

The Institute of Physics Annual Report **2017**



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This is the trustees’ annual report and financial statements for the year ended 31 December 2017 for the Institute of Physics. The trustees have prepared this report in accordance with the Institute’s Royal Charter and Bylaws, the Charities Act 2011 and the Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with FRS 102.

From our President

Professor Dame Julia Higgins DBE FRS CPhys Hon.FInstP FEng

All it takes is one person to reach out and pull back the curtain to inspire and encourage innovation and creativity in physics. That person for me was Nancy Edwards, my physics teacher at school. She studied physics at a time when normally boys were taught physics and girls were taught biology. She went on to be the only physics teacher in a school which ordinarily would not have employed a married woman were it not for the scarcity of physics teachers. Her lessons were exciting, and inspired an inherent intellectual curiosity in the world around me. Her impact on my life cannot be overestimated and underscores the significance of making physics universally accessible.

As an organisation, this premise articulates the main ethos of our work; that physics should be an inclusive and above all, relevant discipline. Increasing the visibility of physics in society means that more people can understand the impact that physics has on our day-to-day lives and can explore the future possibilities of the subject in shaping our world. Looking back on our work over the last year and forward towards the rest of 2018, it is this mission statement that fundamentally informs our strategy.

We are in the middle of a significant period in our external environment, and this presents ample opportunity to raise the profile of physics in society and support members of our own community in a time of political uncertainty. But whilst initiatives like our new building in King's Cross showcase technology at the forefront of physics, I am reminded that my career in physics started simply with a woman in a classroom asking us to ask the most important questions in the universe. It is up to us to continue to ask those questions, and find an audience hopeful of the answers.



Nancy Edwards and the President enjoying a discussion early in her Presidency.

The IOP in 2017

23

Number of Campus Ambassadors in UK Universities

Campus ambassadors

“Being a member of the IOP provides the chance to be a part of a community of brilliant people with a wealth of knowledge and experience - something that everyone should make the most of.” *Adam Powell, Member and Postgraduate Student, Swansea*



140

Highest number of teaching scholarships offered since programme inception in 2012



Teacher Scholarships

“The IOP scholarship has given me the courage of my conviction that teaching is the right choice for me at this stage of my life and career” *David, trainee physics teacher*

18

Number of countries the IOP has collaborative relationships with

International work

“As a result of this programme I will be able to engage myself in innovation to improve our technology and I will spread the impact of this IOP programme to many other people so that it can help to change the education system in Tanzania”



350

Number of public engagement events run nationally



Outreach and Engagement

“From making ice cream in the blazing sun at local community festivals to talking about theoretical physics around a fire pit in a community garden on a chilly autumn night, this year has been about making the IOP a friendly, trusted part of local ecosystems” *Toby Shannon, Public Programmes Manager*

About Us

Our purpose

The Institute of Physics (IOP) is a membership organisation for all of those who share our passion for physics, and a trusted and valued voice of the physics community.

We inspire people to develop their interest in physics, whether in the classroom, in colleges and universities, in businesses, or at home. We encourage and support the development of a world-class physics education that is available to all; we open up opportunities to choose a career using physics, and we enhance the level and quality of continuing professional development in the workplace, setting the standards that physics professionals should attain.

We bring together the physics community to share its knowledge and advance their thinking, and to play our part in ensuring the strength of the core discipline. We help to create a stimulating environment that encourages physicists to work across traditional boundaries and in which innovation can thrive.

We recognise and celebrate members of the physics community who have made a real difference through their work and showcase the contribution that physics makes to our economy, to our everyday lives and towards tackling some of the biggest challenges we face in society.

Our values

Our values are an expression of what we believe in and how we behave as an organisation.

- We do what we do with integrity, openness and with a respect for others.
- We are objective and informed by evidence. We strive to continually improve quality, and excellence underpins all that we do.
- We look for opportunities to exploit the talent we have within our organisation. We are supportive of each other in all that we do and we foster team-working across the organisation.
- Strategic partnerships are central to our success, and we celebrate the opportunities that come from working together with other organisations.
- We are approachable, easy and rewarding to work with, and always open to new ideas and new ways of working.
- We believe in the equality of opportunity for all and we will confront barriers to inclusiveness and participation wherever we encounter them.

COMMUNITY

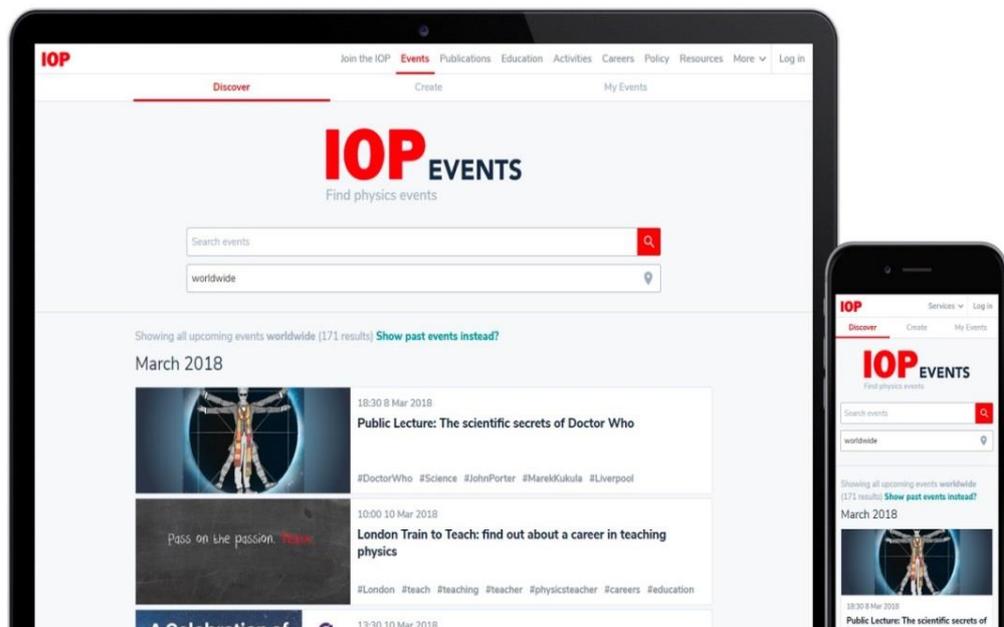
Our membership will be engaged and inspired by what we do and we will be an organisation that people want to join and collaborate with.

1.1 Increase the number of members, from across the demographic, who are participating in an Institute activity, strongly supported by representatives in the Nations and from our Branches and subject Groups

Throughout the year, members have opportunities to get involved in the organisation's activities through our national and regional branches or through specialist subject-interest groups. It would not be possible for us to achieve our charitable objectives without the commitment and hard work of our members, many of whom give freely of their time to act as committee members and volunteers to support our events and activities.

Our members have organised more than 400 events across the UK and Ireland, which included the 3 Minute Wonder regional heats, public lectures on topics ranging from the physics of cricket to gravitational waves and fusion energy, organised talks to inspire school students on topics such as nuclear physics, and ran numerous public engagement events at various festivals and science centres. Furthermore, over 4,500 members and non-members have participated in conferences run by our special-interest groups, which includes a topical research meeting on physics innovation and nuclear organised by the Nuclear Industry Group, a joint conference organised by the Astroparticle Physics and High Energy Particle Physics Groups, and the annual conference organised by the Magnetism Group. The Institute wishes to thank all those who have supported it over the past year.

400
Events
Involving
4500
Members



The digital age - the launch of our first digital service for members www.iopevents.org

To increase the membership across the demographic, this year saw us make the most significant change to our membership structure in more than 5 decades. Through an 18 month process of consultation with more than 3000 members, the 2017 Annual General Meeting voted 92% in favour of changes that provide far more opportunities for physicists from the start of their further education through their careers and into retirement to join and become actively involved in our work.

The changes have provided a well-defined pathway that reflects the way in which people come to the education through academic, further education and work placed apprenticeships. We are now able to welcome them as associate members and support them through to members and Fellows with professional development, a range of professional registrations and other benefits.



1.2 Increase both early career and teacher membership, and have a Fellowship that more closely reflects the wider membership demographic

In order to support and engage with our members we have worked to improve our understanding of what members' value through a series of consultations, surveys and other research. We focused on our marketing and communications strategies and enhanced our offer to better communicate what we do, launching the new Career Development Hub and a discounts and benefits scheme that provides access to a portfolio of money-saving offers.

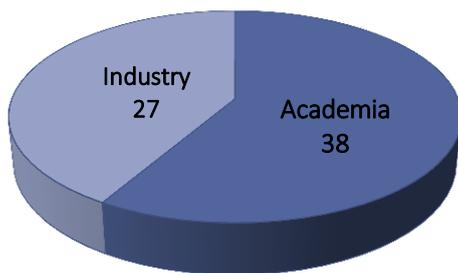
Our marketing campaign to break down barriers and increase the diversity of our Fellows resulted in more members from industry applying for Fellowship. Coupled with that, we reviewed our application process and made our highest category of membership more accessible to all that have made invaluable contributions to their sector without lowering our assessment standards.

Our early career members now have more opportunities than before to engage and influence the work of their professional body. In addition to allowing all members to vote, we have initiated a new special-interest

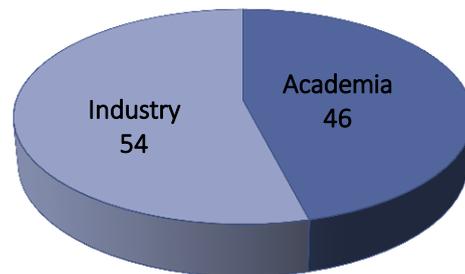
group that allows our early career members from all backgrounds and experiences to network, support their career opportunities, and organise events that help them keep abreast of developments in their sectors.

We also continue to engage with our members who teach in secondary schools to understand what we can offer them as part of the membership offer in addition to our school support activities, which will help enhance their career progression through targeted teaching resources and through tailored professional development support.

Achieving variety in our fellowship



Number of Fellows in 2016



Number of Fellows in 2017

1.3 Establish a professional accreditation process for technicians with a strong basis in physics, and for those from further education who provide physics-based training and development programmes

Government initiatives to stimulate the UK economy to address gaps in a range of skills, means that there is an increasing recognition of apprenticeships and technician roles as viable and important routes to support the physics-based economy. The reforms to our membership structure now allow us to welcome members from a broader range of employment sectors, and to promote the diversity of paths to further and higher education and to physics-based occupations across the UK economic base.

We identified a need for additional registrations and have applied for Engineering Technician and Incorporated Engineer (licensing decision pending), which will provide an improved progression route to Chartered Engineer for those with work based or technical learning and qualifications. We also redesigned our chartership promotional and guidance materials to encourage more applications from members working in technical-based roles, and to make them more accessible.



