

Annual Review 2021

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President's Report

In 2021, the sustained pandemic emergency affected the entire economy as well as having a direct impact on IPEM members, the vast majority of whom served the country through their employment in healthcare services and the NHS. IPEM supported their work by sharing knowledge and bringing people together in networks of professional practice to solve problems. However, it was notable how quickly professionals adapted, requiring less support as the emergency became routine.

Covid regulations affecting the whole population, rules specifically restricting NHS staff from travelling and gathering and the general sense of uncertainty remained with us throughout the year. The optimism of late 2020 that something more normal may resume in 2021 faded as the roadmap projected a staged relaxation of the rules through to the summer. In the final analysis, IPEM's activities in the year more closely resemble the latter nine months of 2020 than the pre-pandemic era.

Volunteering remains the lifeblood of the Institute and I want to thank all of IPEM's volunteers for the way they continue to actively contribute to IPEM's charitable objectives. Special Interest Groups, Task and Finish Groups, Committees and Councils all continued their valuable work, making use of Zoom or Teams to communicate and make decisions.

The Board of Trustees met (remotely) four times in the year, discharging their governance obligations without disruption. This performance has not only had a positive effect on expenditure, with expenses across the year reduced, it allowed us to reconsider the Covid-related impacts that were added to the risk register at the start of the pandemic, where we were concerned that widespread illness and lack of volunteer availability could severely impact our operations.

IPEM's Annual General Meeting was held on schedule, online for the second year in a row, facilitating a change of President. I offer my thanks to the IPEM volunteers who have kept our activities alive in 2021, some of whom are yet to even meet in person. It is partly in recognition of the value of their input that IPEM is committed to achieving the "Investing in Volunteers" standard in 2022/23. I would also like to pay tribute to my predecessor as President, Professor Stephen O'Connor, who provided such strong leadership in the changeover of Chief Executives in 2020 and throughout the pandemic emergency. I was very pleased to take over from Stephen at the AGM.



President's Report

Despite the lack of freedom of movement necessary for the networking, events and training which is core to the life of a professional body, the year was broadly successful on its own terms. Following the pattern set in 2020, IPEM held 14 online events, attended by more than 1,300 people. Some 76 technologists enrolled on IPEM's training scheme, up from 51 the year before. A new brand for the organisation, designed for the digital age, was rolled out. Our member magazine SCOPE was recognised for its excellence with a prestigious national award. Staff worked hard throughout the year to maintain a Covid-safe workplace and, began the groundwork in 2021 for a new IPEM website and an upgrade on the current Customer Relationship Management platform. As a small organisation, projects on this scale can be disruptive but also transformational and I am pleased to say that the new website went live in March 2022, generating a highly positive reaction. as of March 2022.

'IPEM 2025', our strategy, launched in July 2021. After considerable engagement across the organisation, we have refined IPEM's purpose and activity into three operational areas – professional development, community, and leadership.

// The well documented workforce shortages and the public policy landscape are the context in which members will be tackling a backlog in diagnosis and treatment of truly historic proportions. //



Our strategy, 'IPEM 2025'

Professional development covers our work to promote standards and professionalism and focuses on training and education. Community is about our membership, and the networks we can create to further develop professionalism and support personal and career growth. Leadership has IPEM as your voice, speaking up on public policy and sharing research, guidance and best practice. This strategy provides a platform for growth and is a genuinely exciting moment for IPEM. It will increasingly become the basis of how we structure our work and report on performance.

Work also got underway on formulating a strategy for science. Developed through engagement with our members, when complete this document will put forward ideas on the grand challenges and emerging trends that will shape their operating environment for IPEM members in decades to come.

Whilst the pandemic emergency may have passed, the long fight is just beginning. The well documented workforce shortages and the public policy landscape are the context in which members will be tackling a backlog in diagnosis and treatment of truly historic proportions.

I am pleased to say that IPEM is moving towards becoming a stronger, more impactful professional body, and one which will amplify the voice of our members through the years ahead.

Dr Robert Farley, FIPEM



Professional Development

Providing excellent learning and development services that meet the needs of the professional community of physicists, engineers and technologists working in physics and engineering in medicine and biology in hospitals, academia, and industry is the aim of this strand of the IPEM 2025 strategy.

The Covid-19 pandemic continued to have an impact throughout 2021 and once again, IPEM had to hold all scientific meetings, a tremendous source of learning and development for members, online. Despite that, some 14 events were still held on a variety of topics, from the popular MPE Update to Physics and QA of Ultrasound.

In addition to the scientific events, the annual MPEC meeting was held online in September, and overall, more than 1,300 members attended the scientific meetings and MPEC. What was particularly encouraging was the number of non-members who also attended IPEM's scientific meetings, a possible positive consequence of them being held online and supporting with wider promotion.



Training and courses

Training is a vital element of professional development and a number of new programmes were launched in 2021.

Two Higher Education Institutions had courses accredited by IPEM during the year, the University of Cambridge for MEng (Hons) Engineering and City, University of London, for BEng Biomedical Engineering and MEng Biomedical Engineering. Some 13 short courses were approved as well, up from two the previous year. There was also a major increase in the pass rate for IPEM's Continuing Professional Development scheme, from 69 per cent in 2020 to an impressive 97 per cent.

By the end of 2021, some 76 people had enrolled on the IPEM Clinical Technologist Training Scheme, up from 51 at the same point in 2020.

The long-awaited Magnetic Resonance Safety Expert (MRSE) Certificate of Competence was launched when applications for the IPEM scheme opened in September. It had taken several years to get the scheme up and running but within a matter of months of it starting, the first participants received their certificates early in the new year.

Three new elearning programmes were also launched or updated during the year as part of the Health Education England elearning for healthcare partnership. MRI Safety, incorporating five different courses, was developed by

Professional Development

IPEM with other key organisations, Radiation Safety for non-radiological hospital staff (e-RADS) was developed in collaboration with Plymouth Hospitals NHS Trust, and a new radiotherapy module was added to the Ionising Radiation (Medical Exposure) Regulations e-learning programme (e-IRMER).



