabus.

CTC is firmly committed to the idea of CPD for the technologist workforce and to this end CTC is working with a number of other IPEM panels and groups to facilitate good extra curricular meetings and learning opportunities of direct practical relevance to the workforce.

If you want to contact any TAG member, contact in the first instance should be made via the IPEM office.

Trainee Advisory Groups

Two separate networks have formed to represent and meet the needs of trainee members. They work closely together on some issues and jointly have a representative on Council.

Associate Physicist and Engineers Network (APEN)

Miss Alyte Podvoiskis

The Associate Physicists & Engineers Network (APEN) represent the Associate clinical science trainee members of IPEM. We communicate with trainees via the bi-monthly newsletter and website and feedback to IPEM by representing trainees on IPEM committees. We also organise events to support the training scheme, facilitating links with other trainees.

Inspired by the restructuring underway in IPEM, APEN took the opportunity to clear out our own cobwebs, review what we do, how we could do it better and consolidate our activities. This means that we now have more time to invest in the events and issues that matter to trainees whilst still keeping a finger on the pulse within IPEM.

As a result our biggest successes of the year have been:

- Hosting the first APEN stand at the ASM
- Organising the pilot Part II Induction Day
- Recommencing the new and improved Communication Workshops

All three events were well received. Positive feedback will be used to support proposals that they become permanent features of the IPEM and APEN calendars along with our highly successful and well established Part I Induction Day.

Having improved our internal processes it is now time to turn our attention outward. Over the next year we will
be looking at how APEN can better interact with those members we represent, the trainees. We’d love to hear from you, contact us on: apen@ipem.ac.uk.

**Associate Technologists’ Network (ATeN)**

*Mr Anthony Stanton*

Over the past 12 months the ATeN panel has been working hard to further strengthen links with its target audience. The panel has had representation on the CTETP, and has worked closely with that panel to improve the overall awareness of ATeN amongst trainee technologists.

To this aim, the panel has successfully recruited several new members including trainees at various stages on the IPEM training scheme, who are in an ideal position to promote and organise events of particular relevance to young people going through this process. In addition, the panel still has ‘non IPEM training scheme’ members to represent those associates who have progressed through a different training route.

The main objective has been to raise the profile of the panel amongst trainees, and to encourage the trainees and their supervisors to engage more fully with organised events. To achieve this, the panel has delivered presentations at the Trainee Moderator/Supervisor/Co-ordinator Roadshow events (aimed at increasing awareness of the panel amongst Supervisors), and has also visited the students at Castle College to promote the panel directly to trainees.

ATeN held a stand (jointly with APEN) at the 2008 ASM which was well received, and will again hold a joint stand at the 2009 MPEC. Again, these stands are aimed at promoting the panel and showing trainee technologists that they have a voice in IPEM.

The panel has maintained close relations with its sister panel, APEN, and will continue to collaborate with them on matters of joint interest to trainee technologists, scientists and engineers.

ATeN has also increased the frequency of its newsletter publication to bi-monthly, and has added content such as tips for new trainees and information on up and coming events. The ATeN section of the website has been considerably expanded, and is beginning to accumulate relevant training advice, past ATeN presentations and past newsletter articles. An informal ‘forum’ has also been created such that trainees may chat about training related issues, forming a ‘self help’ network. The forum also contains links to useful information, and useful documents for trainees.
Outside the boundaries of Europe it has been a relatively quiet year for IPEM. Our negotiations with the Saudi Arabian Medical Physics Association towards an affiliation agreement move forward. In the spirit of closer collaboration the President Elect represented IPEM at the annual meeting of the Saudi Association.

IOMP (the International Organisation for Medical Physics) held an election for new officers. IPEM nominated Dr Slavik Tabakov (King's College Hospital) for the post of IOMP Treasurer and he was duly elected. Professor Peter Smith (Northern Ireland, retired) stood down as General Secretary.