Community: Income and Expenditure

Income

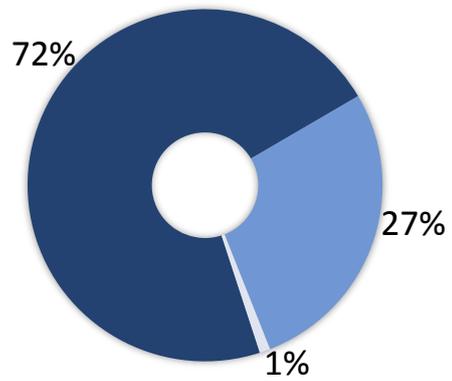
£2,150,000

Expenditure

■ 1.1 £1,202,000

■ 1.2 £461,000

■ 1.3 £16,000



DISCOVERY

We will recognise excellence in research; we will support physicists, particularly those in their early-career, to help them achieve their full potential, and we will have a world class reputation for our work in publishing research. We will work to strengthen our core discipline and promote the international nature of physics, and we will encourage and support those who look to collaborate with others across traditional boundaries.

2.2 Work with IOP Groups to deliver a programme that is strongly focussed on developing the core discipline, and that involves collaborations across discipline boundaries and in new emerging areas of discovery

Our groups continue to increase their programme of meetings and conferences in support of the core discipline, through the topical research meetings, supporting events in emerging areas of physics, topics that span multiple groups and current industry challenges. In 2017 we delivered a programme of 61 events across 37 special interest groups and attracted 4,681 participants.

Approximately 20% of all events were multi-disciplinary involving more than one group or organisation. We also organised several international conferences including the IUPAP and EBSA congress, and the ICWIP conference with IUPAP. The ICWIP was aimed primarily for a female audience, and attracted 206 participants (174 females) from 46 countries.

Our topical research meetings included one with the Nuclear Industry Group and brought together academia and industry to demonstrate the value that physics brings to the nuclear industry and another covering Light Matter Systems. The nuclear meeting attracted 70 participants with sponsorship from Sellafield and Rolls-Royce and co-sponsorship from the International Atomic Energy Agency.

The start of our data analytics project 'Physics2020' provided a valuable evidence base to the physics community that can be used to underpin our programmes and policy work with the government, business and academia. We collected funding, patents and publications data from external sources, and built visualisations to show data in terms of place, trends over time and collaborations.

With the Institute of Manufacturing at the University of Cambridge, we devised a roadmapping methodology and ran a pilot activity to map the opportunities where photonics discovery and innovation could address industry challenges. Several workshops were held with industry and academia experts and interviews took place with industry leaders from Leonardo, Airbus, Photonstar LED, Oxford Photovoltaics, Fraunhofer and Coherent to highlight the current and potential impact of photonics in some of the UK's priority industries.

Responding to members' interests, two special interest groups were established; Physics in Food Manufacturing and Business Innovation and Growth. Physics in Food Manufacturing arose from the 2016-17 open innovation programme. The founding committee includes members from PepsiCo, Unilever, Jacobs Douwe Egberts, Camden BRI and the Universities of York, Leeds, Sheffield Hallam and Edinburgh. The Business Innovation and Growth group was launched at our Business Innovation Awards parliamentary reception in October.

Our groups played an integral role in engaging with a delegation from the Chinese Physical Society which visited the UK in July. The delegation toured some of the UK's major scientific facilities and took part in discussions on UK-China collaboration. The visit was an important step in maintaining and developing collaborations between the scientific communities in both countries.



2.2 Focus more on supporting and championing careers for physicists by providing opportunities for them to broaden their professional development and maximise their potential.

Over 70 early career physicists attended a town hall meeting in September to help shape a new special interest group. Experts from industry, academia and teaching shared their career journeys in a panel session that was broadcast live, enabling a wider audience to participate. There was unanimous support for the group, and the founding committee includes apprentices, teachers, postdoctoral researchers and members in industry.

Three new departments and institutes from Ireland have joined our Project Juno scheme. We awarded two more physics departments Juno Champion status and two Practitioner status. Presentations and posters about Juno were given at national and international conferences, significantly raising the profile of the scheme.

Our travel bursary scheme has enabled 190 early career members the opportunity to attend and present their work at international conferences in over 27 countries including China, Japan, South Korea, Mexico, Singapore, and the US.

2.3 We will have delivered a publishing programme where 30% of income comes from non-journal subscription models, and where measures of impact and usage of journal content increases.

In 2017, IOP Publishing launched the new Publishing Support website to offer authors clear guidance throughout their publication journey. We also added altmetrics information to IOPscience to assist readers understanding of the reach of an article/ebook, and expanded the number of partner journals offering authors the chance to make their accepted manuscript available online. Finally, we launched our first

'Reviewer of the Year' awards, recognising the valuable contribution of referees to the scholarly communication process.

2017 saw the continued growth of our open access publishing in environmental research, through Environmental Research Letters, as well as the launch of a major new multidisciplinary open access journal spanning the breadth of physics research, Journal of Physics Communications. Preparations were made to expand our programme further in 2018 with the launch of three new open access journals addressing the increasingly important interdisciplinary themes of materials, energy and light and a significant new open access publishing arrangement, announced in early 2018, for researchers based at the prestigious Max-Planck-Gesellschaft in Germany.

In 2017, we undertook a root-and-branch overhaul of the Physics World science news service, physicsworld.com. The relaunched v1.0 website went live in February 2018, the start of a phased development programme that will run throughout the first half of this year. The new-look online content programme represents a significant investment in science communication and is a key part of IOP Publishing's mission to disseminate world-class research to the widest possible audience.

Discovery: Income and Expenditure

Income

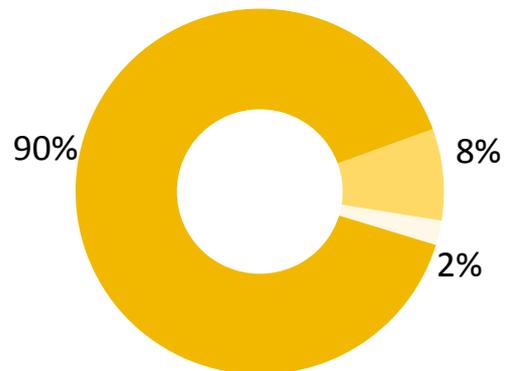
£15,592,000

Expenditure

■ 2.1 £1,212,00

■ 2.2 £109,000

■ 2.3 £29,000



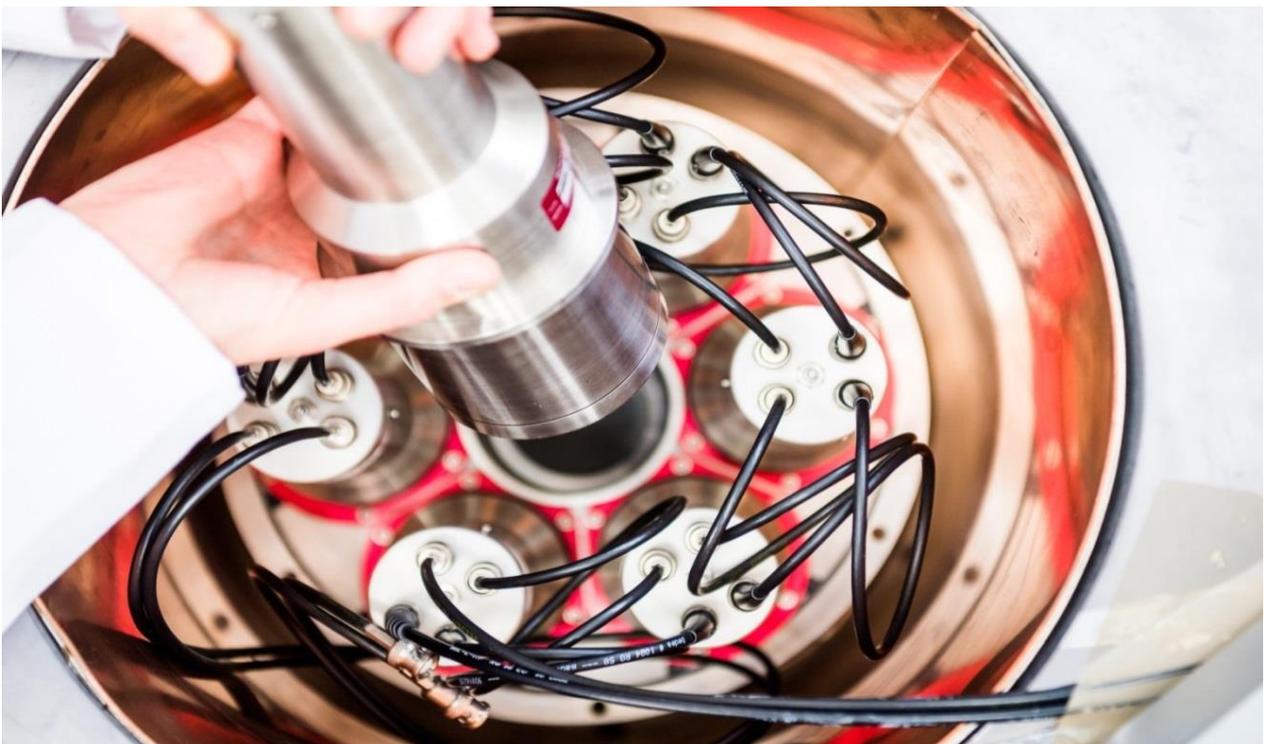
ECONOMY

Physics will be recognised for the contribution it makes to the economy, and businesses will have access to a highly qualified and skilled workforce and, whether large or small, have an understanding of how they can actively exploit new and emerging physics-based research.

3.1 Enable businesses to increase their information exchange on both key foundation areas of physics and in new and emerging physics - based research and technologies by providing a recognised and valued link between businesses and the research base

We have continued our programme to bring together large, medium and small businesses and world-leading academics. In 2017 we organised a business innovation event to share best practice, which included a speed networking session where 90 attendees from small, medium and large companies built relations with around 30 new contacts. The event included a business innovation 'question time' session comprising a panel of members who had successfully delivered a physics-based innovation and built physics-based companies, including Datadisplays, Teledyne e2v, Kromek and M Squared Lasers.

Increasing recognition of companies in the UK and Ireland has continued through our Business Innovation Awards. The 2017 winners of the Business Innovation Awards were ICE Oxford, M Squared Lasers, MR Solutions, Ossila and Thornton Tomasetti Defence. The winners of the commended innovation were Active Needle Technology, Oxford Space Systems, pureLiFi and Rolls-Royce. Winners exhibited their innovations and made connections with over 150 senior representatives from business and the government at a parliamentary reception in October.



3.2 Ensure that government has relevant and focussed evidence on the value of physics and more widely STEM, to the economy in order for them to make informed funding decisions

We published the most comprehensive analysis yet undertaken of the role of physics in driving economic growth and national productivity in the economies of the UK, Ireland and the devolved nations. The reports were launched at events featuring senior figures from business, government ministers and senior parliamentarians. In Ireland we successfully campaigned for Irish membership of the European Southern Observatory.

We have played a leading role in the work of the science community to ensure that the UK research and technology sectors are well represented in the negotiations, focussing on the decision of the UK to withdraw from the Euratom treaty and the implications to UK energy, regulation and fusion research.

3.3 Ensure that schools and universities have resources that showcase the benefits that studying physics offers for future careers and that focus on breaking down barriers to inclusivity and opportunity.