Gold Medals and awards

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

IPEM Fellow Professor Indra Das, Vice Chair, Professor and Director of Medical Physics at Northwestern University Feinberg School of Medicine in Chicago, was awarded the Academic Gold Medal. Professor Das is an internationally known medical physicist with a track record of sustained presence in clinical areas, teaching, service and research. He has contributed to every area of radiation oncology physics, including electron, photon, proton and MR-Linacs.

Dr Peter Charlton, a British Heart Foundation Research Fellow in the Department of Health and Primary Care at the University of Cambridge, specialising in the development of biomedical signal processing to aid clinical decision making, was awarded the Academic Early Career award.

Three members were honoured during the year for their long and exceptional voluntary service to IPEM. Fellow Claire Hardiman, Head of Radiation Physics and Radiobiology at Imperial College Healthcare NHS Trust in London, new Fellow Dr Vivian Cosgrove, Head of Radiotherapy Physics at Leeds Teaching Hospitals NHS Trust, and Fellow Professor Azzam Taktak, Consultant Clinical Scientist/Honorary Professor at Liverpool University Hospitals NHS Trust, were recipients of the President's Gold Medal for Exceptional Service.

A new IPEM Gold Medal for Exceptional Service During the Covid-19 Pandemic was awarded in 2021. New Fellow Dr Richard Axell, Clinical Scientist at University College London Hospitals NHS Foundation Trust, and teams at Morriston Hospital Medical Device Training Team, the Southeast Mobility and Rehabilitation Technology (SMART) Centre Healthcare Science in Edinburgh, and the Non-ionising Radiation Team at the Department of Radiology, Medical Physics and Clinical Engineering, University Hospital of Wales, were worthy recipients of this award.



Clockwise: Professor Indra Das, Dr Peter Charlton, Dr Vivian Cosgrove, Dr Richard Axell, Ms Claire Hardiman and Professor Azzam Taktak

By the end of 2021, some 76 people had enrolled on the IPEM Clinical Technologist Training Scheme, up from 51 at the same point in 2020.

Professional Development

Innovation grants

The benefit of professional development was borne out with a myriad of prizes, grants and awards totalling more than £37,500 being awarded by IPEM in 2021.

Three Innovation Grants were awarded to members:

1 Gait analysis

A study to validate wearable sensors to measure gait impairments in children saw biomedical engineer Dr Elizabeth Wojciechowski, an IPEM member working in the Paediatric Gait Analysis Service at the Children's Hospital at Westmead, Sydney, Australia, awarded an Innovation Grant to aid her research into Charcot-Marie-Tooth disease (CMT), the most common hereditary peripheral neuropathy, which is passed down through generations within families.



A progressive disease for which there is currently no cure, CMT causes muscle weakness which results in difficulty walking, poor balance and frequent trips and falls.

2 Tracking eye movement

Dr Damian Farnell, a Senior Lecturer in Applied Mathematics in Dentistry in the School of Dentistry at Cardiff University, was awarded an Innovation Grant to help his research on tracking how people read a leaflet aimed at helping children in Wales improve their dental health.



The two-year study uses a small infrared tracker at the bottom of a computer screen to automatically track eye movement across an image of the leaflet on the screen. This will help to pinpoint what captures people's interest on the screen and for how long.

3 MRI for fetus development

Finally, Dr Magdalena Sokolska, of the Department of Medical Physics and Biomedical Engineering at University College London Hospitals NHS Foundation Trust, was awarded an Innovation Grant to aid her project on using magnetic resonance imaging to confirm and detail abnormalities in a developing fetus to enable surgery to be carried out in the womb to repair malformations due to spina bifida. Dr Sokolska's project is looking at the necessary technical infrastructure to provide a safe and effective clinical service to patients.

PhD in Work bursary

A new IPEM PhD in Work bursary to help students wishing to undertake a part-time PhD in a relevant field of interest at a UK university or research institute, was awarded for the first time in 2021. Belinda Gorell, a Clinical Scientist in the Radiation Protection Service at Velindre University NHS Trust, Cardiff, became the first recipient of the bursary.



There were also eight winners of the IPEM Student Prize for the best project on an IPEM-accredited MSc course, who each received £250 and a certificate.

Professional Development



Advancing Healthcare Awards

IPEM also returned to sponsoring a category in the Advancing Healthcare Awards, with the Award for Innovation in Healthcare Science. This followed the success of the team, led by IPEM member and former Vice President International Basit Abdul, behind the UK's Global Clinical Engineering Day entry. The team was named the AHA Overall Winner for Healthcare Science 2021 for the video they produced, and they also won the Academy for Healthcare Science Award for Inspiring the Healthcare Science Workforce of the Future.



Basit Abdul



Journals

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



Physics in Medicine & Biology

Submissions:	1,463
Publications:	574
Issues:	24
Impact Factor:	3.609
Downloads:	1,006,486
Ranking:	
>	40/89 (Q2) Engineering, Biomedical
>	45/133 (Q2) Radiology, Nuclear Medicine & Medical Imaging

Physics in Medicine & Biology welcomed Katia Parodi in her post as Editor-in-Chief at the start of 2021 and enjoyed a healthy year of submissions and acceptances. In 2021 the journal received more review article submissions than ever before, 19 of which were accepted throughout the year. Two more Roadmaps were published, following their launch in 2020, and the journal launched a handful of new focus collections – one of which was a collaboration between another IOP Publishing journal, Machine Learning: Science and Technology.

