

Annual — Review 2023



Contents

President's Statement	3
IPEM's Purpose	6
Professional Development	8
Community	19
Leadership	24
Financials	34
Year in Numbers	37

President's Statement





IPEM's mission is to improve health through physics and engineering in medicine. As an organisation our aim is to facilitate members as a community of professionals and volunteers.

Their work through IPEM shapes professional development and practice development, delivering value directly to the public in the form of professionalism, knowledge and innovation.

1,300

delegates attended
18 events IPEM hosted

9

new Fellows created

IPEM's story in 2023 is about growth and focus. The Strategy set out in *IPEM 2025* concentrated activity on three areas – professional development, community and leadership.

Professional development was key to our growth. As well as three new training courses, the new Clinical Scientist Guided Training Scheme was launched in 2023 and successfully enrolled two cohorts of students. The accreditation committee had an exceptionally busy year with new MSc and short courses approved.

IPEM hosted 18 events in 2023, five more than the previous year, with the number of delegates increasing from just under 1,000 to more than 1,300.

IPEM continued to develop our approach to diversity and inclusion. In 2023 we changed the emphasis from equality to equity, in line with the Science's Council's recommendations. We continued to work with, share ideas and learn from a range of stakeholders in this important area of our development as an organisation.

IPEM's leadership flourished. We spent more time focusing on public policy and advocacy, which is an area our members said should be among our top priorities. IPEM's 'Science Leadership Strategy' work grew in the year. A volunteer day was held in September, in which the grand challenges and emerging trends that are shaping the future operating environment for IPEM members were further developed. The subjects that make up the strategy are increasingly the focus of our resources and guidance, along with the ideas that our members generate in other areas of science and engineering.

Across the organisation, volunteers donate their time and best efforts to support the profession. Without this considerable resource, IPEM's strategy would face impossible limitations. Although I have served as a volunteer for many years myself, I have been surprised and impressed at every turn by quite how much IPEM's volunteers have achieved in my first 12 months as President.



President's Statement



Without our volunteers, we would face impossible limitations and we are always impressed by how much they achieve.



You can read more about our many achievements and the successes of our members in 2023 in more detail through this review.

Overall, 2023 was an important year for IPEM. This is particularly true in professional development, and our plans include considerable further investment in this area.

Members told they wanted IPEM to provide advocacy, resources and training, and I believe we made advances in each of these in 2023.

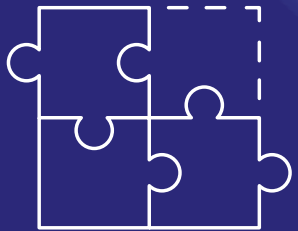
IPEM 2025, our strategy, has given us direction based on professional development, community and leadership. Towards the end of 2023, I am very pleased to say that Board agreed to long-term plans which will see us build on and extend this approach towards 2030. These plans will be published and I look forward to working with members and volunteers to bring them about.

You can read more about our many achievements and the successes of our members in 2023 in more detail through this review.



Dr Anna Barnes
FIPEM, CSci

IPEM's Purpose





IPEM's Purpose

In 2023, IPEM followed its statement of mission and vision, first adopted in 2020:



IPEM's Mission:

Improving health through Physics and Engineering in Medicine.



IPEM's Vision:

Developing the professional, improving healthcare, transforming lives together.



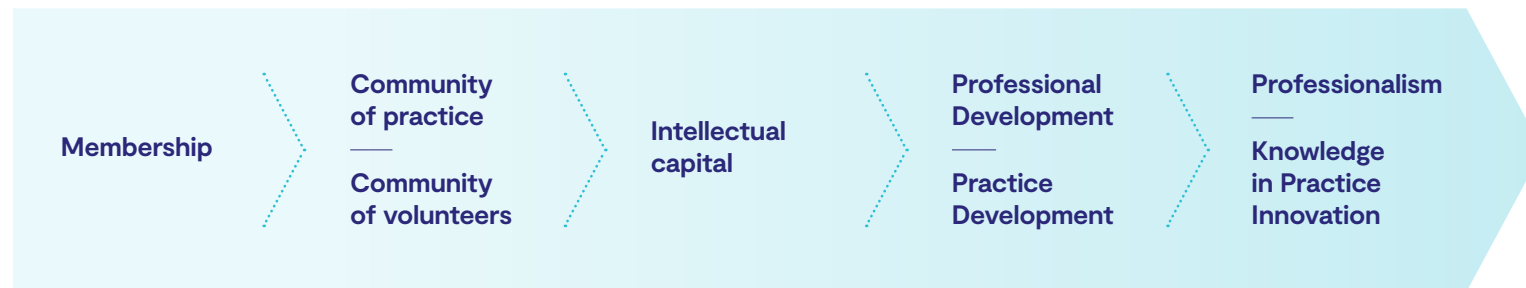
IPEM's Values:

Trusted: The leading voice in improving health through physics and engineering.

Inclusive: Enabling a diverse and inclusive professional community.

Progressive: Delivering innovative practice development for the public good.