The new IOMP Council will take up their duties at the World Congress in Munich. Here the current President, Professor Barry Allen (Australia) will hand over to the new President, Professor Fridtjof Nusslin (Germany). The new Vice President for the next 3 years will be Dr K Y Cheung (China).

EFOMP (The European Federation of Organisations for Medical Physics)

Dr Neil Lewis

Au contraire dans l'Europe! The annual council meeting held in Krakow in September 2008 was the first meeting of the EFOMP Co. Ltd. The company has been created principally to allow EFOMP to undertake EU funded projects as a formal partner (see below).

Dr Stelios Christofides (Cyprus) was confirmed as the next President of EFOMP with effect from January 1st 2009. Also at the Council meeting Malta became the latest member of EFOMP. The Maltese Medical Physics Society has 6 members. Although perhaps the smallest in terms of membership it has the distinction of being the association with the highest per capita membership within the whole of EFOMP.

Council also agreed to set up the European Network of Medical Physics Schools (ENMPS). This network aims to provide opportunities for medical physicists throughout Europe to benefit from courses / schools organised by member societies. Alongside this development, the new President is keen for EFOMP to develop greater scientific co-operation amongst member societies. It is envisaged that the Scientific Committee of EFOMP will develop a number of Special Interest Groups. This should provide an opportunity for IPEM SIG members to communicate and liaise with their European counterparts and develop joint initiatives.

An important development currently within the EU is the review of the Basic Safety Standards and Patient Protection Directives which are the basis of the UK Ionising Radiations and IR(ME) Regulations. The EU are understood to be combining the two directives into one.

Current issues for debate include definitions of the Qualified Expert (RPA) and Medical Physics Expert. EFOMP are lobbying strongly in an effort to influence the definitions. IPEM have offered to host a meeting in August at which an EFOMP and IPEM position can be agreed.

Finally, the EU has tendered for a consortium to bid for a contract to develop a curriculum for the education and training of the MPE. There are thought to be two consortia bidding for the work, one led by Spain and a second by Finland. The contract specifies that EFOMP will partner the successful consortium. IPEM also has involvement with both consortia and will play an active part in this important development.

EAMBES (The European Alliance for Medical and Biological Engineering Science)

Dr David Simpson

EAMBES (European Alliance for Medical and Biological Engineering and Science) has continued its work in promoting research and education in medical and biological engineering at a European level.

IFMBE (International Federation for Medical and Biological Engineering)

Mr Ian Wolstencroft

The Federation has sponsored a number of international scientific meetings during the year, and as one of its initiatives in the current year is conducting a worldwide survey on Clinical Engineering.

The normal cycle of business meetings has been delayed for the 2008 - 09 year, as the business meetings for the Administrative Council, and the national member bodies’ Secretaries’ meetings will be held during the triennial World Congress from 7th to 11th September 2009 in Munich.

The Federation continues to be involved in World Health Organisation initiatives, and is acting as a partner with them in presenting sessions at the World Congress.

IPEM continues to provide administrative and business support to the Federation and hosts its website.
IOMP (International Organization for Medical Physics)  
*Dr Chris Gibson and Dr Keith Ison*

The International Organization for Medical Physics (IOMP) represents over 16,500 medical physicists and 80 national member organizations worldwide. IOMP seeks to advance medical physics practice by disseminating scientific and technical information; supporting educational and professional development; and promoting the highest quality standards for patient care. IOMP headquarters are at Fairmount House and IPEM provides administrative support under contract.

Membership of IOMP helps IPEM to further its charitable aims both nationally and especially internationally, providing routes to influence international guidance documents and proposed new standards. Several IPEM members are actively involved in IOMP, including Dr Peter Smith (IOMP Secretary General) and Dr Slavik Tabakov (IOMP Treasurer).

Further information is available at www.iomp.org.