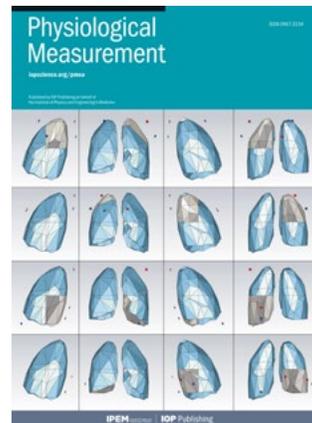


Professional Development

2 Physiological Measurement

Submissions:	503
Publications:	163
Issues:	12
Impact Factor:	2.833
Downloads:	292,463
Ranking:	
> 41/81 (Q3) Physiology	
> 41/71 (Q3) Biophysics	
> 53/89 (Q3) Engineering, Biomedical	

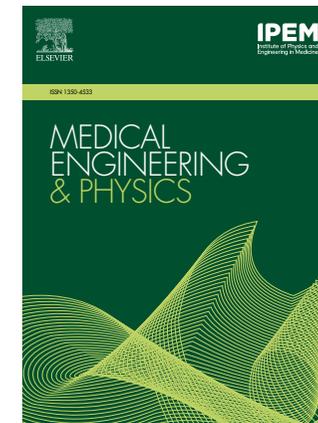
Physiological Measurement saw a big increase in its Impact Factor in 2021 to 2.833 – the highest the journal has ever seen – for the second year in a row. Submissions overall were stable. We published articles across nine different focus collections, and launched a host of new ones to highlight some of the most important topics in the field.



3 Medical Engineering and Physics

Submissions:	734
Published Articles: (Reviews and Original Research)	114
Published Articles: (Technical Notes and Short Commentaries)	24
Issues:	12
Impact Factor (2019):	2.242
Downloads:	357,899
Ranking:	
> 64/90	

Following the sad and untimely death of Medical Engineering & Physics' new Editor-in-Chief, Tania Douglas, in March 2021, we announced the appointment of Stephen Payne as Tania's replacement. Stephen edited his first issue of the journal in June 2021. Many thanks are due to previous Editor-in-Chief, Richard Black, for stepping into the role in the intervening period.



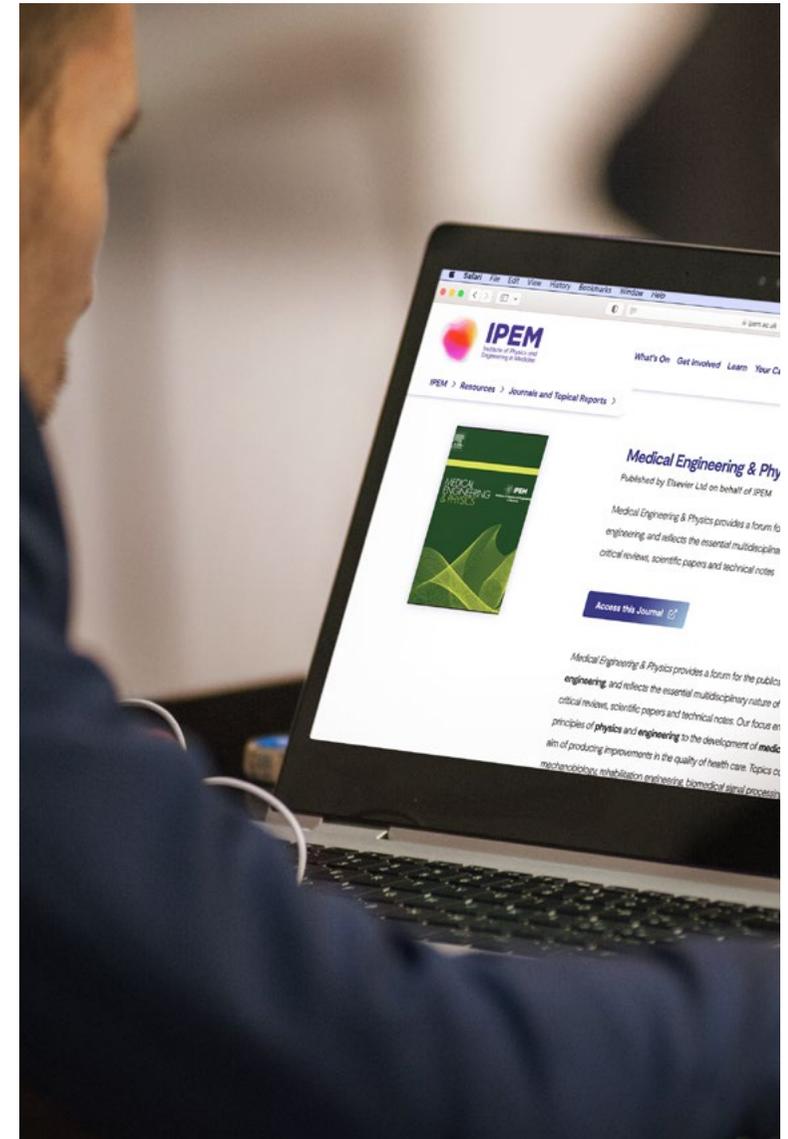
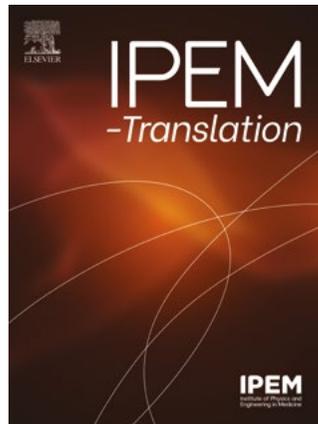
Professional Development

4 IPEM Translation

IPEM *Translation* launched in November 2020 and 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.

The journal is a fully gold open access journal so all papers published are immediately available for all to read. Currently, and until the end of 2022, all authors benefit from a 100% waiver on the Article Processing Charge – if their work is accepted for publication, it will therefore be made openly available at no cost to the author. Articles can be submitted via [Editorial Manager®](#)



Community

Growing and nurturing a vibrant community of practice through our membership, with high professional standards at its core, outstanding volunteer engagement and a real commitment to equality, diversity, and inclusion, is the second strand of IPEM's 2025 strategy.