How we achieve our charitable purpose for public good



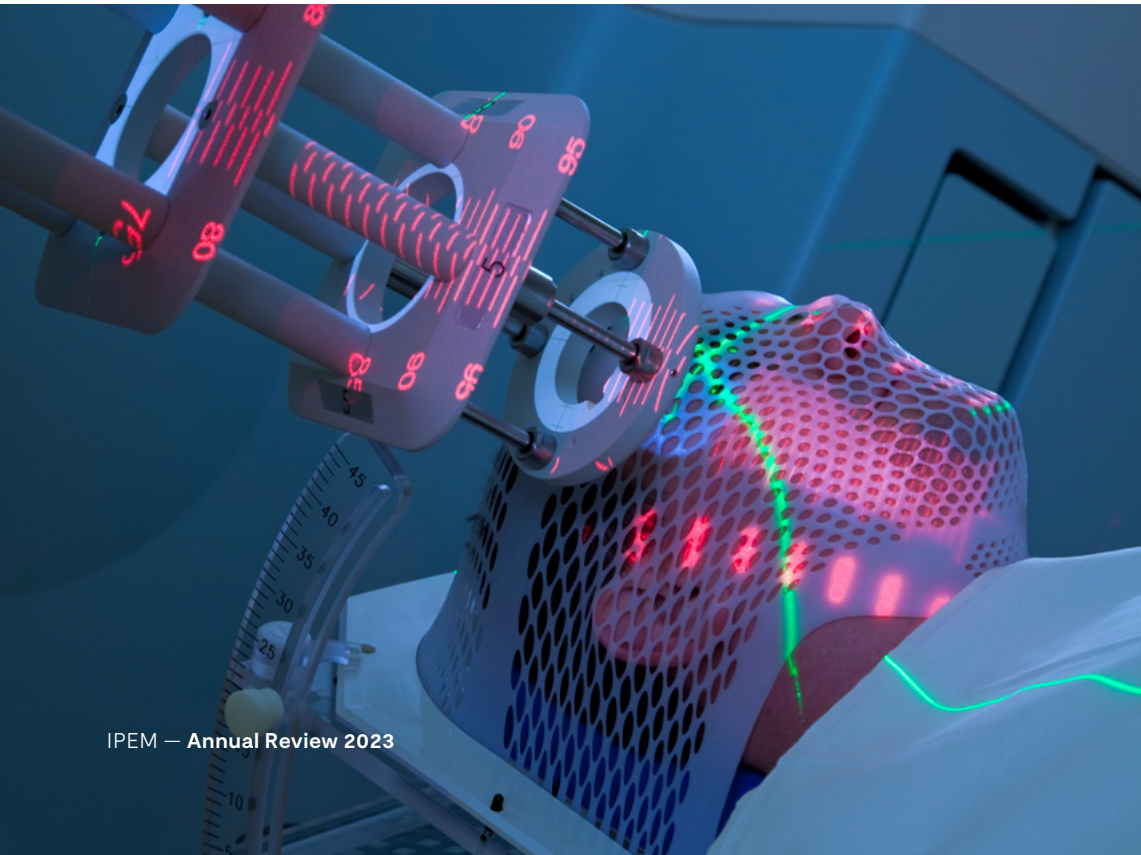
Professional Development





Professional Development

Physics and engineering knowledge and skills have an impact on patient care. Through education, training and continuing professional development opportunities, scientific publications (including international journals), scientific meetings, as well as bursaries and awards, IPEM encourages the development and growth of expertise that will benefit the public and healthcare services.



In line with our mission and vision, the principal beneficiaries of the Institute's work are healthcare patients. Thanks to the professionalism of IPEM members, diagnosis, treatment, and rehabilitation is undertaken at the highest standards of safety and quality.

The public also benefits from the work of our members where it drives innovative developments in care and treatment.

Many members work directly with the public as part of multi-disciplinary teams in hospitals, using the Institute's Reports, standards, and guidance.

Others work as part of the wider system of academic research, industrial development, and translation into practice.

All members are supported by IPEM's training, education, CPD, academic publishing, innovation awards programme, scientific meetings, or professional networking activities.



**IPEM's work benefits patients:
our members ensure the highest
standards of safety and quality**



22

new trainees enrolled on the Clinical Technologist Training Scheme

69

people attended our Clinical Scientist Trainee Day

||

IPEM is dedicated to developing the next generation of medical physicists and clinical engineers and is supporting them in many different ways.

Developing and Supporting Professionals – Training and Courses

The Clinical Scientist Guided Training Scheme was launched at IPEM’s Science, Technology and Engineering Forum (STEF) in February 2023 and successfully enrolled its first two cohorts, with 17 trainees in total.

The Clinical Technologist Training Scheme (CTTS) enrolled 22 new trainees in 2023.

We expanded our course offering during the year, developing 3 new courses: ‘AI for Assessors’, ‘HSSE and How to Get It’ and ‘Understanding Autism’, as well as partnering with IoP Publishing to deliver two Peer Review Workshops.

We hosted a Clinical Scientist Trainee Day, having previously run a Trainee Induction Day in person which was stopped due to Covid. This was brought back as the Clinical Scientist Trainee Day in person for the first time in December 2023 with 69 attendees. This proved to be a great networking opportunity for Clinical Scientist trainees across all of the routes to registration.

The IPEM Continuing Professional Development (CPD) audit was completed in September, with a pass rate was 100% (including re-audits) for the first time. The Register of Clinical Technologists (RCT) CPD audit was completed in September, with a pass rate was 75% compared to 51% in 2022.

IPEM is dedicated to developing the next generation of medical physicists and clinical engineers, and completing a relevant degree supports students with meeting the educational requirements for some routes into the profession.

Three new MSc degrees were accredited: MSc in Medical Engineering Design at Keele University, and the University of Strathclyde’s MSc in Biomedical Engineering with Biomechanics and MSc in Biomedical Engineering with Cell and Tissue Engineering, along with nine currently accredited MSc degrees being successful in their renewal applications in 2023.

IPEM completed its annual audit of degrees accredited under the Masters Level Accreditation Framework in December 2023, with all universities successfully passing the audit and nominating their student prize winners for 2023, all of whom will be awarded their ‘student prize for best project in 2023’ certificate and prize money by IPEM.