IRPA (International Radiological Protection Association)  
*Mr Philip Clewer*

The International Radiation Protection Association (IRPA) recognises just one radiation protection society in each of its member nations. In the UK IRPA recognises the Society for Radiological Protection (SRP). The SRP International Committee (Icom) enables IPEM, and other societies with an interest in radiation protection, to be represented and IPEM has two representatives on SRP ICom.

ICom’s major focus in the last year has been IRPA’s world congress in Buenos Aires last October. Members of ICom were involved in the vetting of abstracts, the reviewing of papers submitted and the participation in IRPA12 as Chairperson, Rapporteur or Speaker. Several IPEM members were in the official UK delegation to IRPA12 and others attended the conference. One of the events at the congress was the selection of the host for IRPA13. ICom is very pleased that the United Kingdom’s bid was successful and so IRPA13 will be held in Glasgow from 13th to 18th May 2012.

Members of the the French, Spanish and UK IRPA Associate Societies have been holding workshops in recent years on Stakeholder Engagement and a resulting document was adopted at the IRPA12 General Assembly as IRPA’s “Guiding Principles for Radiation Protection Professionals on Stakeholder Engagement”.

Dr Ruby Fong has represented IPEM on ICom since 1998 and has served two stints as ICom Secretary and has been Chairperson of ICom since 2005. However, Ruby stood down from the committee in May and many thanks must go to Ruby for all the work she has done. She will be replaced as an IPEM representative on ICom by Tracy Soanes. The other IPEM rep, Philip Clewer, finishes his spell on the committee in September and will be replaced by Navneet Dulai.

IUPESM (International Union for Physical and Engineering Sciences in Medicine)  
*Professor Peter Smith & Professor Alun Beddoe*

The Union is the umbrella organisation linking the International Organization of Medical Physics (IOMP) with the International Federation of Medical and Bioengineering (IFMBE). It is a member of the International Council of Scientific Unions (ICSU). The principal objective of IUPESM is to contribute to the advancement of physical and engineering sciences in medicine for the benefit and well being of humanity. See http://www.iupesm.org for further information.

National organisations do not directly appoint members of the IUPESM Council but during the last year two IOMP members have served on the IUPESM Council – Peter Smith as Secretary-General of IOMP and Alun Beddoe, elected by the General Assembly of the IUPESM. The IPEM provides financial administrative support, under contract, to IUPESM.

A major activity is the organisation of triennial World Congresses on Medical Physics and Biomedical Engineering and the 2009 Congress will be held in Munich, Germany (September 8 – 13).

A major project of the IUPESM is the HTTTG project (Health Technology and Training Task Group) which is intended to assist countries in defining their health technology needs and providing advice and support, particularly through training, see http://www.biomedea.org/HTTTG/ for further information.
External Relationships

Dr Steve Keevil (Vice-President for External Affairs)

The Institute has continued to engage with a wide range of partner organisations and government agencies, focusing particularly this year on the Modernising Scientific Careers project, which has huge implications for training, career structures and workforce planning in our professions. Looking beyond immediate scientific and professional issues, we have begun to develop a strategy for engagement of the broader public, media and policy makers. Our aim here is to raise awareness of medical physics and engineering and the contributions they make to healthcare delivery and development.

Like all charities, IPEM is required to operate for the public benefit. Yet most members of the public, along with the media, policy makers and legislators, have never heard of medical physics and engineering and have no idea what we have to offer to healthcare service and development.

The position of Vice President for External Affairs was established in 2008 with a remit to improve the profile of the Institute and of the disciplines we support. Council wants IPEM to be seen by the media, politicians and the general public as the leading professional body and source of expertise in our disciplines.

We have made a good start towards this objective over the past year, developing ideas in conjunction with Sense About Science, the Institute of Physics and individual science journalists.