Community

Volunteers are the heartbeat of IPEM in helping deliver its charitable objectives and steps to improve how volunteers are engaged with and supported took giant strides forward during 2021.



Volunteer help and support

A new Volunteers' Guide was launched during the year, setting out how IPEM can provide help and support to the more than 400 members who get involved in a variety of committees, Special Interest Groups and working parties to help IPEM grow and be more influential and professional.

In his introduction to the guide, Dr Robert Farley, IPEM's President, highlighted the invaluable contribution volunteers make to help IPEM achieve its charitable objectives and expressed his thanks for their work.

Dr Farley also took part in a new venture to engage with volunteers, hosting two Volunteer Forums during the year. The Forum is a chance for our valued volunteers to find out what's happening in IPEM, hear about new exciting new developments and raise any questions directly with the President, CEO and IPEM National Office team.

Another new initiative was the launch of IPEM Insights, the beginning of what will become a series of podcasts and vodcasts featuring volunteers talking about topics which really matter to them and which are of interest to the wider IPEM membership.

The first podcast featured a round table discussion, chaired by Dr Robert Farley on the Department of Health and Social Care's White Paper 'Integration and innovation: working together to improve health and social care for all'. The panellists included Angela Douglas MBE, Deputy Chief Scientific Officer for NHS England and NHS Improvement and now an Honorary Fellow of IPEM, and IPEM members Dr Anna Barnes, Robin Mark McDade and Nick Gulliver.

Further IPEM Insights featured Dr Heather Williams MBE in conversation with fellow IPEM member and British Heart Foundation Research Fellow Dr Peter Charlton, talking about what it is like working in medical physics, and a lively discussion on cybersecurity in healthcare delivered in partnership with City, University of London.

Towards the end of 2021, IPEM began the process of applying for Investing in Volunteers (IiV), the UK quality standard for good practice in volunteer management.

National Office staff undertook initial training as the first step towards gaining the standard, a key part of IPEM's commitment to demonstrating just how valued our outstanding volunteers are. The work to achieve Investing in Volunteers will continue throughout 2022 and will involve many volunteers taking part in a number of interviews and assessments as IPEM strives to achieve the kitemark.



Our new Volunteers Guide

Community

IPEM website

Following the successful re-branding of IPEM and the launch of the new IPEM 2025 strategy in 2021, attention turned to the major project of the year – the launch of IPEM’s new website. Volunteers worked with National Office staff on the new design, functions, and features to transform IPEM’s digital footprint in a way that is engaging for all stakeholders, and particularly our members.

A fresh, accessible, responsive platform, the new site is designed to serve the needs of users much more effectively. As a hub of valued, dynamic and increasingly interactive content, it will underpin growth in membership, offering professional development opportunities for members, a sense of community and a place to demonstrate leadership and advocacy on the key issues impacting healthcare science.

The new website went live in March 2022.



Our new website is optimized for all devices

Inclusiveness is one of IPEM’s three key strategic values and it will be part of everything IPEM does and every decision made – both as a professional body and as an employer.

Communities of Interest

The Communities of Interest (Col) really came into their own during the height of the Covid-19 pandemic in 2020, when IPEM took the decision to open them to non-members to help share best practice in response to the crisis by offering professional, expert advice to those who needed it.

They provided a wealth of information, advice and guidance, and many valuable conversations and discussions took place across the forums.

The ColS continued to grow throughout the year, with more members than ever becoming part of the platform and conversation.

Equality, Diversity and Inclusion (EDI)

Equality, diversity and inclusion is something IPEM has long been committed to, dating back almost a decade with the signing of the Royal Academy of Engineering’s (RAE) Engineering Diversity Concordat and the Science Council’s diversity declaration.

Inclusiveness is one of IPEM’s three key strategic values and it will be considered as part of everything IPEM does and every decision made – both as a professional body and as an employer.

During the year, that commitment to EDI really stepped up a gear. A new, updated and revised Diversity and Inclusion Framework was launched. This framework, developed with the RAE and the Science Council, is a tool for professional bodies to assess and monitor their progress on diversity and inclusion. IPEM’s EDI Manager, Eva McClean, was part of the steering group which developed the extended and improved version of the framework.

Community

This led on to IPEM developing throughout 2021 a new Equality, Diversity and Inclusion policy and an extensive EDI action plan covering all areas of activity.

EDI training for National Office staff and volunteers was undertaken, and the new policy was approved by the Board of Trustees, coming into effect early in 2022.

In order to reach out and encourage students from disadvantaged backgrounds to consider a career in medical physics and clinical engineering, IPEM partnered with a specialist organisation called In2Science.

The In2science programme provides disadvantaged Year 12 students with the support, skills and experience needed to achieve their potential and progress to degrees, apprenticeships and careers in STEM.

IPEM also participates in many EDI committees and initiatives, including the Science Council, the RAE, Institute of Physics, Athena Forum, Association of Learned and Professional Society Publishers, Women in Engineering and Science, Professional Associations Research Network (PARN) and others.



“ EDI is something I’m passionate about incorporating into my day job, it’s been really satisfying to know that our work will help patients feel safer and represented in clinical imaging departments.

I highly recommend volunteering with IPEM as you can enact real change in areas you’re passionate about. ”

Erin Donovan
Healthcare Scientist, Medical Physics Department,
Kent and Canterbury Hospital
IPEM Volunteer

IPEM Institute of Physics and
Engineering in Medicine

The LGBT+ History Month was celebrated with a host of members sharing their personal history and experiences on the website and IPEM’s social media channels.

Finally, a new Diversity and Inclusion Community of Interest was launched for everyone who is interested in EDI in the IPEM community.

Leadership

Championing the importance of professional knowledge and innovation, identifying and raising awareness of the key challenges that lie ahead for physics and engineering in medicine and biology and being a trusted and effective voice for the profession is the final strand of IPEM's 2025 strategy.