Along with changes to the membership structure that enables apprentices to become associate members along with undergraduates, our resources and careers support has broadened to make sure that we are able to promote both the academic and technical routes from physics and challenge stereotypes in subject choice. We organised our inaugural technical careers fair in Belfast for over 200 students and teachers which provided an introduction to scientific apprenticeships. The fair attracted several companies including the National Physical Laboratory, Seagate Technology, AWE, the Royal Air Force, and the UK Atomic Energy Authority. The companies engaged with students about daily life as an apprentice, as well as the career paths for apprentices.

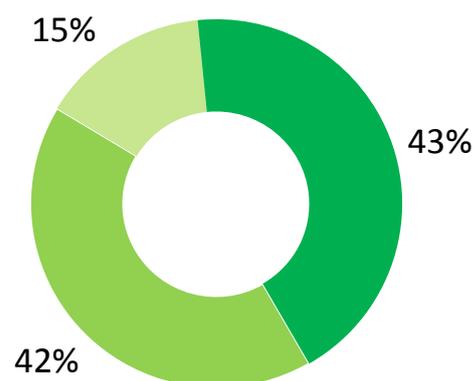
Economy: Income and Expenditure

Income

Our economy theme recieved no income during 2017.

Expenditure

- 3.1 £47,000
- 3.2 £16,000
- 3.3 £48,000



EDUCATION

Everyone will have the opportunity to choose to study physics and those that do will have access to high-quality education and well-informed choices about future careers.

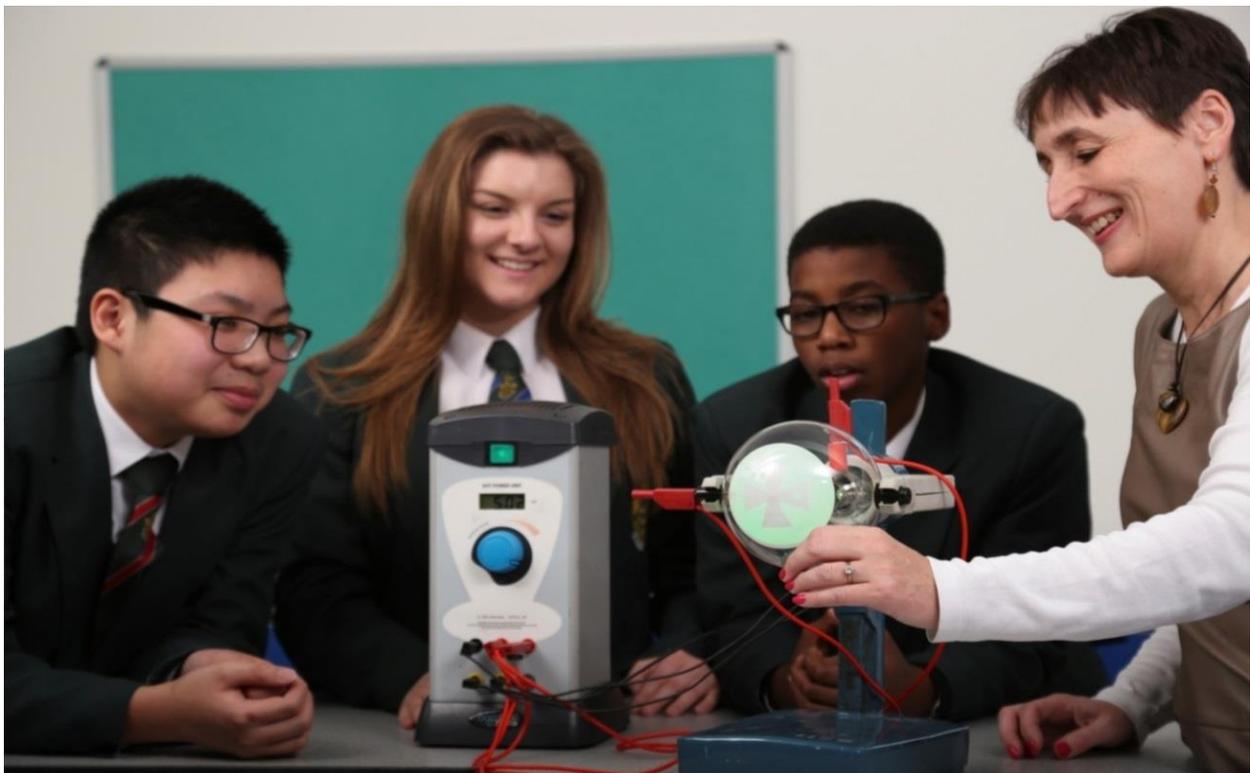
4.1 Increase the proportion of 16-19 year olds studying physics, and, within that, increase the proportion of girls

Our work to maintain the number of suitable applicants to physics initial teacher education courses has continued through our scholarship programme. In 2017 we awarded 138 scholarships. As well as the Department for Education bursary of £30,000, we make sure that each scholar benefits from mentoring, masterclasses and membership. There were 720 new physics teachers recruited and the three year average is just over 770 which is twice the average in the years up to 2010.

This year, we secured new funding from the government of £2.73m over three years to run our new Future Physics Leaders project. The project which will start in 2018 will help us to recruit, develop and retain high quality physics teachers. We will trial ways of reducing the workload on early-career teachers with a revised mentoring package.

Within the Future Physics Leaders project and the Stimulating Physics Network, we are setting up lead schools with their own school-based physics coaches. These schools will act as hubs for local partner schools, providing support and mentoring for all teachers of physics.

We continue to support our growing network of coaches who are working towards chartered status. We are positioning Chartered Physicist as an assurance to teachers that the person leading their physics CPD has demonstrated the qualities needed for this highly regarded professional qualification.



4.2 Develop a community-led, evidence-informed curriculum and assessment framework for all age-groups

We have worked on a curriculum document for A-level and GCSE physics based on both the ways of thinking in physics and on some big ideas from its theories, laws and models. The curriculum document is complete and has been reviewed by a large panel of teachers, academics and education researchers. The document includes a framework for a physics curriculum that makes explicit some big ideas about the practices of physics – as well as presenting the content in the format of big ideas. The aim is that developers can design curriculum that are more sophisticated than a simple list of detailed content. Early indications show that the document has been well received.

4.3 Be recognised for having fostered an environment where research into pedagogy in further and higher education can thrive and for our leadership in best practice.

We committed to producing a report on the pilot stage findings of the project to improve conceptual understanding of physics at undergraduate level. The first phase of the Expanding Conceptual Understanding in Physics project has been completed successfully. The diagnostic tests and methodology have been trialled in universities and we have reported the results to the participating physics departments. The second phase of the project will correlate the changes in conceptual understanding with the methods of instruction.

To highlight good practice in inclusive learning in physics higher education, our report 'Building momentum towards inclusive teaching and learning' was launched in May and has attracted wide interest, including from the government. It has been regarded as an example of good practice when reviewing provision for disabled students in universities and many physics departments, such as at the Open University, are already implementing change as a result.

Education: Income and Expenditure

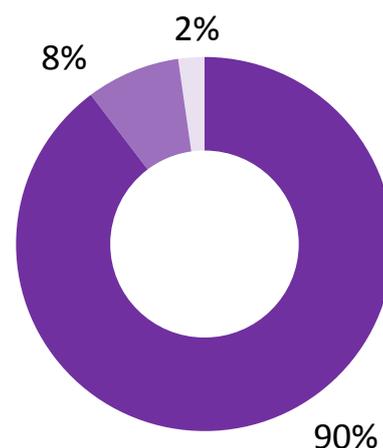
Income
£3,698,000

Expenditure

■ 4.1 £3,232,000

■ 4.2 £290,000

■ 4.3 £80,000



SOCIETY

We will work to widen participation and enjoyment of physics, and to raise the appreciation of the important role that physics plays in our culture and society. We will be respected as a trusted and influential voice in evidence-based policy-making on issues of importance to society

5.1 Establish respected and trusted advocacy groups to deliver a more focused and rounded policy programme that is strongly connected with our target audiences.

In the UK we worked with other learned societies to hold meetings and produce briefing documents to influence the development of the Higher Education and Research Bill as it passed through Parliament. We also worked to inform the development of the next Research Excellence Framework and the new Teaching Excellence Framework.

In Scotland we worked with the Scottish government on the development of the STEM education and training strategy, ensuring that addressing the underrepresentation of women and girls in science is at the core of the work.

We have established an annual programme of data briefs and publications that allow us and the physics community to chart and respond to the state of the discipline, from post-16 entries in physics through to research funding and academic staff employment levels, in the UK and Ireland.

Following the UK general election in June 2017 we worked to build new connections with newly formed select committees to support their scrutiny of the bills in the current Parliament that will accompany the EU withdrawal bill.



5.2 Increase participation in our outreach activities, with a greater focus on building science capital and in showcasing the value of physics to society

In 2017, the public engagement programme reached more than 600,000 people through a range of events and projects across the UK and Ireland. It also further developed the national programme to support building 'science capital', particularly in diverse and underserved communities. Science Capital means how much a person identifies with science as 'something for me' and is a concept outlined in *Aspires*, the ten year longitudinal study started at KCL and now running at UCL, researching into people's science and career aspirations.

Our work has included storytelling projects in Edinburgh and rural Wales, a physics and dance project in Newcastle, training youth session leaders working with young homeless people in socioeconomically disadvantaged areas in Crewe, supporting librarians in science activities working in rural areas in Cheshire and a writing project with community groups in the Midlands based around a physics-themed poetry and flash-fiction competition, launched at the Leicester Writers' festival. The project ranged from a festival panel on science in dystopian fiction to a half-day workshop at the YMCA for disadvantaged and vulnerable young people - using creative writing as a means for accessing physics.

To enhance its reach, the public engagement programme works with a range of cultural partners and events. The IOP partnered with CERN, the Science 7 Technology Facilities Council and the University of Lancaster to bring physics programming to the 2017 WOMAD music festival, reaching over 5000 adults and families. In our Physics Pavilion, we had a live link-up with a NASA launch along with talks, performances and stand-up comedy. In Manchester we ran a joint event with the Royal Northern College of Music exploring the acoustic physics of opera which coincided with the BBC Opera Passion day. 2017 saw a sold-out event at the Royal Opera House exploring the biomechanics of ballet; accompanied by on-stage demonstrations from one of the UK's most promising young dancers, we learnt how physics is helping to reduce the likelihood of injuries and extend dancing careers.

In parallel, the public engagement programme continued to work with local, regional and national partners to deliver science and physics festivals around the UK and Ireland including the Northern Ireland Science Festival in Belfast, Malvern Science in the Park and the inaugural IOP Physics Festival in Edinburgh.

To support the IOP's volunteers in delivering public engagement events, an Outreach Toolkit was created in 2017, with training given to IOP member and non-member volunteers in Scotland and England. The roll out of the toolkit will continue with future training delivered by physics students who are members of the IOP. There has been positive feedback about the toolkit both from volunteers - who have said it was useful for "putting into perspective the IOP's aims for outreach and for finding out what tools and activities the IOP have for people to use" - and other scientific membership organisations who have sought advice on setting up their own version.