We participated in two accredited visits in 2023 for Engineering Council accreditation, at Imperial College London and the University of Sheffield.

We approved six new applications for IPEM short course approval, up from four in 2022, plus one successful renewal application.



Dr Darren Hart



Professor Heidi Probst

Celebrating Success – Gold Medals, Fellowships, Prizes and Awards

Gold Medals and other awards were presented to IPEM members who had made outstanding contributions in their field of work.

One Innovation Gold Medal was awarded during 2023, to **Dr Darren Hart**. Dr Hart was awarded the medal for his outstanding contribution to the advancement of healthcare innovation resulting in translation into clinical practice.

Dr Hart is a Clinical Scientist and clinical entrepreneur in the medical physics and bioengineering department at the Royal United Hospitals (RUH) Bath NHS Foundation Trust.

Nine members of IPEM were admitted as Fellows. The new Fellows are:

- ▶ **Dr Emmanuel Akinluyi**, a Medical Equipment Engineer at Guy's and St Thomas' NHS Foundation Trust in London.
- ▶ **Dr Fiammetta Fedele**, a Consultant Medical Physicist and Head of Non-Ionising Radiation at Guy's and St Thomas' NHS Foundation Trust.
- ▶ **Dr Sam Tudor**, Consultant Clinical Scientist and Head of Quality Control and Dosimetry at Queen Elizabeth Hospital, University Hospitals Birmingham NHS Foundation Trust.

- ▶ **Dr Mark Hill**, Head of Radiation Physics at the Gray Institute for Radiation Oncology & Biology at the University of Oxford.

- ▶ **Dr Gordon Waiter**, Senior Lecturer at the Aberdeen Biomedical Imaging Centre at the University of Aberdeen.

- ▶ **Dr Bal Sanghera**, a Clinical Scientist at the Paul Strickland Scanner Centre, Mount Vernon Hospital, East and North Hertfordshire NHS Trust.

- ▶ **Professor Dean Barratt**, Director of Studies in Medical Physics and Bioengineering at University College London.

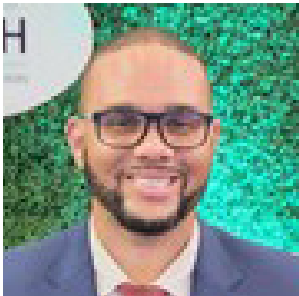
- ▶ **Dr John Dickson**, Head of Clinical Nuclear Medicine Physics at University College London Hospitals NHS Foundation Trust.

- ▶ **Dr Siu Man Lee**, Head of Healthcare Engineering & GI Physiology at the Royal United Hospitals Bath NHS Foundation Trust.

In addition, one Honorary Fellowship was awarded to **Professor Heidi Probst** who stepped down as Director of the Health Research Institute at Sheffield Hallam University, where her research looked at ways to improve the accuracy and reproducibility of breast irradiation whilst ensuring the patient experience is as positive as possible.



Helen Chamberlain



Rahje Shields



Find out more about IPEM's range of grants, prizes and awards and how to apply at [Get Involved - IPEM](#)

Celebrating Success – Gold Medals, Fellowships, Prizes and Awards

The Roberts Prize for best paper published in 2022 in Physics and Medicine in Biology was awarded to **Fiammetta Pagano** for Advances in heterostructured scintillators: toward a new generation of detectors for TOF-PET.

The Martin Black prize for best paper published in 2022 in Physiological Measurement went to **Peter H Charlton**, author of Detecting beats in the photoplethysmogram: benchmarking open-source algorithms.

Pedro Cabrales won the Jack Perkins Prize for best paper in Medical Engineering & Physics for his article Prony Analysis of Left Ventricle Pressure and Volume.

Meanwhile, the Spiers Prize for Outreach was presented to **Dr Carmel Moran** for her “Imaging Inside Out” project.

The winner of the 2023 IPEM/Worshipful Company of Scientific Instrument Makers Early Career Essay Prize was **Helen Chamberlain** for her essay entitled ‘How will the role of physics in the fight against cancer develop over the next 10 years?’

THE second recipient of an IPEM international award recognising the challenges medical physicists and clinical engineers can face in Low and Middle Income Countries (LMIC) was **Rahje Shields**, a medical physicist and radiation safety officer at PRAD Radiation Partners in Jamaica, who was awarded the LMIC Sponsorship Award.

The award seeks to support future healthcare leaders in the field of physics and engineering in medicine from low and middle income countries. The award is particularly focused around supporting the development of professional activities within LMICs with an ambition to increase access to these services for future generations of physicists and engineers.

IPEM issued Innovation grants worth £4,200 overall in 2023. £10,298 was disbursed in grants for student and trainee travel or to enable attendance at specific conferences or events to support research and innovation.



Keeping Professionals Informed – Journals

IPEM’s four international peer-reviewed journals are a great benefit to members, with Full Members and Fellows enjoying free access.



Medical Engineering & Physics provides the latest developments in biomedical engineering and keeps engineers and clinicians abreast of the latest applications of technology to healthcare.

1 Medical Engineering and Physics

Medical Engineering & Physics, edited by Stephen Payne, continued to provide a forum for the publication of the latest developments in biomedical engineering and reflects the essential multidisciplinary nature of the subject. It aims to keep both engineers and clinicians abreast of the latest applications of technology to healthcare through the publication of full length original research and review articles, Special Issues around themed topics, and Technical Notes and Short Communications.