Leadership

One of the key ways IPEM offers a trusted and effective voice is in the area of public policy and consultations, with members sharing their expertise and making valuable contributions in these areas.



Clinical technologist registration

The demands placed on the UK's health infrastructure by the Covid-19 crisis provided renewed impetus for IPEM to make the case for statutory registration of clinical technologists.

IPEM pulled together a group of like-minded organisations to agree on the next steps to take. The group, which included



the Register of Clinical Technologists and the British Nuclear Medicine Society, met throughout the year and drew up a position statement. In addition, questions on the issue were asked in parliament, and IPEM also organised and facilitated a roundtable podcast on the Health and Social Care White Paper, which saw the matter raised with panellists, including Angela Douglas MBE, Deputy Chief Scientific Officer for NHS England.

An experienced public affairs consultancy was engaged to help identify a range of key stakeholders, including MPs, peers, civil servants and health professionals to ascertain their views on the current situation and the likelihood of achieving statutory registration for clinical technologists.

A series of productive meetings were held with those stakeholders who had been identified, and the group was considering the responses from them before deciding on the next steps to take.

The clinical technologist question was also part of IPEM's response to a Department of Health and Social Care consultation on proposals to reform the regulation of healthcare professionals, covering four areas: Governance and Operating Frame; Education and Training; Registration; and Fitness to Practice.

IPEM's Professional and Standards Council produced a comprehensive response to the latest, 70-question long, consultation, with IPEM reiterating its desire to see the introduction of statutory registration for clinical technologists.

Cancer Summit

A special Cancer Summit was held to make recommendations to the government on how to tackle the Covid-induced cancer backlog.

The report 'Catch Up With Cancer - The Way Ahead' was drafted following an inquiry launched by the All-Party Parliamentary Groups for Radiotherapy (APPGRT), Health and Cancer, who came together to launch the consultation 'Solutions to the Covid-induced cancer backlog'.

IPEM's Radiotherapy Professional Standards Panel (RTPSP) produced a detailed and comprehensive response to this. New IPEM Fellow Dr Vivian Cosgrove, the then Chair of the RTPSP, presented this at a roundtable event held before the summit to help inform the report. He was one of 12 representatives of the more than 40 royal colleges, clinicians, charities, organisations, patients and individuals who submitted responses, to be asked to do so.

He discussed IPEM's submission in more detail with parliamentarians and attended the Cancer Summit to launch the report.



The APPGRT subsequently revised the report towards the end of the summer and once again sought input from IPEM. Nicky Wilde, the new Chair of the RTPSP, led on updating the response to the report, along with other members of the panel.

This revised report was also submitted as evidence from IPEM to the House of Commons Health and Social Care Committee inquiry on how to improve cancer services in England. This inquiry was held to look in more detail at the reasons why the proportion of people surviving cancer for longer is lower in England and to look at ways to improve it.

The final area on this subject, which IPEM also supported, was a workforce survey by the APPGRT, in conjunction with Action Radiotherapy, to seek views on improving cancer services and clearing the Covid-induced cancer backlog. This was covered in the Daily Telegraph and the Sunday Express.

Medical device regulation

Another major area IPEM contributed to during the year was responding to the Medicines and Healthcare products Regulatory Agency (MHRA) consultation on the future regulation of medical devices in the UK.

IPEM's Engineering Policy and Standards Panel led on producing an extremely detailed and comprehensive response, which a huge number of members gave their time to contribute contributed their views to, and which was approved by both the Science, Research and Innovation Council and the Professional and Standards Council.

Staying with the MHRA, Dr Robert Farley, IPEM's President, was a joint signatory on a letter to the agency's board concerning the production of the 'Safety Guidelines for Magnetic Resonance Imaging Equipment in Clinical Use'.

Leadership

These guidelines have been produced by the MHRA since 1993 and are established throughout the UK as the foundation of MRI safety.

The letter, co-signed by the presidents of several other professional bodies, emphasised the need to keep the guidelines regularly updated in the face of potential plans by the agency to scale back its workforce. It stressed how critical the guidelines are to MRI safety for the protection of patients and staff.



Letters to the Chancellor

In the autumn, IPEM contributed to a joint letter organised by the Science Council to Chancellor of the Exchequer Rishi Sunak, regarding the Government Spending Review.

IPEM was one of 26 professional bodies who signed the letter, which called on the Chancellor to ensure consistent, steady year-on-year rises in science funding, remedy cuts to science programmes, and secure further investment in science education.

IPEM ensured there were references made within the letter to the vital role played by healthcare scientists, clinical engineers and technologists in the response to Covid-19.

Another joint letter, organised by the Royal Academy of Engineering, was also signed by IPEM, along with more than 30 other leading scientific organisations, to the Chancellor calling for him to deliver on his promise to invest £22bn in research and development by 2024/25.

IPEM ensured there were references made within the letter to the vital role played by healthcare scientists, clinical engineers and technologists in the response to Covid-19.



Scientist Training Programme

The National School of Healthcare Science launched a review of the Scientist Training Programme core curriculum, which individual members responded to. Dr Emma Bowers, the then Director of the Professional and Standards Council (PSC), also responded on behalf of IPEM. Shortly after, the National School then called for views on the specialist curriculum review, which individual members again responded to.

Two linked consultations were launched by the Welsh Health Specialised Services Committee (WHSSC) on PET-CT provision in the country. The Nuclear Medicine Special Interest Group (SIG) looked at the proposals and confirmed IPEM's views had been heard. As Dr Fergus McKiddie, the then NM SIG Chair, commented, it was "nice to note they had taken our comments on board".



Workforce shortages

While it was welcome news an extra £5.9bn for the NHS in England was announced by the government ahead of the autumn Budget statement, a 'perfect storm' of staff shortages needed to be addressed, according to IPEM.

Chancellor Rishi Sunak announced the extra funding, which included £2.3bn to fund more diagnostic tests like CT, MRI and ultrasound scans, and support the opening of more Community Diagnostic Centres.