- With the support of Vivienne Parry, a group of early-career medical engineers and physicists has been established to develop regular media briefings based on newsworthy stories in the Institute’s publications.
- We are discussing possible co-sponsorship of the Sense About Science annual lecture in 2010: this is now a very high-profile event on the scientific calendar.
- We are talking to Omni Communications, an organisation involved in raising the profile of science in the broadcast media, about ways of increasing the visibility of medical physics and engineering in science-based drama.
- We are represented on the working party taking forward the recommendations of the Wakeham Review on the future of physics in the UK.
- We are working with the Institute of Physics to raise awareness of medical physics and engineering as a career option, with a view to improving recruitment to physics courses particularly among women.
- We are organising our first public session at the MPEC in September, with the support of Sense About Science.

These initiatives should start to bear fruit in 2010 and beyond.

Association of Clinical Scientists

Dr Iain Chambers & Dr C A Lewis

The Association of Clinical Scientists (ACS) represents all branches of Clinical Science in the UK and provides an assessment mechanism at the point of registration.

Successful candidates are awarded a Certificate of Attainment by ACS which is recognised by the Health Professions Council (HPC) as an appropriate standard for registration. IPEM has two representatives on ACS; Iain Chambers (who has taken over as Chair this year) and Neil Lewis. The Board of ACS met three times during the year and also held a training day for assessors on two separate occasions.

During the last year 106 Medical Physicists and Clinical Engineers submitted portfolios to ACS for assessment and of these, 87 were successful (82%). A total of 358 applications were received from all modalities with 268 being successful (75%).

The ACS Board has worked on the consistency of assessment across the different disciplines to ensure that candidates are treated equitably. This was focussed on at two successful training days to update and inform assessors. A round table meeting is planned for later this year for IPEM assessors and supervisors to further improve consistency.

The ACS documentation is being reviewed including the compliance of ACS competencies against the new HPC standards along with information supplied to candidates and supervisors.

The ACS will be audited by the Health Professions Council (HPC) some time in the Autumn. A response to the consultation document on Modernising Scientific Careers was submitted and the future role of the ACS and the systems required to support registration after its planned introduction under review.

British Standards Institute (BSI)

Dr Richard Scott

Members of the Institute continue to support the development of healthcare standards, sitting on BSI Committees that contribute to the European and International Standards Organisations which publish standards. Such standards, and associated reports are used by manufacturer’s to design safe and effective medical devices. Standards by their very nature are technical and complex, being documents that focus on a specific device or systems issue. This makes it very difficult for Patient Groups to contribute their development in partnership as happens in many other fields of healthcare. IPEM members have an invaluable role to play therefore as they are well placed to bring a unique perspective to the development process; not only do they understand the science and engineering aspects of
the standards but they see the resultant medical devices and can act as the patient’s advocate.

A session was run at the Bath Annual Scientific Meeting in September 2008 to showcase the role of IPEM in standards development and to encourage members to continue to play an active part in the development process. There is a long learning curve in becoming involved in the standards writing process but the session showed there is no shortage of enthusiasm and expertise amongst members which is extremely encouraging for the future.

**British Bioengineering Society**

*Dr David Simpson*

The Bioengineering Society was launched at the Bioengineering 08 Conference at Imperial College London in September 2008. Its aims are to support research activities in bioengineering (with an emphasis on fundamental research rather than clinical applications), and its main activities will be organizing a Bioengineering Conference once a year. The society held its first committee meeting on 2/6/2009, and the committee includes representatives of IMechE, IET, IEEE and IPEM. The next conference (Bioengineering 09) will be held in Oxford (24-25 Sept. 2009) – some 200 delegates and 120 papers and posters are expected. Discussions are currently being held with IPEM (and within IPEM) aimed at jointly organising Bioengineering 10 with the MPEC (formerly ASM).