Submissions:	888
Published Articles (Reviews and Original Research):	116
Published Articles (Technical Notes and Short Commentaries):	20
Issues:	12
Downloads:	394,090



394,090
downloads in 2023



11,219

downloads in 2023

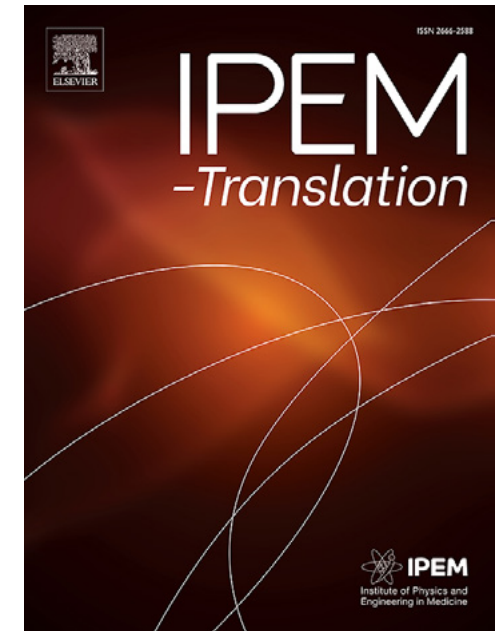


IPEM-Translation provides best practice in research. Its scope extends to more translational research and development leading to the adoption of new medical devices and procedures.

2 IPEM Translation

IPEM-Translation provides a forum for the publication and sharing of best practice among all those involved in the research and development of technologies for use in the diagnosis and treatment of disease and the rehabilitation of patients. In addition to traditional clinical engineering, biomedical computing, instrumentation, medical imaging technology and rehabilitation practice, its scope extends to more translational research and development leading to the adoption of new medical devices and procedures, including potentially disruptive technology and the implications that their introduction may have for healthcare service provision.

Submissions:	20
Published Articles:	6
Issues:	4
Downloads:	11,219





1.294m

downloads in 2023



Physics in Medicine & Biology enjoyed an exceptional year of growth in both submissions and publications.

3 Physics in Medicine & Biology

Physics in Medicine & Biology enjoyed an exceptional year of growth in both submissions and publications. A very healthy growth of 17% in submissions and 28% in publications over prior year (2022). Some of this growth can be attributed to our successful Focus Collections programme, but also because of a growth of articles from Asia and in particular China. We are also pleased to see a continued growth in the geographic diversity of publications, from regions such as Australasia, Central, South and North America.

Submissions:	1,746
Publications:	581
Issues:	24
Downloads:	1,294,042





319,802

downloads in 2023



We continued to run a healthy Focus Collections programme, highlighting current issues and promoting new developments in the area of Physiological Measurement's scope.

4 Physiological Measurement

Physiological Measurement saw an increase in publication of open access content. Many of these publications were covered by a Transformative Agreement (TA) making it free for authors from those institutions that have a TA to publish open access at no cost to themselves. We also continued to run a healthy Focus Collections programme, highlighting current issues and promoting new developments in the area of Physiological Measurement's scope. As with Physics in Medicine & Biology, Physiological Measurement also rolled out 'co-review' which allows two or more people to collaborate on a review report, which has been very well accepted within the community.

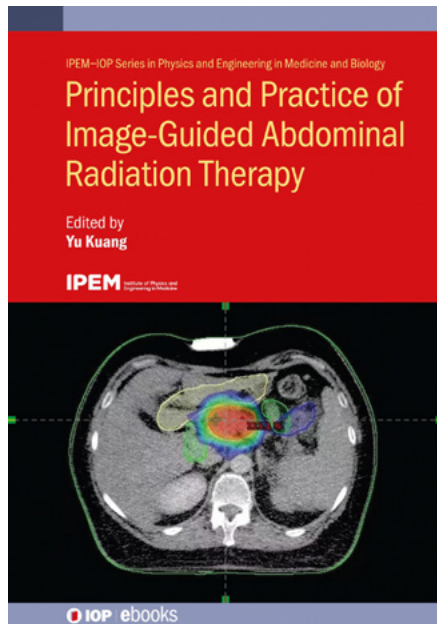
Submissions:	479
Publications:	130
Issues:	12
Downloads:	319,802



In addition, members received quarterly editions of IPEM's popular magazine, Scope.



Ten books were published by IPEM in 2023.



IPEM's books can be purchased via [Books - IPEM](#)

Books

- 1 Principles and Practice of Image-Guided Abdominal Radiation Therapy
- 2 MRI: connecting the dots
- 3 An Introduction to the Physics of Nuclear Medicine 2nd Edition
- 4 Model-Based Approaches in Biomedical engineering
- 5 Internet of Things in Biomedical Sciences: Challenges and Applications
- 6 Spatially Fractionated, microbeam and FLASH Radiation Therapy: A physics and multi-disciplinary approach
- 7 Affective Computing in Healthcare: applications based on biosignals and AI
- 8 Oral Diagnostic Tools and Techniques, a physicists approach
- 9 Neuromorphic Circuits: a constructive approach
- 10 Organ Printing



Two topical reports and five items of guidance were published by IPEM in 2023.

Topical Reports, Guidance and other resources can be accessed at [IPEM Resources - IPEM](#)

Topical Reports

- ▶ Results of a 2022 UK Survey on the use of linac manufacturer integrated quality control (MIQC)
- ▶ Guidance for the Clinical Implementation of Online Treatment monitoring solutions for IMPRT/VMAT

Guidance

- ▶ Radiotherapy Board Statement on Cancer Research UK Policy Statement—the future of radiotherapy services in England
- ▶ Magnetic Resonance Imaging Minimum Staffing Provision Guidance
- ▶ Radiotherapy Board IRMER Guidance for compiling training records for clinical oncologists
- ▶ Clinical Imaging Board: Guidance in imaging equipment from procurement to installation and commissioning: The role of the Medical Physicist
- ▶ Clinical Imaging Board: MRI Provision for cauda Equina Syndrome



Community





New President Takes the Reins

Dr Anna Barnes, an IPEM Fellow, became the Institute's first female President after her appointment was confirmed at the Annual General Meeting.