Dr Robert Farley, IPEM's President, said while the extra funding was welcome, it did nothing to address the staff shortages in the Medical Physics and Clinical Engineering workforce who are needed to support such equipment.

Another government announcement to reform the NHS workforce - made only weeks after the Budget - was welcomed

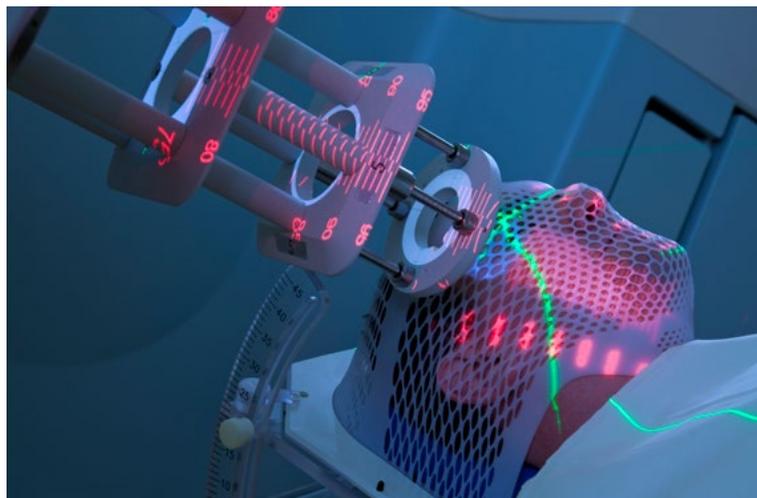
Leadership

by IPEM, but the need to go further to address urgent workforce shortages was also reiterated.

Health and Social Care Secretary Sajid Javid set out plans to put recruitment, training and retention of staff, together with digital transformation, at the heart of the NHS.

IPEM Vice-President for Medical Physics, Matt Dunn, commented that while the announcement was welcome, what was really needed was treating reported workforce shortages as a critical strategic issue, and action taken to address them urgently.

Yet another survey talked about the chronic workforce shortages. IPEM supported the survey by Action Radiotherapy, the UK's leading radiotherapy charity, which revealed a shocking picture of a sector trying to deliver life-saving services whilst being starved of investment and with a workforce that had lost confidence in the government's plans to tackle the cancer backlog.



The survey results said services had been “hollowed out” as the UK faces the biggest cancer crisis in a generation and called for urgent action to properly fund radiotherapy and address workforce concerns.

Science Leadership Strategy

A key part of the new overall IPEM strategy, is the development of a Science Leadership Strategy to build a ‘Futures’ agenda for physics and engineering in medicine and biology which encompasses horizon scanning, identifying the key challenges and drivers of change, and the development of professional knowledge and innovation.

Planning and research for the strategy began at the end of summer. It involved interviews with a cross-section of volunteers representing different sectors and disciplines, extensive reading and research through webinars, seminars and strategies, and examining the visions of other relevant bodies and organisations.

Based on this research, the draft strategy has been reviewed and accepted by the Board of Trustees, the President's Advisory Committee and the Science, Technology and Engineering Research and Innovation Council (STERIC).

The strategy identifies three grand challenges for the future and three emerging trends (enabling technologies) to address them. These six areas will help guide IPEM in what to focus on in delivering its charitable objectives and in other member activities. This will help prepare members for future research landscapes and work environments, and give IPEM a stronger voice and ability to plan and anticipate areas of greatest impact. Together with IPEM 2025, the overarching organisational strategy, it will shape national office and volunteer activity, becoming embedded into ways of working to help deliver charitable aims in an integrated, coherent and forward-thinking way.

Leadership

An area which IPEM has always been heavily involved in is collaborating with other organisations to produce guidance for healthcare science.

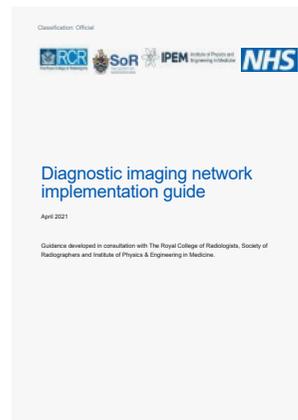


Collaboration

An area which IPEM has always been heavily involved in is collaborating with other organisations to produce guidance for healthcare scientists.

The 'Diagnostic imaging network implementation guide' was published during the year. Developed in consultation with IPEM, the Royal College of Radiologists (RCR) and the Society and College of Radiographers (SoR), it provides guidance to NHS providers of diagnostic imaging services as they begin the process of forming imaging networks to deliver the NHS Long Term commitment by 2023 and aid the restoration of services.

The Radiotherapy Board, comprising IPEM, the RCR and SoR, commissioned 'On target 2: updated guidance for image-guided radiotherapy'. The aim of the publication is to support the continued application of image-guided radiotherapy, and provide guidelines as to how individual centres may implement and/or optimise image-guidance processes locally.



Two of the reports IPEM contributed to during the year.



Molecular Radiotherapy 'postcode lottery'

Another publication IPEM contributed to during 2021 was the 'Review of molecular radiotherapy services in the UK', undertaken with the British Nuclear Medicine Society, the Royal College of Physicians, and the RCR.

Its findings said patients face a 'postcode lottery' on the provision of a particular form of molecular radiotherapy they might benefit from.

The review looked at the unequal provision of the service across the four devolved nations and made several recommendations, including the requirement for a UK-wide strategy, patients need to be at the heart of the delivery of the services, and that each devolved nation should appoint a molecular radiotherapy champion.



Policy and position statements

During the year, an updated position statement on 'The Impact of Extended Clinical Hours on a Radiotherapy Physics Service' was published, and a policy statement on 'Medical Physics Expert Support for Nuclear Medicine' was produced.