5.3 Establish sustainable, externally funded international programme of capacity building in those developing countries where there are clear partnership opportunities

The Tanzanian Government has expressed concern at the growing business start-up skills gap for its young people as they leave the education system. Recognising this skills gap, the University of Dar es Salaam Physics Department and the Dar Teknohama Business Incubator, have partnered with us in the design of a new programme, 'Future STEM Business Leaders'. The programme, supported by Nature Publishing and the

Optical Society, is aimed at Year 6 school students with the aim of introducing them to the skills they need to take science based business ideas through to commercialisation.

In the programme’s first year, final-year students in three schools in Dar es Salaam were trained and mentored to develop new business ideas that included how to present to potential investors. Students from the schools formed teams to solve a local problem through a STEM-based solution that could have commercial potential. Tanzanian business leaders mentored students to develop and pitch their ideas to a panel of experts. Students that presented the most commercially viable business idea were awarded a summer internship with a Tanzanian science and innovation business.

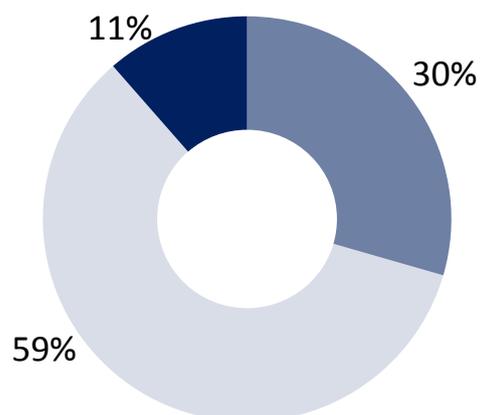
We developed a new strategy to work with international partners such as the American Physical Society, the Optical Society, and the International Centre for Theoretical Physics. We organised entrepreneurship workshops in countries across the world, and plan to offer broader educational and training activities supported by in-country partners, which will be piloted in Brazil and Tanzania.



Society: Income and Expenditure Expressed

Income
£188,000

- Expenditure
- 5.1 £133,000
 - 5.2 £268,000
 - 5.3 £51,000



IOP Awards

IOP Awards recognise teams and individuals who have made a substantial contribution to the development or reputation of physics in the UK or Ireland. It is our aim to identify and honour people and teams who are making remarkable contributions to physics, and to encourage younger members of our community to greater success in the future.

Our medal portfolio spans all areas of physics, as well as contributions made to physics outreach, physics education, the application of physics and physics-based technologies. In 2017 the portfolio was further expanded to reflect the breadth of community endeavour with the introduction of an additional seven medals, which also brought the tally of medals named in honour of females scientists to over 30%.

In 2017 we were delighted that the physics community acted very positively to recognise the excellent work being carried out in the field, submitting 204 high quality nominations from all corners of our community. It was also wonderful that 54 female nominations were submitted, the highest number of female nominations since our records began. We also saw significant engagement from the nations and regions, with nominations for people working in 84 unique institutions across nations and regions compared to 54 and 34 in 2016 and 2015 respectively.

Our Business Innovation Awards celebrate companies in the UK and Ireland that have built success on the innovative application of physics – companies that have generated profit, secured jobs and improved efficiency across a range of sectors, from oil and gas to renewable energy, medical technologies to high-tech manufacturing. Now in the sixth year of these awards, 34 companies have been awarded and our aims are to include additional awards which will celebrate and benefit this part of the community. Further information about all our awards can be found at www.iop.org/about/awards.



2017 Award winners (Medal and Prize)

Award	Recipient	For
Issac Newton	Professor Charles L Bennett	For his leadership of the Microwave Anisotropy Probe, a satellite experiment that revolutionized cosmology, transforming it from an order-of-magnitude game to a paragon of precision science.
Paul Dirac	Professor Michael Duff	For sustained groundbreaking contributions to theoretical physics including the discovery of Weyl anomalies, for having pioneered Kaluza-Klein supergravity, and for recognising that superstrings in 10 dimensions are merely a special case of membranes in an 11-dimensional M-theory
Michael Faraday	Professor Jeremy J Baumberg	For his investigations of many ingenious nanostructures supporting novel and precisely engineered plasmonic phenomena relevant to single molecule and atom dynamics, Raman spectroscopies and metamaterials applications.
Richard Glazebrook	Professor David Charlton	For his leadership in experimental work on the electroweak standard model, beginning with the study of Z-boson decays at LEP and culminating in the discovery of the Higgs boson at the LHC.
Katharine Burr Blodgett	Professor Cliff Jones	For inventions in the area of liquid crystal displays, and his role in the founding and commercial success of Displaydata – a leading supplier of graphic electronic labels for the retail sector.
Lawrence Bragg	Mary Whitehouse	She has been a national influence on the development of teaching and learning in physics, both through her central involvement in curriculum projects and in developing the assessment process.
William Thomson, Lord Kelvin	Wendy Sadler	For establishing Science Made Simple, which has reached more than 750,000 people with live performances promoting the relevance of physical sciences to society and careers.
John William Strutt, Lord Rayleigh	Professor Nigel Glover	For pioneering new methods for the application of perturbative quantum chromodynamics to high-energy processes involving energetic jets, leading to sophisticated simulation codes that are being used to describe LHC data.
Cecelia Payne-Gaposchkin	Professor Steven J Schwartz	For his many contributions to shock waves, particle acceleration, and fundamental plasma phenomena in the Sun's atmosphere, interplanetary medium, near-
Fred Hoyle	Dr Jane Greaves	For the significant contribution to our understanding of planet formation and exoplanet habitability through her seminal imaging of debris discs around Sun-like stars and solar system bodies using far-infrared telescopes
James Chadwick	Professor Guy Wilkinson	For his outstanding contributions to the experimental study of heavy quarks and CP violation, most especially for his leadership of, and his decisive contributions to, the LHCb experiment at CERN.

Award	Recipient	For
Nevill Mott	Professor Michael Finnis	For his original, insightful and courageous work in materials physics, which is recognised worldwide as having consistently opened up large areas of materials physics to rigorous theory and computation.
Sam Edwards	Professor Tom McLeish	For his sustained and outstanding contributions to the fields of molecular rheology, macromolecular biophysics and self-assembly.
Thomas Young	Professor Kishan Dholakia	For his contributions to the field of optical micromanipulation using shaped light fields in liquid, air and vacuum.
James Joule	Professor Henry Snaith	For his pioneering discovery and development of highly efficient thin-film organic-inorganic metal-halide perovskite solar cells.
Dennis Gabor	Distinguished Professor Paul Evans	For his pioneering research into material-specific, 3D X-ray imaging and its application in security screening, which has substantially increased the security of the travelling public.
Lise Meitner	Professor Lucie Green	For distinguished contributions to public outreach, via public lectures, science festivals, organising public events and open days, frequent radio and TV appearances including presenting, and writing a popular science book.
James Clarke Maxwell	Dr Marcin Mucha-Kruczynski	For the outstanding contributions to the understanding of graphene, in particular groundbreaking studies that have addressed its optical properties, lattice deformations, electronic structure, and electron transport.
Henry Moseley	Dr Akshay Rao	For groundbreaking studies in the electronic properties of organic semiconductors, particularly the roles of electron spin in the operation of solar cells.
Clifford Paterson	Dr Ceri Brenner	For driving the development of laser-driven accelerators for applications and for leading collaborative partnerships between academia and industry vital for the transfer of this technology to tackle global challenges.
Mary Somerville	Dr Jessamyn Fairfield	For stellar work as a speaker and writer on physics for a popular audience, and for having organised and hosted many innovative events bringing physics to the Irish public.

Public benefit

The object of the Institute as stated in our Royal Charter is to promote the advancement and dissemination of knowledge and education in the science of physics, pure and applied, for the benefit of the public and the members of the Institute. The Institute meets the public benefit test in the following ways:

- Advancement of education
- Advancement of science
- Advancement of community development

The trustees confirm that they have referred to the Charity Commission's guidance on public benefit when reviewing the Institute's aims and objectives and in planning future activities. The Institute works to advance physics research, application and education, and engages with policy makers and the public to develop awareness and understanding of physics. The public benefit which our many and varied activities provide can be summarised as follows:

- Through our support for teachers and curriculum development, by improving the continuing professional development of teachers and its relation to the quality of teaching of physics in schools and the diversity of students who are able to access the many benefits of a high-quality physics education.
- Through the publication of journals, ebooks, magazines and websites, and the organisation of scientific meetings and conferences, by enabling the dissemination of high-quality physics research, so that researchers and research organisations are able to reach the widest possible audience and benefit from the latest developments in physics research.
- By connecting physicists across all sectors to promote the application of physics and drive innovation and development of new technologies for the benefit of the economy and wider society.
- By organising an exciting programme of activities and events to engage the public and raise awareness of physics, its impact on society and addressing the big challenges and the opportunities it provides for everyone.
- By ensuring the competence and ethical commitment of those practising as physicists and engineers (with a physics background) through professional standards and support for continuing professional development.
- Through our diversity programme, which aims to cultivate an inclusive, sustainable, diverse and vibrant physics community; promoting best practice that breaks down barriers to inclusion regardless of gender, ethnicity, disability and socio-economic status.

Provisions are in place for those on low incomes. Our membership fees are reduced or waived for students and for those from developing countries. As part of our commitment to supporting scientific research globally, we participate in a number of programmes that offer several ways for researchers in developing countries to gain access to our journals for little or no cost. Private benefits, where they occur, are incidental and mainly consist of prizes for exceptional scientific or education achievements.

Governance

The Institute of Physics is a corporate body governed by a Royal Charter and bylaws. It was established in its current form by Royal Charter dated 17 September 1970. The Royal Charter is supplemented by bylaws and regulations. The Institute is a charity registered in both England & Wales (no. 293851) and in Scotland (no. SC040092). The members of Council are the trustees of the charity. The Institute's registered office is 76 Portland Place London, W1B 1NT.

Council (board of trustees)

As set out in the Royal Charter, the Institute is governed by Council, which consists of 18 trustees elected from, and by, the corporate membership; and up to three co-opted trustees who are appointed by Council itself. The Institute's Council is its board of trustees and Council members are the trustees of the charity.

Council has the ultimate responsibility for directing the affairs of the Institute, ensuring that it is solvent, well-run, and delivering the charitable outcomes for the benefit of the public for which it has been set up. Council sets and monitors the Institute's strategy which delivers these charitable outcomes.

Of the elected Council members, there are four senior officers and four vice-presidents. The senior officers are the President, President-elect, Honorary Secretary and Honorary Treasurer. There are currently four Vice-Presidents, for business, education, membership, and science and innovation. There are ten ordinary Council members each of whom will normally serve on or chair one of the Institute's committees. Certain Council members have lead responsibilities for important cross-cutting areas such as diversity, audit and risk, and our international programmes. Co-opted Council members are appointed as required to cover areas of specific expertise.

Council currently meets four times a year, normally in January, April, July and November. All Council members give their time voluntarily and are not remunerated for their work on behalf of the Institute beyond the reimbursement of reasonable expenses.