IPEM's story in 2023 is about growth and focus

A Clinical Scientist in the School of Biomedical Engineering and Imaging Sciences at King's College London, and a Director of the King's Technology Evaluation Centre at KCL, Dr Barnes has been involved with IPEM throughout her career.

She was one of the first two IPEM trainees in Scotland in 1993, specializing in biomedical engineering and equipment management. Dr Barnes then went on to have a career in medical imaging, graduating with a PhD in 1999 from the University of Glasgow followed by two Fellowships at New York University and Columbia University, focusing on neuroimaging and statistical analysis.

Dr Barnes then pursued a research fellowship at the University of Cambridge Brain Mapping Unit before joining University College London Hospital nuclear medicine department as the lead Clinical Scientist for the newly installed Siemens mMR Biograph PET MRI scanner. During this time, she was awarded two NIHR research fellowships to validate, evaluate and deploy imaging biomarkers in oncology and was appointed Chief Healthcare Scientist for the South-East for NHS England.



Dr Anna Barnes
FIPEM, CSci



Valuing Volunteers, Supporting our Members

Volunteers are the heartbeat of IPEM in helping deliver its charitable objectives and steps to improve how volunteers are engaged with and supported continued during 2023. Approximately 450 members of IPEM supported our work by volunteering during the year and we are extremely grateful to each and every one of them. Volunteering opportunities are advertised on our website and via our other communications channels.



450

IPEM members supported our work by volunteering during 2023

During 2023, IPEM was awarded Investing in Volunteers (IiV) status, the UK quality standard for good practice in volunteer management. It aims to improve the quality of the volunteering experience for all volunteers and demonstrates that organisations value the enormous contribution made by their volunteers.

IPEM was assessed against six quality areas and excelled in all aspects of working with its volunteers: vision for volunteering, planning for volunteers, volunteer inclusion, recruiting and welcoming volunteers, supporting volunteers, and valuing and developing volunteers.

IPEM can only achieve its charitable and strategic objectives through our volunteer members and their contributions. Completing the Investing in Volunteers standard process and assessment has allowed us to analyse how we support and interact with our volunteers and how we can best develop and optimise our support.

As part of this we have implemented a number of improvements for our volunteers such as dedicated committee support, better inductions, volunteer policies and volunteer surveys.

The Volunteer Forums continued to be an invaluable way of keeping our valued volunteers up-to-date with what's happening in IPEM, hear about new exciting developments and raise any questions directly with the President, CEO and the National Office team.



Putting Equity, Diversity and Inclusion at the Heart of What we Do

In 2023 IPEM signed the Science Council's new EDI declaration which signalled an important shift from equality to equity. This declaration commits us to create greater opportunities for minoritised people to fulfil their scientific potential by challenging inequities and creating more inclusive practices and policies.



Another commitment we signed is the NHS organisational charter on sexual safety in healthcare which means taking a zero-tolerance approach to any unwanted, inappropriate and/or harmful sexual behaviours within the workplace. This was also reflected in updated volunteer policies and procedure.

Our 2022 decision to systematically collect member data relating to protected characteristics took a further step forwards through the implementation of the new CRM platform in 2023 and the creation of a video explaining our approach. Additionally, in 2023, IPEM:

- ▶ Developed a working partnership with In2Science to focus on social mobility and encourage wider participation in the profession.
- ▶ Was part of the Royal Academy of Engineering and Science Council Diversity and Inclusion progression framework working group.
- ▶ Maintained online discussion forums ("Communities of Interest") for members with protected characteristics, to enable networking and support.
- ▶ Supported the Professional Associations Research Network (PARN) EDI committee and engaged in sharing best practice.



Engaging the Next Generation of MPCE Professionals

Our outreach programme helps young people make career choices and introduces them to our profession.

Outreach equipment was sent to IPEM members 22 times in 2023 for educational events.

Additional outreach resources (careers leaflets/ posters/ presentations/ careers films) were sent out 27 times for outreach events such as STEM fairs, careers or educational events at schools, universities and hospitals throughout the UK.



The find out how IPEM can support your outreach activity and to get involved, visit [Outreach for Schools - IPEM](#)



Leadership





IPEM continued to offer excellent research into workforce issues

Image below:
Science Leadership Day 2023

Expert Knowledge of our Professions

IPEM continued to offer excellent research into workforce issues, with four surveys conducted and four reports published on radiotherapy, magnetic resonance, ultrasound and overarching MPCE in 2023.

In addition, 12 bespoke workforce reports were compiled to assist individual members with local workforce planning or compiling business cases.

Our Workforce Intelligence Information can be found at [IPEM Workforce Intelligence - IPEM](#)

Providing Science Leadership

The Science Leadership Strategy was re-launched following a successful Science Leadership Day in September 2023. This looked at the future of medical physics and clinical engineering over the next 30-40 years, and innovative ways to address the three grand challenges of climate change, workforce and clinical safety and security, in the light of the 3 crosscutting, emerging trends of alignment and collaboration, smart digitisation and personalised health.

The aim of the strategy is to ensure IPEM continues to fulfil its role as a thought leader in medical physics, clinical and biomedical engineering.

To facilitate horizon scanning, and raising awareness of IPEM, staff attended and exhibited at the UK Imaging and Oncology Congress, BioMedEng 23 and the International Conference on Medical Physics.

You can find out more about IPEM's Science Leadership Strategy at [Science Leadership Strategy - IPEM](#)





Advice Notes, Policy and Position Statements

Seven notes and/or policy and position statements were published by IPEM in 2023.