Finance and Governance

Finance update

2021 continued to be overshadowed by Covid and the conditions under which we worked and delivered on our charitable objectives remained similar to 2020. Membership and training income was consistent with 2020 and prior years, but as in 2020 most of our events were held online. On the cost side, IPEM continued to run a fully functional office (albeit remotely for substantial parts of the year).



Journals

At £952,409 the income from our journals was even higher than last year's already outstanding £920,372. Whilst this performance is very satisfactory, the Finance and Business Planning Committee and the leadership of IPEM more generally remain concerned about the long-term impact of the increase in Open Access publishing. To this end a Publications Committee has been created to focus on our response to this challenge and ensure that IPEM is ready to respond to the threats – and opportunities – the changing environment presents.

The operational outturn for 2021 was a surplus of £359,043 compared to £296,627 in 2020 and a planned deficit in the 2021 budget of £ 220,921.

We had prepared the 2021 budget in expectation that activities would return to pre-pandemic conditions much quicker than turned out to be the case. The lower level of actual conference income was offset by the considerably lower cost of holding them online, which together with the near total absence of travel and accommodations costs, delays in recruiting staff and our overcautious expectations of journals income explains the significant positive variance compared to our initial plan.

Our investment in the CCLA Charity fund performed exceptionally well in 2021, generating an uplift of 298,707 (2020: £143,794) or approximately 14.7% of the value at the beginning of the year (as adjusted for additional investments made during the year). Periods of exceptional performance cannot be expected to be maintained long term and the first half of 2022 has been exceptionally challenging for financial markets; unfortunately, part of last year's performance has been reversed in the first half of 2022. Our investment strategy is however designed to target long term growth and protection against inflation which has been achieved over the period since we first invested in the fund.

Finance and Governance



Brand project

To support our refreshed Mission, Vision and Values a new IPEM brand project was delivered in 2021. The new brand allows the creation and delivery of bold, dynamic, clear and consistent communications whether operating in the real or digital world. It has reduced inconsistencies in how we are represented across visual, written and spoken channels, growing our profile and establishing trust.

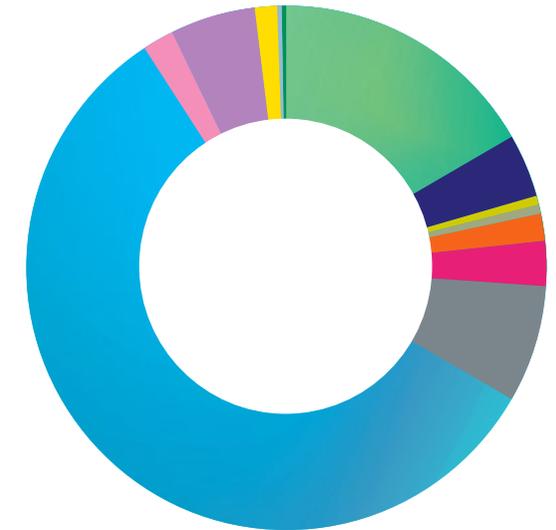
In its open and modern look, our new brand is the embodiment of our values. It is trusted, as it remains recognisably IPEM, whilst its flexibility and digital-first design and deployment is undoubtedly inclusive and progressive.

The cost of the brand project covering all the preparation work – interviews, surveys, research, design options, values discovery, presentations to trustees and other stakeholders, as well as delivery – including brand design, musical composition, digital assets, brand film production and full brand guidelines was £29,463.

The Group's cumulative surplus stood at £4,380,833 on 31 December 2021. Of this £313,615 is restricted; £4,067,268 is unrestricted, of which £460,203 is currently financing tangible fixed assets and £1,750,000 is designated, leaving free reserves of £1,857,065, comfortably in excess of the Target Operating Reserve of £750,000. We entered 2022 with a robust balance sheet and confident in our ability to withstand the many financial uncertainties and challenges over the medium-term.