Elections to Council

The rules governing the election of Council members are set out in the bylaws. At the start of each calendar year, Council confirms the number of vacancies that will arise that year. With delegated powers from Council, the Nominations Committee then evaluates the balance of skills, knowledge, experience and diversity of Council, and, in the light of this evaluation, prepares a description of the role and capabilities required for each particular vacancy on Council. A notice of vacancies along with role descriptions is published and all corporate members are eligible to nominate themselves.

The Nominations Committee then assesses the nominations received from members and draws up a shortlist of those who meet the necessary skills and expertise for each vacancy. Where there is more than one nomination for any vacancy then a ballot takes place. Where there is only one nomination for any vacancy then a ballot is not required and that nominee is deemed elected.

Council members serve four year terms, with the exception of co-opted members who are appointed annually for a maximum of three years. The President serves a two-year term plus two years immediately preceding that as President-elect. The Honorary Treasurer and the Honorary Secretary are eligible for election to a second four-year term.

Induction and training of Council members

Formal induction is given to all new Council members who are invited to attend meetings with Institute staff and advisers as part of the induction process. Council members are encouraged to attend recommended external training courses for charity trustees.

Trustees have a legal duty to avoid conflicts of interest so that they can focus exclusively on the best interests of the Institute. The Institute maintains a Council members register of interests, which is updated annually by trustees and as any changes are reported. Procedures are in place for managing conflicts of interest that may arise during Council meetings.

Statement of trustees' responsibilities

Council members (who are the trustees of the Institute) are responsible for preparing the Trustees' Annual Report and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

The law applicable to charities in England and Wales requires the trustees to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the charity and the group and of the incoming resources and application of resources of the charity and the group for that period.

In preparing these financial statements, the trustees are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in the Charities SORP;
- make judgments and estimates that are reasonable and prudent;
- state whether applicable accounting standards, comprising FRS 102, have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charity will continue in business.

The trustees are responsible for keeping proper accounting records that disclose with reasonable accuracy at any time the financial position of the charity and enable them to ensure that the financial statements comply with the Charities Act 2011, the Charity (Accounts and Reports) Regulations 2008. They are also responsible for safeguarding the assets of the charity and the group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The trustees are responsible for the maintenance and integrity of the charity and financial information included on the charity's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Council is required to act in accordance with the Royal Charter and bylaws of the Institute of Physics within the framework of charity and trust law. It is responsible for keeping proper accounting records that disclose with reasonable accuracy at any time the financial position of the group and the Institute and that enable them to ensure that the financial statements comply with the Charities Act 2011 and accord with applicable accounting standards, including Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with FRS 102. It is also responsible for

safeguarding the assets of the group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Council Members in 2017

President	Professor Roy Sambles FRS CPhys FInstP	Until 30 Sep 2017
	Professor Dame Julia Higgins DBE FRS	From 1 Oct 2017
President-elect	Jonathan Flint CBE, MBA, BSc, FEng, FInstP	From 1 Oct 2017
Honorary Secretary	Professor Stuart Palmer FEng CPhys FInstP	Until 30 Sep 2017
	Professor Brian Fulton CPhys FInstP	From 1 Oct 2017
Honorary Treasurer	Professor Julian Jones OBE FRSE CPhys FInstP	
Vice-President, Science & Innovation	Professor Sarah Thompson MBE CPhys FInstP	
Vice-President, Education	Dr Carol Davenport CSciTeach CPhys FInstP	
Vice-President, Business	Dr James McKenzie MIOd CEng CPhys MInstP	
Vice-President, Membership	Dr Mike Worboys CEng CPhys FInstP	Until 30 Sep 2017
	Dr Mark Telling CPhys FInstP	From 1 Oct 2017
Members	Professor Lesley Cohen CPhys FInstP	
	Dr Trevor Cross FInstP	
	Professor Michael Duncan FInstP	Until 30 Sep 2017
	Dr Barbara Gabrys CPhys FInstP	Until 30 Sep 2017
	Dr Lisa Jardine-Wright CPhys MInstP	
	Professor Kevin McGuigan FRSC FInstP	
	Professor Angela Newing FInstP	
	Dr Becky Parker MBE CPhys Hon.FInstP	
	Deborah Phelps MInstP	
	Neil Thomson CPhys FInstP	
	Mark Wrigley MInstP	
	Professor John Zarnecki CPhys FInstP	Until 30 Sep 2017
	Professor Wendy Flavell CPhys FInstP	From 1 Oct 2017
	Professor Anne Tropper CPhys FInstP	From 1 Oct 2017
Dr June McCombie CPhys FInstP	From 1 Oct 2017	
Professor J. S. Al-Khalili OBE (co-opted)	From 1 Oct 2017	

Committees

Council has a number of standing committees with delegated powers, thus ensuring that the required time and attention is applied to overseeing specific areas of interest. The terms of reference, delegated powers and membership of these committees are set by Council. Committee membership is not limited to Council members, thus allowing for both wider representation from the membership and receipt of specialist external advice where appropriate.

Standing committees are also empowered to set up sub-committees or their own mechanisms for wider consultation. The terms of reference, delegated powers and membership of sub-committees are normally set by the parent committee. The standing committees as of 31 December 2017 were:

- Senior Officers' Committee
- Resources Committee
- Audit & Risk Committee
- Remuneration Committee
- Nominations Committee
- Diversity & Inclusion Committee
- Awards Committee
- Honorary Fellows Committee
- Membership Committee
- Science & Innovation Committee
- Education Committee

Management and staffing

The day-to-day management of the Institute and its activities is delegated to the group's Chief Executive Officer (CEO), supported by a senior management team known as the Executive Board and the Managing Directors of the Institute's subsidiary companies. Overall, across the group, the CEO leads a staff that at 31 December 2017 totalled 538 people (503 FTE).

The day-to-day management of publishing activities is delegated to the Managing Director of IOP Publishing Ltd, one of the Institute's subsidiary companies. IOP Publishing Limited has its own board of directors and several international subsidiary companies that support the delivery of the Institute's publishing programme. The day-to-day management of IOP Enterprises Limited is delegated to the Managing Director of IOP Enterprises. IOP Enterprises Ltd also has its own board of directors. The IOP's senior management team in 2017 was:

Professor Paul Hardaker CMet FInstP FRMetS	Group Chief Executive Officer
Michael Bray FCMA*	Chief Financial Officer
Rachel Youngman	Chief Operating Officer
Philip Diamond CPhys Hon.FInstP**	Associate Director, Policy, Programmes & Performance
Steven Hall	Managing Director, IOP Publishing Ltd

* Until 31 December 2017

**Until 23 December 2017

Our commitment to diversity and inclusion

Integrity and openness are at the heart of everything that we do. We believe firmly in equality of opportunity for all, confronting barriers to inclusiveness and participation wherever we encounter them. These core values are an expression of what we believe in and how we behave as an organisation. Our diversity programme has four strategic goals which link directly to the Institute's wider strategy:

- championing diversity and inclusion across the STEM community;
- building capacity on diversity and inclusion within the Institute's activities and governance;
- promoting wider participation in physics education and careers at all levels;
- ensuring we have an inclusive working environment where all staff respect and value each other.

We manage our approach to diversity through our Diversity & Inclusion and Education committees, which report directly to Council, and by employing a dedicated staff to deliver a programme of activities around the major issues of diversity in physics.

The Institute was amongst the first signatories of the Royal Academy of Engineering Diversity Concordat and the Science Council Declaration on Diversity, Equality and Inclusion and we continue to take a visible role in delivering on our commitments.

We recognise that we need to ensure that there are no barriers to participation in any of our activities. We build partnerships internally to work with our own colleagues and members to ensure that all that we deliver is truly inclusive.

Over the last decade we have built a robust and substantial evidence base to inform our programme of work across gender, ethnicity, disability and socio-economic background. We have delivered projects and publications that have led, and continue to lead the way, in spreading good practice and making a significant contribution to the body of research available to the STEM community.

Annual General Meeting

Each year the Institute holds an Annual General Meeting, the rules of which are set out in the bylaws and regulations, and which all members are entitled to attend. Members are those individual members of the Institute who have voting rights at general meetings and for the election of Council members and are composed of Honorary Fellows (Hon.FInstP), Fellows (FInstP), Members (MInstP) and Associate Members. Membership fees and any changes to the bylaws are approved by the membership at the Annual General Meeting.

Risk management

Council is responsible for ensuring that proper arrangements are in place for adequate risk management and control. The Audit and Risk Committee advises Council on these matters and has the following remit, to:

- review major areas of risk for the Institute and its subsidiary companies and to ensure processes exist to manage risk in these areas;
- ensure risk management, internal audit and external audit processes are administered effectively;
- highlight any areas of high risk and/or any anomalies brought to light through the audit process;

- be available to whistleblowers regarding risk areas or audit anomalies who are not satisfied with the outcomes of the normal management processes.

During the year the Chief Financial Officer had operational responsibility for the management of risk, compliance with legislation, data protection, business continuity, insurance, internal controls and managing the in-house internal audit process.

The Institute maintains a register of significant risks and maintains systems to control and manage them. The Audit & Risk Committee reviews the risk register along with the plans and processes in place to manage and mitigate major risks. Council receives a report from the Audit & Risk Committee after each of its meetings along with a risk management report. Our key risks for the year and the related mitigation strategies are set out below.

Main risks, potential consequences and mitigations

Risk Description	Risk consequence	Further to current controls, actions to mitigate
Not able to achieve our income diversification targets.	Unable to support full strategy with potential shortfall against amended target.	Business Development Group meeting regularly to deploy resources to increase the volume of applications to trusts and foundations.
Delays with the Kings Cross building resulting in additional costs.	Potential delays to the revised Practical Completion (PC) date – 29 May 2018 with potential impact on our occupation date. A revised date that goes beyond July will utilise almost all of IOP's entire contingency in achieving occupation by the baseline planning date of September 2018.	Clear contractual terms against which main contractor operates in place, with identified penalty clauses. Escrow agreement in place from which funds can be drawn if challenges with party-wall developed on. Regular and significant review of work packages with contractors as part of monthly project board.
Imposition of gold and green open access publishing.	Reduction in charity Gift-Aid to IOP.	Manage transition and retain as much revenue as possible through offsetting and/or 'read and publish' models; engage closely with funders and library consortia; increase article output without increasing costs in same ratio/reduce cost per article.
Government funding currently comes to an end in March 2019 or even earlier.	Stimulating Physics Network funds a large slice of our Education work. Without this income our activity in this area will be greatly reduced.	We are working on a new model that will embed physics teacher CPD into schools to make it more sustainable. Work is underway in raising additional non-Government funding to diversify income sources.
Erosion of Publishing copyright Protection.	Reduced copyright protection encourages and enables third-party use of our IP.	Involvement in industry campaigns; close monitoring of legislative changes; refinement of policies to strengthen other forms of protection.
Failure to adequately manage Succession Planning.	Loss of institutional knowledge and expertise leading to inefficient management of the Institute.	Exec team and HR aware of the issues and have undertaken planning work. A management development training programme is underway with support from external development coaches

Gender-pay gap reporting

The Equality Act 2010 (Gender Pay Gap Information) Regulations 2017 for private and voluntary-sector employers came into force in April 2017.