- ▶ Position Statement on 9000 fractions benchmark for radiotherapy services
- ▶ Radiotherapy Leaflet for patients
- ▶ Policy Statement in Implementation of Radiotherapy Codes of Practice
- ▶ Advice note on In-house development and sharing of Software
- ▶ Scientific Safety Advice to MRI Units that undertake Human Imaging
- ▶ Statement on the current state of the MPCE healthcare workforce in the UK
- ▶ The Role of the Clinical Scientist in Magnetic Resonance Imaging

Advice Notes, Policy and Position Statements can be read at [Resources – IPEM](#)



Engagement with Policy Makers

One of the key ways IPEM offers a trusted and effective voice is in the area of public policy and consultations. We do this by drawing on the valuable expertise and experience of our members.



IPEM responded to four consultations during 2023:

- ▶ Department for Science, Innovation and Technology: AI regulation.
- ▶ House of Commons Health and Social Care Committee: Future cancer.
- ▶ National Institute for Health and Care Excellence: AI in radiotherapy.
- ▶ National Health Service: Non-Surgical Oncology Advanced Practice Curriculum Framework.

A letter was written to the Head of the National School of Healthcare Science expressing concern over flaws in the Scientist Training Programme recruitment process, which had resulted in training places going unfilled.

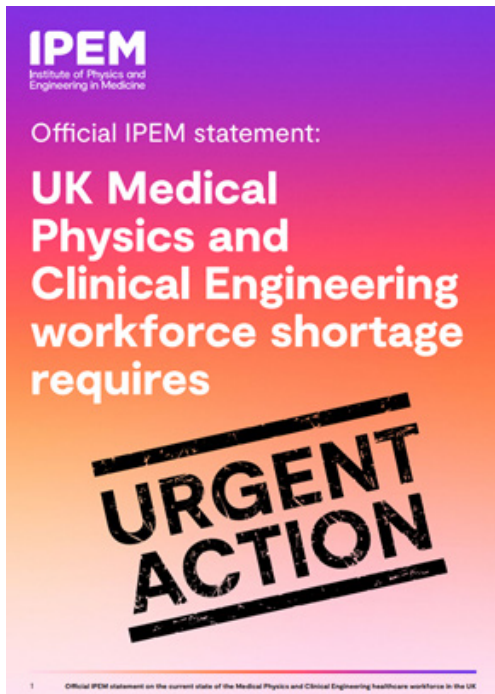
The Heads of Medical Physics and Clinical Engineering Meeting for England was re-instated.



IPEM responded to 4 consultations in 2023



IPEM Takes Urgent Action to Tackle the Workforce Crisis



'Crisis point', barely 'adequate' staffing, a workforce 'on its knees', 'perfect storm', and 'sinking ship' are just some of the phrases which summed up a year of shocking reports on the state of the workforce shortages within the medical physics and clinical engineering (MPCE) community. It was a constant and consistent message from IPEM as every new survey and report confirmed what the Institute has been saying for years about workforce shortages in MPCE – it is not just shortages of doctors and nurses putting patient safety at risk.

During 2023, IPEM published a major statement on the MPCE workforce, setting out the extent of the shortages and highlighting key actions that should be taken to address them.

IPEM also wrote to the Deputy Chief Scientific Officer for England, the Chair of the newly-formed APPG for Diagnostics and to the Secretary of State for Health and Social Care.

Supporting Radiotherapy Services

The All-Party Parliamentary Group for Radiotherapy (APPGRT) launched the inquiry into radiotherapy provision across the country and its ability to cope with urgent present and future challenges in cancer care.

IPEM submitted written evidence to the inquiry, highlighting the need to address workforce shortages, funding to replace ageing equipment,

increased access to Artificial Intelligence (AI) technologies and a review of patient access to services.

Nicky Whilde, Chair of the Radiotherapy Professional Standards Panel, represented IPEM at the inquiry session, which was led by Tim Farron MP, Chair of the APPGRT.

The inquiry considered the ongoing issues with the delivery of UK radiotherapy services, how radiotherapy can support current and future cancer demands and what could be achieved with an appropriately funded and organised service. The final report is being published in 2024.

IPEM Raises Medical Radionuclide Supply in Parliament

In recent years, the strength of the UK supply of radionuclides has been called into question for a variety of reasons, including the UK's departure from the EU, the war in Ukraine, and the decommissioning of reactors in Europe. In February 2023, the matter was debated in the House of Commons, with IPEM members providing information and insights in order to raise the profile of this crucial issue. IPEM worked with Liz Saville Roberts, Plaid Cymru MP for Dwyfor Meirionnydd and the party's Westminster Leader, to provide much of the information for the debate, and she publicly thanked the Institute for its help in drawing attention to the matter.



Professor Sir Jonathan Van-Tam MBE



STEF 2023 provided a major forum for MPCE professionals, with more than 220 attending each day.

Book for STEF 24 at [STEF - Science, Technology & Engineering Forum - IPEM](#)

Science, Technology and Engineering Forum 2023

The Science, Technology and Engineering Forum (STEF) was held over two days at the University of Strathclyde Technology and Innovation Centre in Glasgow, attracting more than 220 delegates each day.

STEF featured some high-profile speakers, including Professor Sir Jonathan Van-Tam MBE and Carol Monaghan MP for Glasgow North West, who is a member of the House of Commons Science and Technology Select Committee.

Each day had specialty streams for radiotherapy, imaging and radiation protection, engineering, education and professional development, and on day two a number of teaching sessions and workshops, including on how to get published in journals and a radiation protection regulation refresher.

Posters submitted to STEF were displayed on e-noticeboards for viewing and discussion during the session breaks, with the best one, as judged by a panel, winning a prize.