IPEM Consolidated Income 2021

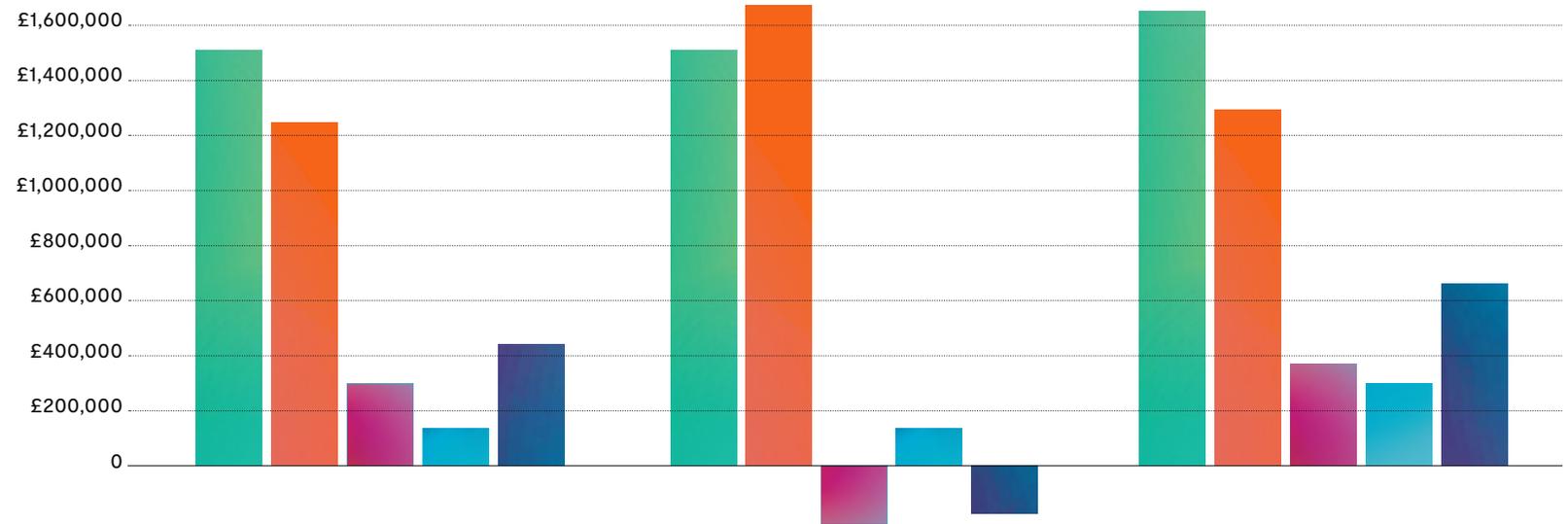


Membership Subscriptions	£277,604
RCT Registrations	£65,691
Journal Subscriptions	£6,941
Advertising	£12,484
Training Scheme Fees	£24,162
International Support	£46,129
Other Charitable Income	£119,684
Journal Income	£952,409
Books and Reports	£31,031
Scientific Meetings	£89,113
Income from other Trading Activities	£22,591
Investment Income	£3,685
Other Income	£2,562
	£1,654,086



Consolidated Statement of Financial Activity 2020-21

Finance and Governance



2020 Actual

Income	£1,550,845
Expenditure	£1,254,218
Net income / (expenditure)	£296,627
Unrealised Gain / (losses) on Investments	£143,794
Net Movement of Funds	£440,421

2021 Budget

Income	£1,451,714
Expenditure	£1,672,626
Net income / (expenditure)	(£220,912)
Unrealised Gain / (losses) on Investments	£45,048
Net Movement of Funds	(£175,864)

2021 Actual

Income	£1,654,086
Expenditure	£1,295,043
Net income / (expenditure)	£359,043
Unrealised Gain / (losses) on Investments	£298,707
Net Movement of Funds	£657,750

Governance

Throughout 2021 Trustees continued to meet remotely due to the pandemic. Four meetings took place over the year.

Finance and Governance

We welcomed new Trustees, Mr Richard Stubbs joined the Board as Director of the Professional and Standards Council, replacing Dr Emma Bowers, and Mr Iain Threlkeld joined as a Member Trustee, replacing Dr Anna Barnes. Two new Independent Trustees, Ms Valerie Jolliffe and Mr Jason Wilde, were recruited to join the Board, replacing Ms Alison Robinson-Canham and Ms Danielle Ross, who chose to resign before reaching the limit of their terms in office. We thank each of our outgoing trustees for their valued contribution to IPEM's Board.

Dr Robert Farley became President at the 2021 Annual General Meeting, succeeding Professor Stephen O'Connor, who will remain as a Trustee (Past-President) until the AGM in 2022. Dr Farley paid tribute to Professor O'Connor's term of office, in which he directly supported staff during the pandemic, in particular the new Chief Executive, and worked closely on several projects including the development of IPEM's new brand and strategy.

During the course of 2021 governance improvements saw the former Science Research and Innovation Council (SRIC) become Science, Technology and Engineering Research and Innovation Council (STERIC), to better capture its diverse role covering different disciplines, particularly across technology and engineering. It is one of two Councils, the other being the Professional and Standards Council (PSC), which take operational responsibility for implementing the strategy and monitoring the programmes which deal with the detailed scientific and professional aspects of the Institute's work.

The Directors of the Councils are also Trustees of the Institute.

A new strategy, IPEM 2025, was approved by trustees and launched in 2021, to guide the institute's strategic direction. Work also began on an IPEM Science Leadership Strategy, enabling a coherent approach to professional knowledge and innovation by identifying and raising awareness of the key challenges that lie ahead for physics and engineering in medicine and biology. It will help us grow our output, impact and reputation, whilst making the most of our existing resources. Finally, a new Volunteers' Forum was also created to help communicate that new direction, offering a regular online opportunity for our remarkable volunteers to come together and receive updates on IPEM activities, and to question the President, CEO and senior team as they wish.

As ever, IPEM relies on the voluntary activities of its members' on committees, Special Interest Groups, working groups and panels to achieve its charitable objectives. We are very grateful to all our members and volunteers for giving their time and expertise.

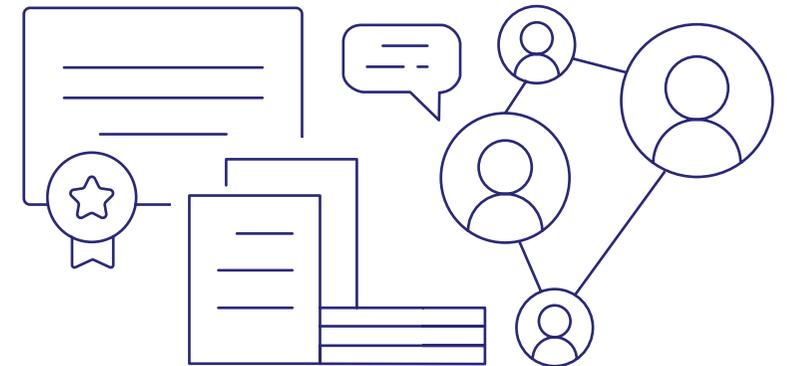
Year in numbers

Number of members

Year in numbers

5,183

Full Members	2,572
Affiliate Members	1,181
Associate Members	1,120
Fellows	297
Professional Affiliate Members	13



Year in numbers

15

Contributed to **fifteen policy consultations**

7

Published **seven new ebooks** to help members keep up-to-date with current thinking and developments in their field

7

Published **2 advice and guidance notes, 3 topical reports, 1 position statement** on 'The Impact of Extended Clinical Hours on a Radiotherapy Physics Service', **and 1 policy statement** on 'Medical Physics Expert Support for Nuclear Medicine'

14

Held **14 one-day events** online, attended by more than 1,300 people, including MPEC 2021

150

Supported 150 members on national, European and international standards groups

1.65
million

There were **1.65 million downloads** from IPEM journals

£37,589

Total prizes, grants and awards

ipem.ac.uk



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