**Engineering Technology Board**

*Mr Robert Neilson*

The Chairman of ETB, Sir Anthony Cleaver, has been proactive in engaging with ETB’s stakeholders, including the licensed engineering institutions, large, medium and small during the year. A new Chief Executive, Paul Jackson, has been appointed and he, with Sir Anthony, will continue the ETB’s development as an organisation that increasingly engages with its stakeholders in its mission to provide the necessary leadership to the engineering community in its promotion of the profession, which it undertakes by:

- **Influencing:** policy makers and business through the dissemination of evidenced-based information and policy proposals.
- **Inspiring:** young people, in particular, to take up careers in engineering.
- **Engaging:** with industry to ensure that the supply of skills matches demand.

ETB’s leadership, together with the British Science Association and the Science Council, ensured the success of the “Big Bang” careers fair, referred to in the Science Council report.

**Engineering Council UK**

*Mr Robert Neilson*

EC\(^{\text{UK}}\) has as its mission to maintain internationally recognised standards of competence and commitment for the engineering profession, and to license competent institutions to champion the standards. IPEM is licensed to assess its members for the current three awards, CEng, IEng and EngTech. The first ever joint review by the Science Council and EC\(^{\text{UK}}\) for the licences issued by each organisation to award CSci, and CEng, IEng and EngTech, was carried out in December 2008. EC\(^{\text{UK}}\) renewed its licence to IPEM for a further five years. Currently there are 55 Chartered Engineers, 18 Incorporated Engineers and 3 Engineering Technicians who have been granted their awards through IPEM.

**Federation for Healthcare Science**

*Professor Peter Sharp*

McKinsey’s have produced a report for the DH looking at how HCS might be represented post-MSC. While its preferred option was a direct membership organisation, it recognised that, on the timescale envisaged for the implementation of MSC, this was not practicable and so suggested that FHCS could be restructured into a body which, while still based around existing professional bodies, would more effectively act as the “single voice” for HCS. In fact the FHCS had already undertaken work on how it might change its structure, basically having a Council to deal with policy and strategy and a separate Executive to deliver this agenda. These would be supported by groups looking at specific areas such as Education & Training, Communication, and Workforce. There would still be three sections representing the 3 divisions of HCS.

In Scotland a Programme Director has been appointed at NHS Education Scotland to take forward the education and training agenda for HCS. A new project officer is to be appointed by SGHD to work on the HCS strategy.

The Scottish Forum held an NHS Healthcare Science National Event on 28th November. Scotland is moving ahead with implementing the recommendations on education and training set out in its Action Plan. These include the appointment of two coordinators for clinical technologist physics and engineering training in the West of Scotland and funding for Higher Specialist Training Sabbaticals.

**Institute of Physics - Medical Physics Group**

*Professor Peter Sharp*

The IOP MPG is one of 50 specialty groups run by the IOP and has over 750 members.

Three IPEM members sit on the group’s committee and all IPEM members are entitled to take part in the activities of the group.

During the past few years the group have run a scientific meeting in conjunction with IPEM’s ASM. This year it will be on the 16\(^{\text{th}}\) September and is on Novel Detectors for Medical Applications.

It has met with Eleanor Kennedy from the Science Council’s Science in Health Group. It was able to offer,
hopedfully useful, advice on the proposed report on “Future Careers for Scientists in Health”.

It responded to the consultation on MSC and contributed to the IOP’s response to the Wakeham Review.

**Mayneord-Phillips Memorial Trust**

**Dr David Sutton**

The main activity of the Trust is to organise a Summer School every other year on a topic concerning the application of “medical physics and kindred sciences” to medicine. Currently the Trustees have organised a Summer School from 6th to 10th July 2009 entitled ‘21st Century Radiotherapy’.

The school is specifically designed for PhD students embarking on their research programmes and others who are transferring into the field of radiotherapy. It is also very suitable for Clinical Scientists who are embarking on a professional career in Radiotherapy. As with all Mayneord-Phillips Summer Schools, the ratio of faculty to students is very high, encouraging a tutorial type atmosphere. Students are encouraged to attend from within and outside the UK; for those who have limited resources grants funded by the parent bodies of the Trust (i.e. Institute of Physics [IOP], Institute of Physics and Engineering in Medicine [IPEM] and the British Institute of Radiology [BIR]) have provided funds for bursaries.