The Institute has commitment to addressing diversity within the physics community as well as ensuring the success of our work relies on its ability to recruit, nurture and retain the richest mix of talent. There are a number of internal mechanisms the Institute uses to support the achievement of balance in the workforce. All jobs are evaluated through a non-gender influenced job evaluation process by a group of trained in house assessors and all evaluation panels.

Within the IOP Group there is a statutory requirement for IOP Publishing Ltd to make a gender pay gap declaration: IOP Publishing Ltd declared that the hourly rate for women is:

23.2% Lower
(mean)

14.3% Lower
(median)

The IOP will make a voluntary declaration from 2018 onwards.

Slavery and human trafficking

The Institute is committed to prohibiting modern slavery and human trafficking in our supply chains and in any part of our businesses. The IOP group has a diverse supply chain, including suppliers of IT, print and editorial services, office equipment, catering services, and accommodation and venue facilities.

Our Anti-Slavery and Human Trafficking Policy reflects our commitment to acting ethically and with integrity in all of our business relationships and to implementing and enforcing effective systems and controls to prohibit slavery and human trafficking in our supply chains and business. We have a zero tolerance approach to slavery and human trafficking. To ensure that those companies in our supply chains comply with these values, we require that all relevant suppliers are issued with, and agree to comply with, our Anti-Slavery and Human Trafficking Policy and that appropriate obligations are included in our contracts with them. These obligations will allow us to secure assurances that those suppliers have appropriate measures in place in relation to their own business and supply chains and commit to complying with all relevant legislation and codes of practice. Our full anti-slavery and human trafficking statement can viewed at www.iop.org

Our subsidiaries

The Institute has nine subsidiary companies of which eight currently carry out trading on its behalf. To ensure clarity and appropriate governance, there are a number of agreements in place that define and describe the provision of inter-group services.

There are three main subsidiary companies:

- **IOP Publishing Ltd** (commonly known as IOPP)
IOPP is a wholly owned subsidiary of the Institute and has its registered office at Temple Circus in Bristol. The principal activity of IOP Publishing Ltd is the publication and distribution of high-quality scientific journals and magazines.
- **IOP Publishing Inc.**
IOP Publishing Inc. is a not-for-profit corporation of which the Institute is the sole corporate member. It is incorporated in the USA with its principal place of business at 150 South Independence Mall West, Suite 929, Philadelphia. The principal activity of IOP Publishing Inc. is the sale and distribution of scientific journals and magazines.
- **IOP Enterprises Ltd** (commonly known as IOPE)
IOPE is a wholly owned subsidiary of the Institute and has its registered office at the Institute's headquarters in London. Its principal activity is to promote the use of the events, catering and room hire facilities at the Institute's headquarters, and to organise exhibitions, courses and conferences.

Two of these companies have second-tier subsidiary companies of their own:

- **IOP Business Publishing Inc.** (a subsidiary of IOP Publishing Inc.)
IOP Business Publishing Inc. is a wholly owned subsidiary of IOP Publishing Inc. It is incorporated in the USA with its principal place of business at 150 South Independence Mall West, Suite 929, Philadelphia. The principal activity of IOP Business Publishing Inc. is to provide advertising-sales services.
- **IOP Educational Publishing Ltd** (a subsidiary of IOP Publishing Ltd)
IOP Educational Publishing Ltd is a wholly owned subsidiary of IOP Publishing Limited and has its registered office at Temple Circus in Bristol. The company is currently dormant and is not trading.
- **IOP Publishing Consultants (Beijing) Co. Ltd** (a subsidiary of IOP Publishing Ltd)
IOP Publishing Consultants (Beijing) Co. Ltd is a wholly owned subsidiary of IOP Publishing Limited with its registered office at Room 1804, The Exchange Beijing, B-118 Jianguo Road, Chaoyang District, Beijing 100022, China. The principal activity of IOP Publishing Consultants (Beijing) Co. Ltd is to provide services to IOP Publishing Ltd, including publishing consulting, electronic technology consulting, business consulting, market information consulting and corporate management consulting.
- **Turpion Ltd** (a subsidiary of IOP Publishing Ltd)
Turpion Ltd is a wholly owned subsidiary of IOP Publishing Limited with its registered office at Temple Circus in Bristol. The principal activity of Turpion Ltd is publishing English translations of leading Russian scientific journals. Additionally, Turpion Ltd has a wholly-owned subsidiary in Russia – **Turpion-Moscow Ltd**.
- **IOP Marketing and Promotion Services Private Ltd** (a subsidiary of IOP Publishing Ltd)
IOP Marketing and Promotion Services Private Ltd is a wholly owned subsidiary of IOP Publishing Limited, incorporated in India in January 2016, with its registered office at SF-6, Golden Enclave, 184 P

H Road, Chennai, India. The principal activity of the company is promotion and marketing services to IOP Publishing Ltd.

IOP Publishing Ltd in 2017

IOP Publishing Ltd is a leading publisher in physics, physical sciences, astronomy and mathematics, providing publishing services to the worldwide scientific community through its journals, books, magazines, conference series and web sites and its services to other scientific societies and research organisations.

IOP Publishing Ltd had another strong year in 2017, in spite of continuing challenges in some of its academic library markets. Sales revenues from books and journals nonetheless grew and it exceeded its target for Gift Aid to the Institute for the year.

Journals

In its journals publishing IOP Publishing Ltd saw growth of 9% in submissions and 5% in accepted articles and it launched three new journals: a new open access title, Journal of Physics Communications; Nano Futures; and Multifunctional Materials. In spite of this substantial growth in submissions, it also reduced the time taken for peer review and saw increased satisfaction from authors submitting to its journals.

In 2017 the company acquired the rights to Physica Scripta, an international journal endorsed by The Royal Swedish Academy of Sciences, which is dedicated to presenting novel and accessible research findings across the breadth of theoretical and experimental physics.

Books and Conference Proceedings

IOP Publishing Ltd published 67 titles in its new books programme in 2017, compared to 62 in 2016, and it almost doubled the number of conference proceedings articles that it published.

Journalism

Shortly after the year end the company relaunched its award-winning science news website Physics World, the start of a phased development programme for science news services that will run through the first half of 2018.

Principal risks and uncertainties

Risk management is an integral part of the business culture and decision-making processes. Risk is incorporated within the business planning and budgeting cycle across the business at all levels. Risk assessments are conducted for new activities and projects to ensure they align with the business strategy and key objectives. Risk registers are regularly reviewed at all levels through the business from project level activity to senior management groups. All staff are responsible for encouraging good risk management practice within their area of work.

The Institute oversees the risk, uncertainty and mitigation via its Audit and Risk Committee which meets three times per year.

Financial risks

Operations are financed out of retained earnings. The company's finance facilities are held in Sterling, Euros and US Dollars. The company ensures as far as possible that sales and costs of sales are contracted in the same currencies to minimise currency exposure risk. Where exposure risk occurs, that risk is mitigated by

the negotiation of forward currency contracts to cover the company's foreign currency surplus at the most favourable exchange rate possible.

The company is mainly exposed to credit risk from credit sales and it is company policy to assess the credit risk of new customers and to factor the information from these credit ratings into future dealings with customers. At the balance sheet date there were no significant concentrations of credit risk. The maximum exposure to credit risk is represented by the carrying value of each financial asset in the balance sheet.

The liquidity and cash flow risk of the company is monitored on a regular basis and whilst cash flow is positive and is therefore considered low risk, appropriate action would be taken where additional funds are required.

Business risks

The company is exposed to business risks including changes in the law relating to intellectual property rights; the growing volume of piracy; static or declining library budgets in some markets; and data security. The company monitors these risks on a regular basis and takes appropriate action where required.

Financial Review

Financial statements

The financial statements for the year ended 31 December 2017 are set out on pages 40 to 70. They were prepared applying accounting policies in accordance with UK Generally Accepted Accounting Practice, and comply with the Statement of Recommended Practice, Accounting and Reporting by Charities SORP (FRS 102).

Financial review

Some 73% (2016: 86%) of the group's incoming resources are generated from the activities of its trading subsidiary, IOP Publishing Limited. Other sources of income include income from members either as membership fees or for additional services, grants from government and other grant-awarding bodies, and from IOP Enterprises Ltd, another trading subsidiary.

Total incoming resources in the year for the group were £65.8m (2016: £67.4m), a moderate decrease of £1.6m or 2.4% on 2016. Discovery income for the group decreased by £2.5m on 2016 to £57.2m, despite a strong 2017 for IOP Publishing Limited in the face of continuing challenges in certain of its academic library markets. Income from other Charitable Activities remained broadly flat against 2016, with Education income increasing by £0.4m from £3.3m in 2016, due to the new Future Physics Leaders project.

Further commentary on the activities of IOP Publishing Limited is shown below.

Amounts to be remitted to the Institute by Gift Aid from its subsidiaries in respect of 2017 are £14.4m (2016: £12.8m).

Total resources expended in the year have decreased, primarily due to a reduction in Discovery expenditure, offset by increased Education spend. Total expenditure for the group was £59.2m (2016: £63.0m), a decrease of £3.8m or 6%.

Further details are included in the Consolidated Statement of Financial Activities on page 41. The Institutes balance sheet is included on page 43. The Institute considers incoming resources, Gift Aid remitted from its subsidiaries, and expenditure to be key performance indicators.

Debtors have decreased from £13.8m to £12.2m at 31 December 2016, primarily due to the equivalent reduction in debtors within IOP Publishing Limited. This is a result of improved cash collection.

Deferred revenue remains a key balance and has decreased by £3.2m to £12.4m (2016: £15.6m), driven by the timing of cash transactions. Deferred membership renewals for 2018 within the Institute have remained flat to 2017.

The cash and short-term investment position remains strong, with a decrease from £24.3m at 31 December 2016 to £17m at 31 December 2017 representing a healthy cash balance considering the investment the Institute is undertaking in the new building in King's Cross. Further details on capital additions are given in note 15.

The Institute's defined benefit pension deficit decreased by £12.5m to £18.6m (2016: £31.1m), as assets in the Institute of Physics Retirement Benefit Plan (1975) grew by £6.9m and, while the estimated present value of liabilities decreased by £5.7m to £100.3m. A significant proportion of the gain is due to a change in demographic assumptions, accounting for £2.2m of the actuarial gain.

The scheme's last triennial revaluation was at 31 December 2016 and a deficit elimination plan was agreed at that time with the scheme's trustees. The next triennial revaluation will be undertaken as at 1 January 2020. Further details are given in note 23 of the financial statements.

The trustees have concluded that the group is a going concern and these financial statements have therefore been prepared on the going concern basis. The strong performance of the group in 2017 and the positive net asset position at the end of 2017, excluding the defined-benefit pension deficit, support the trustees' conclusion.

Trading subsidiaries

IOP Publishing Limited (IOPP)

The turnover for the year to 31 December 2017 was £58.7m (2016: £57.6m) which reflects a moderate increase on 2016 driven by the continued growth in our core journals business. The current year gross profit margin remains largely consistent at 91.1% (2016: 91.1%) with an improved operating margin for the current year of 24.1%, largely due to efficiency savings (2016: 20.4%). IOP Publishing Limited (IOPP) has committed to make a gift aid payment to the Institute of Physics, the ultimate controlling entity, of £14,177k (2016: £11,842k). As the publishing arm of the Institute, IOPP's role is to provide high-quality publishing services to the global scientific community, helping researchers to communicate their work effectively. IOPP also gift-aids its net distributable profit to the Institute, enabling the latter to fulfil its wider mission.