STEF was opened by Professor Paul McKenna, of the University of Strathclyde, Dr Robert Farley, IPEM's President, and Professor Andrew Reilly, Chair of the STEF organising committee.

One of the keynote speakers was Professor Bas Raaymakers, of the University of Utrecht, who delivered the John Mallard lecture on 'Hitting tumours with the hybrid 1.5T MRI radiotherapy system' to a packed auditorium.

The programme saw a host of talks being held across both days, everything from Adaptive Radiotherapy to Medical Device Regulation, MRI updates to Addressing Challenges in Rehabilitation Engineering, the Clinical Safety of Healthcare IT Systems to the Workforce of the Future and Training Routes. A talk on Sustainability proved to be incredibly popular, with people even having to sit on the floor as the room was so full!

STEF also saw the official launch of the Clinical Scientist Guided Training Scheme and the Low and Middle Income Countries Award for 2023.



Artificial Intelligence (AI) was a theme addressed in many talks, including Big Data, AI in Radiotherapy and Governance of AI, which featured the views and thoughts of Carol Monaghan MP on the subject.

The final session of STEF saw three notable abstracts being presented, President Elect Dr Anna Barnes gave a glimpse into how she hopes to see her presidency build on and develop the themes of leadership, professional development and community, and Professor Reilly looked forward to a special edition of IPEM Translation being produced to include papers covering the posters and presentations at STEF.

STEF 24 is scheduled to take place in London in October 2024.

Book for STEF 24 at
[STEF - Science, Technology
& Engineering Forum - IPEM](#)

IPEM's New Artificial Intelligence (AI) Group

Embracing the opportunities and tackling the challenges of AI and other emerging technologies is a key theme of IPEM's Science Leadership Strategy.

AI has the potential to be an enabler of workflow productivity and innovative technologies, but is a step into the regulatory unknown. Digital technologies have the potential to improve rate and efficiency of research and development, reduce costs and reduce workload, particularly through easing administrative burden and accelerating analysis.

We must ensure the healthcare science community – at all career stages – has the skills to keep up with digital, technological and scientific change. Skills to invent, innovate, adopt and transform are the essence of science and engineering, but formal procedures must be broadened to embrace change. The extensive skills held by medical physicists and clinical engineers in this field need to be used and shared with the wider healthcare community, for instance in the acceptance testing, clinical commissioning and

ongoing quality assurance of new AI software. This is also essential to ensure the ethical management of AI and, indeed, other rapidly developing technologies.

IPEM's AI Group will look at these and other issues and has been developing its workplan to:

- ▶ Connect with the SIGs to ensure full representation
- ▶ Connect with external bodies such as the Royal College of Radiologists, trade association AXREM and the Society of Radiographers
- ▶ Carry out work to establish what IPEM members' needs and aspirations are regarding AI
- ▶ Decide on workstreams and develop plans to progress them
- ▶ Engage with IPEM members (through the AI and Machine Learning Community of Interest) to understand topics and issues members feel should be raised for consideration by the AI Group and to share the Group's activities.



IPEM continues to work with a wide range of partners, both across the UK and around the world to benefit the MPCE community.

International and other stakeholders

In 2023 IPEM:

- ▶ Provided administrative support to the International Organisation of Medical Physics (IOMP), the International Federation of Medical and Biological Engineering (IFMBE), the Radiology and Oncology Congress and the Consortium for Sonographic Education.
- ▶ Participated in meetings of the European Federation of Organisations for Medical Physics (EFOMP), IOMP and IFMBE Councils and attended the International Conference on Medical Physics, held in Mumbai, India.
- ▶ Continued to fund a policy officer role for the Campaign for Science and Engineering, and supported the work of the Science Media Centre.
- ▶ IPEM made donations to continue our support for the work of In2Science, a charity that promotes social mobility in STEM careers, and the British Society for the History of Radiology.
- ▶ IPEM joined the Global Clinical Engineering Alliance (GCEA), which empowers and recognizes the clinical engineering profession for its unique contribution to improving healthcare delivery outcomes.

A memorandum of understanding between IPEM and AXREM, the UK trade association representing suppliers of diagnostic medical imaging, radiotherapy, healthcare IT and care equipment in the UK, will formalise already strong working relationships between the two organisations. The partnership will see joint promotion of events as well as other opportunities to engage on a range of projects, including IPEM's Science Leadership Strategy with the aim of driving transformative professional development across the sector.



Improved Staffing Structure

In order to further IPEM's charitable aims and better support the medical physics and clinical engineering community, the staff body was reorganised at the end of 2023 to create the following teams:

Policy and impact

Covering Communications & Public Affairs; Workforce Intelligence; Professional Knowledge and Innovation

Community and Commercial

Covering Membership; Commercial relationships, events and publications; Governance, Finance and Operations

Education and Professional Development

Covering Education and Training; Accreditation and course approval; Registration and CPD