Over the 14 years of the Trust the Summer Schools have been held at St Edmund Hall, University of Oxford. This is an ideal venue for both the lecture programme, tutorials and informal discussions.

For further details of the Trust and information on this and previous summer schools, please visit the website http://mpss.iop.org

**Radiology and Oncology Congress**

**Dr Keith Ison and Mr Robert Neilson**

The UK Radiological Congress (UKRC) returned to Birmingham in June 2008, with the scientific meeting being held in part of the International Conference Centre and in nearby meeting rooms operated by the Institution of Engineering and Technology at Austin Court. The commercial exhibition was held in the National Indoor Arena.

UKRC continues to operate in a difficult environment, with pressures on space sales for the commercial exhibition and pressures on delegate numbers because of restrictions by employers on release to attend such events and on training budgets. Attempts have been made to make the educational programme more attractive to a wider range of potential delegates, and to maximize the opportunities for exhibitors to engage with the delegates. These measures were successful, to a degree, in 2008, as delegate numbers and exhibitor numbers were up compared with the disappointing results for 2007. However, it has been recognized that a number of structural problems remain with the event that cannot be resolved until the current advance contracts for venues expire or can be re-negotiated.

UKRC 2008 featured the fourth John Mallard Lecture, given by Professor Peter Wells, whose title was, Ultrasound imaging: a holistic view.

In addition to the annual UKRC, ROC is also responsible for the biennial United Kingdom Radiation Oncology Congress (UKRO), next scheduled for 2009 and 2011. The IPEM Conference Team is the contracted organizer for the UKRO events which, although on a different scale to the UKRC events, have been consistently successful in each year they have run. The event continues to be popular with those working in therapy radiography and radiation oncology, as well as IPEM’s area of radiotherapy physics.

Both these events are managed by Radiation and Oncology Congresses (ROC) (a charitable company) and its wholly-owned subsidiary, ROC Events Limited. The members of ROC are the Institute of Physics and Engineering in Medicine, the Royal College of Radiologists, the British Institute of Radiology and the College of Radiographers.

IPEM provides a member of its secretariat to give support to ROC, corporately, in the areas of business planning, finance and charity governance. The ROC Board has been reviewing the strategic challenges it faces and is formulating options for the future.

**Royal Academy of Engineering - UK Focus for Biomedical Engineering**

**Dr Mark Tooley**

The UK focus enables key organisations to communicate, debate and influence high-level decision makers in government, research councils and industry on issues affecting biomedical engineering.

There were four active committee meetings this year, public briefings, and a special 20th anniversary conference “engineering better health” This was a full day and evening event celebrating the formation of the UK focus, with keynote speakers covering the full range of biomedical engineering. There were briefing sessions on ‘hearing technologies’ and point of care diagnostics. There was the biannual young researchers two day event on ‘study and treatment of cardiovascular disease’ held in Imperial college. The focus was involved in the modernising scientific careers (MSC) consultation process and its chairman is on the Department of Health Healthcare Science Board.

**RPA 2000**

**Professor Peter Sharp**

During the past year there have been 129 applications for RPA certification, of which 93 were for renewal. There have been 6 applications for the new LPA certificate, of which 5 were for renewal. At the end of 2008 there were 490 current RPA certificate holders and 44 current LPA certificate holders.

The post of Audit Secretary has been created and this person will take the responsibility for ensuring that the
annual audit required by HSE is carried out effectively. An Assessment Tracking Spreadsheet has been introduced to provide statistics on the time intervals associated with the completion of assessments and to identify those parts of the assessment process that appeared to create undue delays.

The IPEM Non-ionising radiation SIG has been developing a Magnetic Resonance Specialist Certificate. They estimated that some 100 people might initially be interested in gaining the proposed certificate, with perhaps some 10 per year ongoing.