IOP Enterprises Ltd (IOPE)

The turnover for the year to 31 December 2017 was £90k (2016: £88k). The company will remit to the Institute of Physics, by gift aid, the sum of £30k (2015: £25k). As a result of the Institute vacating 76 Portland Place in March 2014 ahead of a move to new premises in 2018, the trading activities of IOPE have consequently been scaled back because of reduced space available for rental.

Reserves and investment

The Charter and Bylaws confer power on the Institute to maintain income reserves. Council reviews at least annually both the Institute's continuing need for reserves and their appropriate level. The reserves policy set out below is based on and is consistent with guidelines on the subject issued by the Charity Commission.

The strategic reasons for the Institute to retain reserves, rather than simply spend all of its income as it arises, are, as stated in its Investment Policy:

- to be able to make short and medium-term expenditure commitments without the risk of short-term fluctuations in income forcing reduction in, or cancellation of, planned activity;
- to reduce the level of dependence on income from publishing; and
- in the event of a material and sustained fall in income from other sources, to provide sufficient reserves to enable the Institute to make the changes in its organisation and activities necessary to respond to this in an orderly and planned way.

The overall investment objectives of the Institute are to achieve a minimum net total return of 12 month LIBOR (London Interbank Offered Rate) +3.5%, after payment of fees over rolling three-year periods, using a diversified strategic asset allocation approach to minimise the risk for this level of return.

During the year the investments held by the Institute generated a small loss for the group of £78k, against 2016's realised gain of £0.8m and unrealised gain of £1.6m. Despite this, the total market value of

investments held by the Group increased from £24.5m as at 31 December 2016 to £28.9m as at 31 December 2017, due to £5.1m of net investment in the year. The Institute actively manages its investment portfolio, and has divested into three new funds with two new providers in the year.

After a review in 2014, Council has considered the level of reserves appropriate to meet the above purposes and has determined that total free reserves should ideally be of the order of one and a half to two years of planned expenditure, excluding projects funded by external grants or fees (on the basis that fee-based activities such as conferences would not continue if no attendees were attracted). Free reserves are the carrying balance of the additional sums set aside from the operational surplus of the group each year as an investment of cash in a balanced portfolio of assets balancing risk and reward in accordance with the requirements of the Institute.

The required level of reserves on 31 December 2017 based on the current long-term plan, as modified by the 2017 budget, is between approximately £16.9m–22.5m (2016: £21m–28m). The current level of free reserves as represented by the Institute's investments is £28.9m (2016: £24.5m), which is deemed appropriate given the Institute's commitments over the following 12 months.

Ethical investment policy

The Institute is a charity established with the objective of promoting the advancement and dissemination of a knowledge of and education in the science of physics, pure and applied.

The trustees would not want the investment decisions of the Institute to result in activities that compromise this objective. In the event that the trustees consider that any particular classes of investment choices conflict with this objective, they will provide a written list of such classes, or specific investments, to the investment managers and will require them to take such steps as are practicable and cost-effective so as not to invest in these areas.

Funds

The balances on the individual funds of the Institute at 31 December 2017 are considered adequate to meet their respective commitments.

Auditors

All of the current trustees have taken all of the steps necessary to make themselves aware of any information needed by the charity's auditors for the purpose of their audit and to establish that the auditors are aware of that information. The trustees are not aware of any relevant audit information of which the auditors are unaware.

By order of Council



Professor Brian Fulton CPhys FInstP
Honorary Secretary

Independent auditor's report to the trustees of The Institute of Physics

Report on the audit of the financial statements

Opinion

In our opinion, The Institute of Physics' group financial statements and parent charity financial statements ("the financial statements"):

- give a true and fair view of the state of the group's and of the parent charity's affairs as at 31 December 2017 and of the group's and parent charity's incoming resources and application of resources, and of the group's cash flows, for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland", and applicable law); and
- have been prepared in accordance with the requirements of section 144 of the Charities Act 2011 and Regulation 15 of The Charities (Accounts and Reports) Regulations 2008).

We have audited the financial statements, included within the Annual Report (the "Annual Report"), which comprise: the group and parent charity balance sheets as at 31 December 2017; the consolidated statement of financial activities incorporating a consolidated income and expenditure account and the parent charity statement of financial activities incorporating an income and expenditure account, and the group cash flow statement for the year then ended; the accounting policies; and the notes to the financial statements.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) ("ISAs (UK)") and applicable law. Our responsibilities under ISAs (UK) are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We remained independent of the charity in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, which includes the FRC's Ethical Standard and we have fulfilled our other ethical responsibilities in accordance with these requirements.

Conclusions relating to going concern

We have nothing to report in respect of the following matters in relation to which ISAs (UK) require us to report to you when:

- the trustees' use of the going concern basis of accounting in the preparation of the financial statements is not appropriate; or
- the trustees' have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the group's and parent charity's ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.

However, because not all future events or conditions can be predicted, this statement is not a guarantee as to the group's and parent charity's ability to continue as a going concern.

Reporting on other information

The other information comprises all of the information in the *Annual Report* other than the financial statements and our auditors' report thereon. The trustees are responsible for the other information. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except to the extent otherwise explicitly stated in this report, any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If we identify an apparent material inconsistency or material misstatement, we are required to perform procedures to conclude whether there is a material misstatement of the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report based on these responsibilities.

Based on the responsibilities described above and our work undertaken in the course of the audit, ISAs (UK) require us also to report certain opinions and matters as described below.

Trustees' Report

Under the Charities Act 2011 we are required to report to you if, in our opinion the information given in the Trustees' Annual Report is inconsistent in any material respect with the financial statements. We have no exceptions to report arising from this responsibility.

Responsibilities for the financial statements and the audit

Responsibilities of the Trustees for the financial statements

As explained more fully in the Statement of Trustee's Responsibilities set out on page 25, the trustees are responsible for the preparation of the financial statements in accordance with the applicable framework and for being satisfied that they give a true and fair view. The trustees are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the trustees are responsible for assessing the group's and parent charity's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the group and parent charity or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditors' report.

Use of this report

This report, including the opinions, has been prepared for and only for the charity's trustees as a body in accordance with section 144 of the Charities Act 2011 and regulations made under section 154 of that Act (Regulation 30 of The Charities (Accounts and Reports) Regulations 2008) and for no other purpose. We do not, in giving these opinions, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

Other required reporting

Charities Act 2011 exception reporting

Under the Charities Act 2011 we are required to report to you if, in our opinion:

- we have not received all the information and explanations we require for our audit; or
- sufficient accounting records have not been kept by the parent charity; or
- the parent charity financial statements are not in agreement with the accounting records and returns.

We have no exceptions to report arising from this responsibility.

Craig Sullivan
PricewaterhouseCoopers LLP
Chartered Accountants and Statutory Auditors
Bristol

PricewaterhouseCoopers LLP is eligible to act, and has been appointed, as auditor under section 144(2) of the Charities Act 2011.

Consolidated Statement of Financial Activities incorporating a consolidated income and expenditure account for the year ended 31 December 2017

	Note	2017 Restricted £'000	2017 Unrestricted £'000	2017 Total £'000	2016 Total £'000
Income from:					
Donations and legacies		19	-	19	23
Charitable activities:					
Community		-	2,150	2,150	2,125
Discovery		60	57,144	57,204	59,650
Economy		-	-	-	146
Education		600	3,098	3,698	3,291
Society		12	176	188	213
Other trading activities		-	1,734	1,734	1,588
Investments	6	-	840	840	412
Total income	3 & 5	691	65,142	65,833	67,448
Expenditure on:					
Raising funds		-	(173)	(173)	(63)
Charitable activities:					
Community	7	-	(3,665)	(3,665)	(3,473)
Discovery	7	(32)	(45,450)	(45,482)	(50,847)
Economy	7	-	(423)	(423)	(790)
Education	7	(507)	(6,771)	(7,278)	(6,289)
Society	7	(33)	(1,147)	(1,180)	(1,255)
Other		-	(951)	(951)	(287)
Total expenditure	4	(572)	(58,580)	(59,152)	(63,004)
Net (losses) / gain on investments	17	-	(78)	(78)	2,394
Net income		119	6,484	6,603	6,838
Other recognised gains / (losses)					
Gains on revaluation of investment property		-	-	-	151
Actuarial gains / (losses) on defined benefit pension scheme	23	-	11,855	11,855	(13,792)
Exchange difference on retranslation of net assets of subsidiary undertakings		-	(295)	(295)	591
Net movement in funds		119	18,044	18,163	(6,212)
Fund balances brought forward		715	23,013	23,728	29,940
Fund balances carried forward	22	834	41,057	41,891	23,728

The Statement of Financial Activities includes all gains and losses recognised in the year. All amounts relate to continuing activities. The notes on pages 44 to 71 form part of these financial statements.

Charity Statement of Financial Activities incorporating an income and expenditure account for the year ended 31 December 2017

	Note	2017 Restricted £'000	2017 Unrestricted £'000	2017 Total £'000	2016 Total £'000
Income from:					
Donations and legacies		19	-	19	23
Charitable activities:					
Community		-	2,150	2,150	2,125
Discovery		60	15,532	15,592	13,803
Economy		-	-	-	146
Education		600	3,098	3,698	3,291
Society		12	176	188	213
Other trading activities		-	30	30	25
Investments		-	1,671	1,671	1,255
Total income		691	22,657	23,348	20,881
Expenditure on:					
Raising funds		-	(173)	(173)	(63)
Charitable activities:					
Community		-	(3,758)	(3,758)	(3,626)
Discovery		(32)	(3,311)	(3,343)	(3,651)
Economy		-	(434)	(434)	(807)
Education		(507)	(6,944)	(7,451)	(6,408)
Society		(33)	(1,176)	(1,209)	(1,281)
Other		-	(951)	(951)	(321)
Total expenditure		(572)	(16,747)	(17,319)	(16,157)
Net gains / (losses) on investments	17	-	(78)	(78)	2,394
Net income / (expenditure)		119	5,832	5,951	7,118
Other recognised gains / (losses)					
Gains on revaluation of investment property		-	-	-	151
Actuarial (losses) / gains on defined benefit pension scheme	23	-	11,855	11,855	(13,792)
Net movement in funds		119	17,687	17,806	(6,523)
Fund balances brought forward		715	22,596	23,311	29,834
Fund balances carried forward	22	834	40,283	41,117	23,311

The notes on pages 44 to 71 form part of these financial statements.