Finance



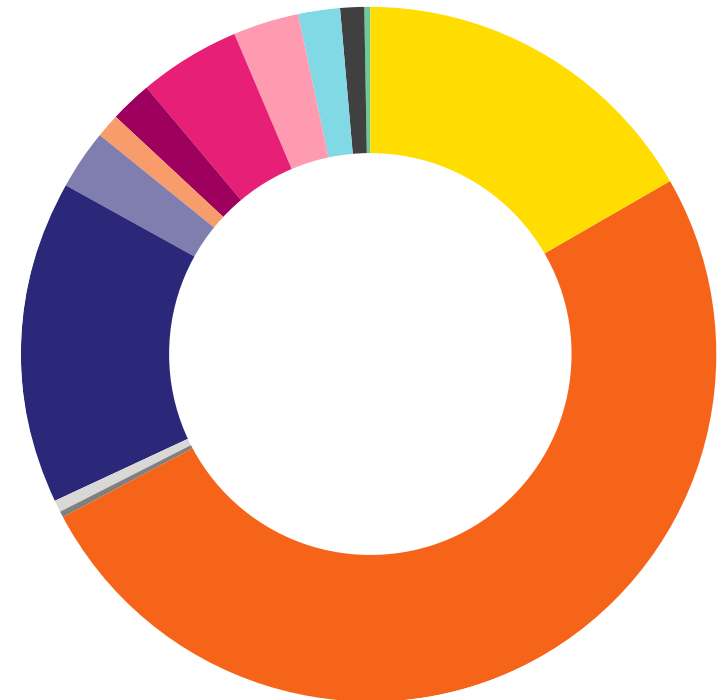


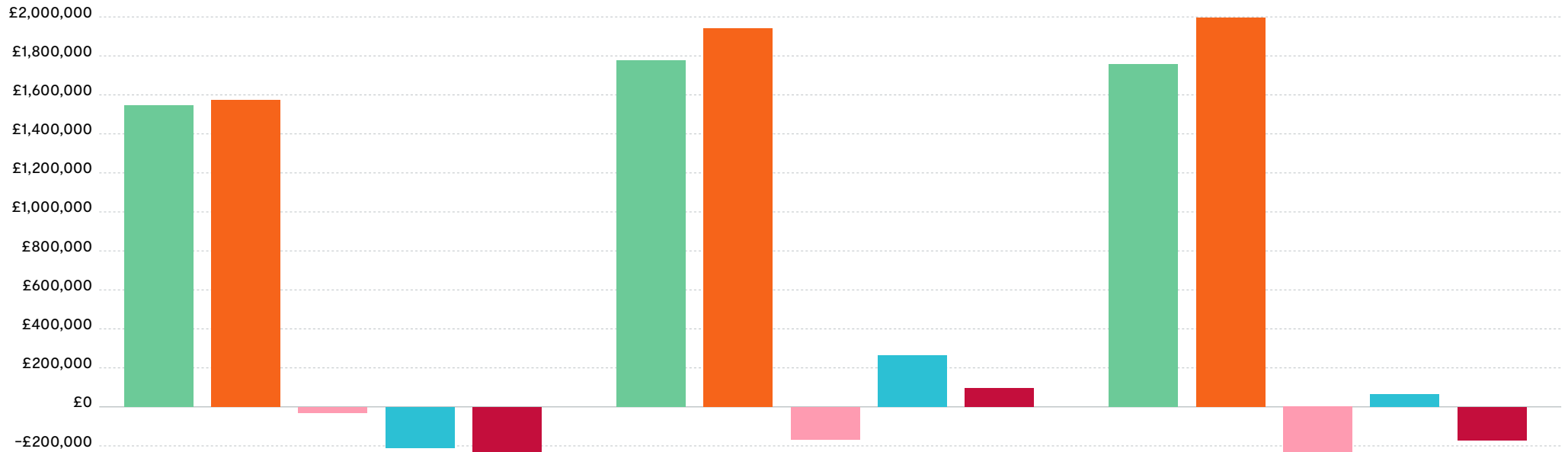
The net surplus for the Group in 2023 is £95,951, compared with a net deficit in 2022 of (£236,160). This consists of a net surplus in 2023 on Unrestricted Funds of £95,951 (2022 net deficit of £234,810) and no movement (2022 net deficit of £1,350 as restated) on Restricted Funds. Free reserves as at 31st December 2023 were £1,542,203 (2022: £1,680,942 as restated). These are the net funds available after deducting fixed assets of £887,105 (2022: £485,285), restricted funds of £200,690 (2022: £200,690 as restated) and designated funds of £1,499,101 (2022: £1,666,231). The organisation is in a robust financial position, confident in our ability to withstand any financial uncertainties and challenges over the medium-term.

IPEM Consolidated Income 2023

Membership Subscriptions	£297,160
Journal Income	£900,766
Books and Report	£6,130
Journal subscriptions	£5,313
Scientific Meetings	£267,896
International Support	£51,887
Advertising	£16,817
Training Scheme Fees	£36,920
RCT Registrations	£81,593
Other training, registration and accreditation income	£57,420
Non-charitable advertising income	£33,707
Investment income	£19,008
Other income	£2,166

Total £1,776,783





2022 Actual

Income	£1,545,734
Expenditure	£1,574,330
Net income / (expenditure)	-£28,596
Unrealised Gain / (losses) on Investments	-£207,564
Net Movement of Funds	-£236,160

2023 Actual

Income	£1,776,783
Expenditure	£1,943,913
Net income / (expenditure)	-£167,130
Unrealised Gain / (losses) on Investments	£263,081
Net Movement of Funds	£95,951

2023 Budget

Income	£1,760,194
Expenditure	£1,995,697
Net income / (expenditure)	-£235,503
Unrealised Gain / (losses) on Investments	£65,064
Net Movement of Funds	-£170,439

Year in Numbers





4,970 Members

10

professionals newly registered with the Engineering Council via IPEM”.

21.17%

Affiliate Members

21.61%

Associate Members

51.05%

Full Members

5.96%

Fellows

0.21%

Professional
Affiliate Members



More than

6,000

users on IPEM's
online Communities
of Interest.

We held 17 events,
attended by nearly

1,400

people



ipem.ac.uk



Institute of Physics and Engineering in Medicine
Fairmount House, 230 Tadcaster Road, York. YO24 1ES

Registered in England and Wales No. 3080332.
Registered Charity No. 1047999