We have had discussions over the European Radiation Protection Training and Education Initiatives, with particular reference to definitions and roles of the Radiation Protection Expert (currently the Qualified Expert/RPA) and the Radiation Protection Officer. This work was undertaken within a 3-year European Training and Education in Radiation Protection (EUTERP) programme, which has just ended, and is to be carried forward within the second 3-year European Network on Education and Training in Radiological Protection (ENETRAP) programme (ENETRAP II) which has just started.

Science Council

Mr Robert Neilson

The Science Council’s governance review, aimed at achieving a smaller, effective, skilled and balanced board, and the same time improving participation of all member organisations by more frequent and re-focused meetings of the full Council was implemented towards the end of 2008.

The Science Council’s Registration Authority undertook a major review of the revalidation requirements for CSci in 2008, as the first CSci registrants, registered by a fast-track “grandparenting” process from January 2005, would be required to revalidate on the fifth anniversary of the CSci registration during 2009. This resulted in a simplified revalidation process for quinquennial revalidation in 2009 and 2010, with a transition to annual revalidation linked to the annual renewal cycle for membership subscriptions from then on. IPEM, will integrate this process with members’ annual CPD activity report and audit, which will reference participation in IPEM’s CPD scheme or another appropriate scheme.

The first ever joint review by the Science Council and ECUK for the licences issued by each organisation to award CSci, and CEng, IEng and EngTech, was carried out in December 2008. The Science Council renewed its licence to IPEM for a further five years. Currently there are 970 Chartered Scientists, who have been granted their awards through IPEM.

The Science Council’s Science in Health Group study, titled The Context and Future Careers for Scientists in Health, which concerns how best to engage and develop future scientists to provide a skilled and flexible workforce to resource health-related research and health services, will report later in 2009.

The Science Council’s major project, Careers from Science, branded futuremorph™, has reached the stage of a website launch and the project continues with the development of content for the site - http://www.futuremorph.org/

The “Big Bang” careers fair, held in the Spring of 2009 in London was organised by a consortium of science and engineering organisations, including the Science Council, which organised a Science in Health Zone.

IPEM was a major contributor, with members and equipment from London Hospitals and exhibition materials and support from Edinburgh and the IPEM office. IOP also provided a set of interactive educational simulations. Together the medical physics area of the Health Zone provided a hands-on but child-safe and friendly experience for the visitors.

Royal College of Physicians - Liaison Group

Professor Stephen Smye

The Institute’s links with the Royal College of Physicians (RCP) are of considerable value in advancing physics and engineering in medicine and biology. In particular, the links offer significant potential for enhancing collaboration between clinicians, physicists and engineers, and the College presents outstanding opportunities for communicating with the public, policy makers and academia.

During 2008-2009, Professor Stephen Smye represented the Institute on the College’s Standing Committee on Academic Medicine. The principal topics for discussion included regular updates on the development of the National Institute of Health Research.

Professor Wendy Tindale represented the Institute on the College Joint Specialty Committee for Nuclear Medicine and topics discussed included; current and critical issues in Nuclear Medicine related to technetium shortages, the appointment of QPs and the processes for management of clinical incidents in Nuclear Medicine at national level. Reports of the meetings are channelled through the NMSIG.

Professor Wendy Tindale represents the Committee on the Clinical Scientist Career Reform group, chaired by the Chief Scientific Officer.

The College offers Affiliateship to those senior scientists in the Institute who have made a single contribution to physics and engineering in medicine and biology and the Institute has six senior members who consider applications for Affiliateship. There are now 39 members (includes 6 founder members) of the Institute who have been awarded Affiliateship. This is an excellent route for enhancing the link with the College, which should play an increasingly central role in advancing physics and engineering in medicine and biology, and senior members of the Institute are encouraged to apply.
Honorary Fellows

Honorary fellowship is awarded for outstanding contributions in the field of physics or engineering applied to medicine or related biological science. Up to and including September 2008, 51 Honorary fellows or equivalent have been appointed to IPEM and its forerunner organisations. Currently there are 22 alive. The most recently appointed are Dr Alan Jennings, Dr Sidney Osborn, Mr Theo Tulley, and Mrs Margaret Young, all of whom were present at the Inaugural Meeting of the HPA in 1943.

The full list of Honorary fellows includes:

- Famous names from early 20th Century physics and engineering
- Doctors who have recognised and nurtured the contribution of physical sciences and engineering to the practice of medicine
- Names that are remembered in textbooks and come up in trainee exams
- Fellows of the Royal Society
- Names of people with few formal qualifications but great imagination and drive
- Those of great moral character and leadership
- Those who have given faithful and dedicated service

What they have in common is that each one has made a positive and lasting impression on those around them.

Honorary Fellows or Equivalent of IPEM and its forerunner organisations as of September 2008

<table>
<thead>
<tr>
<th>Honorary Fellows of the Hospital Physicists' Association</th>
<th>Honorary Fellows of the Institute of Physical Sciences in Medicine</th>
<th>Honorary Fellow of the Institution of Physics and Engineering in Medicine and Biology</th>
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<tr>
<td>Dr William Astbury (1945)</td>
<td>Dr William Bragg (1945)</td>
<td>Sir James Chadwick (1945)</td>
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<td>Dr Edwin Owen (1945)</td>
<td>Sir John Cockcroft (1947)</td>
<td>Mr Frederick Spear (1947)</td>
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<td>Dr Joseph Mitchell (1949)</td>
<td>Dr Rolf Sievert (1950)</td>
<td>Dr Charles Coulston (1955)</td>
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<td>Dr Sidney Russ (1956)</td>
<td>Dr Henry Flint (1959)</td>
<td>Dr Gilbert Stead (1959)</td>
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<tr>
<td>Ms Edith Quimby (1962)</td>
<td>Professor William Mayneord (1965)</td>
<td>Dr Sven Benner (1966)</td>
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<td>Dr J Ralston Paterson (1968)</td>
<td>Mr Walter Binks (1969)</td>
<td>Dr John Roberts (1971)</td>
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<th>Honorary Fellows of the Institute of Physical Sciences in Medicine</th>
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<tr>
<td>Professor John Lenihan (1993)</td>
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<td>Professor Jack Fowler (1993)</td>
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<td>Professor P Mansfield (1993)</td>
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<th>Honorary Fellow of the Institution of Physics and Engineering in Medicine and Biology</th>
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<td>Professor Joseph Rotblat</td>
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<tr>
<td>Mr Walter Arkley</td>
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<td>Mr William Cowell</td>
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<td>Mr Reginald Farr</td>
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<td>Mrs Pamela Satchell</td>
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<td>Mr Keith Copeland</td>
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<td>Dr Ray Cooper</td>
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<td>Professor R M Kenedi</td>
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<td>Dr Robert Trotman</td>
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<th>Honorary Fellows of the Institute of Physics and Engineering in Medicine</th>
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<tr>
<td>Professor Duncan Dowson (1998)</td>
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<td>Professor Sir Richard Doll (1999)</td>
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<td>Professor Sir George Alberti (2002)</td>
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<td>Professor David Delpy (2003)</td>
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<td>Dr Sidney Osborne (2008)</td>
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<td>Professor Keith Boddy (1998)</td>
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<td>Professor Sir Alfred Cuschieri (2001)</td>
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<td>Professor Colin Caro (2002)</td>
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<td>Professor Peter Wells (2003)</td>
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<td>Mr Theo Tulley (2008)</td>
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<td>Professor Christopher Hill (1999)</td>
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<td>Professor Denis Noble (2001)</td>
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<td>Professor William Bonfield (2003)</td>
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<td>Dr Alan Jennings (2008)</td>
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<td>Mrs Margaret Young (2008)</td>
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