Balance Sheet at 31 December 2017

	Note	Group 2017 £'000	Group As restated 2016 £'000	Charity 2017 £'000	Charity As restated 2016 £'000
Fixed assets					
Intangible assets	14	2,852	2,281	-	-
Tangible assets	15	23,453	19,679	22,269	18,443
Investments in subsidiary undertakings	16	-	-	3,001	3,001
Investments	17	28,945	24,450	28,945	24,450
		55,250	46,410	54,215	45,894
Current assets					
Debtors	18	12,160	13,806	1,824	4,220
Current asset investments		-	1,860	-	1,051
Cash at bank and in hand		17,000	22,393	6,662	6,490
		29,160	38,059	8,486	11,761
Creditors: amounts falling due within one year	19	(23,170)	(28,866)	(2,235)	(2,469)
Net current assets		5,990	9,193	6,251	9,292
Provisions for liabilities	21	(760)	(738)	(760)	(738)
Defined Benefit Pension scheme deficit	23	(18,589)	(31,137)	(18,589)	(31,137)
Net Assets		41,891	23,728	41,117	23,311
Restricted funds					
Restricted funds	22	834	715	834	715
Unrestricted funds					
General fund	22	59,646	54,150	58,872	53,733
Pension reserve	23	(18,589)	(31,137)	(18,589)	(31,137)
Total unrestricted funds		41,057	23,013	40,283	22,596
Total charity funds		41,891	23,728	41,117	23,311

These financial statements were approved by Council and authorised for issue and were signed on its behalf by



Professor Dame Julia Higgins DBE FRS CPhys Hon.FInstP FREng
President



Professor J D C Jones OBE FRSE FOSA
Honorary Treasurer

The notes on pages 44 to 71 form part of these financial statements.

Consolidated Statement of Cash Flows for the year ended 31 December 2017

	2017	2016
	£'000	£'000
Cash flows from operating activities		
Net income (expenditure) for the year	6,603	6,838
Adjustments for:		
Depreciation and amortisation of fixed assets and intangible assets	1,680	2,144
Loss on disposal of fixed assets	61	2
Net fair value (gains) / losses recognised in profit or loss	(1,580)	1,177
Losses / (gains) on investments	78	(2,394)
Net interest payable receivable	(19)	(20)
Dividend income from fixed and current investments	(733)	(299)
Difference between net pension expense and cash contribution	(693)	(339)
Decrease / (increase) in trade and other debtors	1,646	(2,398)
(Decrease) / increase in trade and other creditors	(4,116)	3,150
Increase in provisions	22	22
Net cash provided by operating activities	2,949	7,883
Cash flows from investing activities		
Purchases of tangible fixed assets	(6,086)	(4,542)
Interest received	19	20
Dividends received on fixed and current asset investments	733	484
Purchase of current asset investments	(14,300)	(5,200)
Sale of current asset investments	9,727	5,200
Net cash used in investing activities	(9,907)	(4,038)
Net (decrease) / increase in cash and cash equivalents	(6,958)	3,845
Cash and cash equivalents at beginning of year	24,253	19,817
Foreign exchange (losses) / gains	(295)	591
Cash and cash equivalents at end of year	17,000	24,253
Cash and cash equivalents comprise:		
Cash at bank and in hand	17,000	22,393
Current asset investments	-	1,860
	17,000	24,253

The notes on pages 44 to 71 form part of these financial statements.

Notes forming part of the financial statements for the year ended 31 December 2017

1 Accounting policies

The Institute of Physics is a corporate body governed by a Royal Charter and bylaws. It was established in its current form by Royal Charter dated 17 September 1970. The Royal Charter is supplemented by bylaws and regulations.

The Institute is a charity registered in both England & Wales (no. 293851) and in Scotland (no. SC040092). The members of Council are the trustees of the Charity. The Institute's registered office is 76 Portland Place London, W1B 1NT.

The Institute of Physics is a Public Benefit Entity under FRS102. The financial statements have been prepared in accordance with applicable charity law and in accordance with FRS 102 "The Financial Reporting Standard applicable in the United Kingdom and Republic of Ireland" ("FRS 102"), and with Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their financial statements in accordance with FRS 102 (effective 1 January 2015) ("Charities SORP FRS 102").

The financial statements have been prepared on the historical cost basis except for the modification to a fair value basis for certain investments, investment properties and financial instruments as specified in the accounting policies below.

The preparation of financial statements in compliance with FRS 102 requires the use of certain critical accounting estimates. It also requires the Group's management to exercise judgement in applying the Group's accounting policies (see note 2).

Going Concern

Trustees continue to monitor the principal markets in which it operates and they have prepared forecasts and projections for the charity. These projections demonstrate the Charity's ability to meet its obligations as they fall due. The Trustees therefore consider it appropriate to prepare the financial statements on a going concern basis.

Parent entity disclosure exemptions

In preparing the individual financial statements of the Institute of Physics advantage has been taken of the following disclosure exemption available in FRS 102:

- No cash flow statement has been prepared for the parent charity; and
- No disclosure has been given for the aggregate remuneration of the key management personnel of the parent charity because their remuneration is included in the totals for the group as a whole.

Basis of consolidation

The consolidated financial statements incorporate the results of the Institute of Physics and all its subsidiary undertakings as at 31 December 2017 using the acquisition method of accounting. Under this method, the results of subsidiary undertakings acquired or disposed of during the year are included in the consolidated Statement of Financial Activities from the effective date of acquisition or up to the effective date of disposal. All intra-group transactions, balances, income and expenses are eliminated in full on consolidation.

1 Accounting policies (*continued*)

The consolidated financial statements incorporate the results of business combinations using the purchase method. In the Statement of Financial Position, the acquiree's identifiable assets and liabilities are initially recognised at their fair values at the acquisition date. The results of acquired operations are included in the consolidated Statement of Financial Activities from the date on which control is gained.

The Institute of Physics has a network of member-led branches. The income and expenditure of these branches is accounted for as part of the charity's own financial statements.

Business combinations

Acquisitions of subsidiaries and businesses are accounted for using the purchase method. The cost of the business combination is measured at the aggregate of the fair values at the date of exchange of assets given, liabilities incurred or assumed, and equity instruments issued by the group in exchange for control of the acquiree plus costs directly attributable to the business combination. Any excess of the cost of the business combination over the fair value of the identifiable assets and liabilities is recognised as goodwill.

Joint Ventures

An entity is treated as a joint venture where the group holds a long term interest and shares control under a contractual agreement.

In the consolidated financial statements, interests in joint ventures are accounted for using the equity method of accounting. Under this method, an equity investment is initially recognised as the transaction price including transaction costs, and is subsequently adjusted to reflect the investor's share of the profit or loss, other comprehensive income and equity of the joint venture. The consolidated Statement of Financial Activities includes the group's share of the joint venture's operating results, interest, pre-tax results and attributable taxation of such undertakings. In the consolidated balance sheet, the interests in joint venture undertakings are shown as the group's share of the identifiable net assets including any unamortised premium paid on acquisition.

Income

Membership income is recognised when received and attributed to the financial years to which it relates. Sundry income is recognised when received. Income from production of in-house and external partner journals with a majority of the income received in advance is recognised in line with the fair value of content delivered. Other income streams include fees received for publishing articles, ebooks and advertising recognised upon publication, sales of access to historic archives recognised upon invoice, when permanent access is granted and contract management fees recognised on invoice.

Government grants receivable

Grants are accounted for under the accruals model as permitted by FRS 102. Grants of a revenue nature are recognised in the Statement of Financial Activities in the same period as the related expenditure.

Resources expended

All expenditure is accounted for on an accruals basis and has been classified under headings that aggregate all costs related to the relevant category. Where costs cannot be directly attributed to particular headings they have been allocated to activities on a basis consistent with use of the resources.

1 Accounting policies (*continued*)

Support costs are those functions that assist the work of the charity but do not directly undertake charitable activities. Support costs include general management, payroll administration, information technology, human resources, financing and governance costs. These costs are allocated across the expenditure on charitable activities. The basis of the cost allocation has been explained in note 8 to the financial statements.

Intangible fixed assets – goodwill

Goodwill represents the excess of the cost of a business combination over the fair value of the group's share of the net identifiable assets of the acquired subsidiary at the date of acquisition. Goodwill on acquisition of subsidiaries is included in Intangible assets. Goodwill is carried at cost less accumulated amortisation and accumulated impairment losses. Goodwill amortisation is calculated by applying the straight-line method to its estimated useful life as follows:

Goodwill on acquisition of subsidiaries	5 years
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Intangible fixed assets – software

Internally generated software assets are stated at cost and depreciated over four years

Tangible fixed assets

Tangible fixed assets are stated at cost or valuation, net of depreciation and any provision for impairment.

Assets with a value of less than £500 are not capitalised.

Depreciation

Depreciation is provided to write off the cost or valuation less the estimated residual value of tangible fixed assets by equal instalments over their estimated useful economic lives as follows:

Office machinery	-	4 - 5 years
Fixtures and fittings	-	4 - 10 years
Computers	-	3 - 4 years

The value of leasehold property is amortised over the remaining periods of the relevant leases.

Temple Circus, Bristol (expires 2021)

The freehold property which was purchased during the year ended 31 December 2013 has not yet been brought into use and is therefore not currently being depreciated.

Investment properties

Investment properties owned by the group are held at fair value, which is determined annually and is derived from current market rents, investment property yields and published capital value growth indices of comparable real estate. Changes in fair value of investment properties are recognised in profit or loss, within 'Other recognised gains/losses' in the Statement of Financial Activities.

No depreciation is provided on investment properties.

Valuation of investments

Investments in subsidiaries are measured at cost less accumulated impairment in the individual charity financial statements.

1 Accounting policies (*continued*)

Other investments in listed company shares are included in the balance sheet at the market value of the individual unitised holdings. Gains and losses are recognised in profit or loss, within 'Net income/expenditure' in the Statement of Financial Activities.

Current asset investments are cash deposits held with qualifying financial institutions for investment purposes, which cannot be withdrawn without penalty or giving notice of more than 24 hours and are not considered to be cash.

Debtors

Trade and other debtors are recognised at transaction price, less any impairment. Prepayments are valued at the amount prepaid net of any trade discounts due.

Liquid resources

For the purposes of the cash flow statement, liquid resources are defined as current asset investments, which is cash held in short term deposit accounts for investment purposes. These are not considered to be cash because they are not accessible penalty free within one working day.

Cash

Cash includes cash in hand and deposits repayable on demand with any qualifying institution less overdrafts from any qualifying financial institution repayable on demand. Deposits are repayable on demand if they can be withdrawn at any time without notice and without penalty, or if a maturity or period of notice of not more than 24 hours or one working day has been agreed. Cash includes deposits denominated in foreign currencies.

Creditors

Short term trade creditors are measured at the transaction price. Other financial liabilities are measured initially at amortised cost and subsequently at amortised cost less impairment.

Provisions

Provisions are recognised when the group has a present obligation, legal or constructive, as a result of a past event, it is probable that the group will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

The group recognises a provision for annual leave accrued by employees as a result of services rendered in the current period, and which employees are entitled to carry forward and use in the following financial year. The provision is measured at the undiscounted salary cost payable for the period of absence that has been accrued.

Financial instruments

Financial instruments are classified and accounted for according to the substance of the contractual arrangement, as financial assets, financial liabilities or equity instruments. An equity instrument is any contract that evidences a residual interest in an asset of the company after deducting all of its liabilities. Financial instruments are measured at amortised cost or fair value depending on the nature of the underlying arrangement.

1 Accounting policies (continued)

Derivative financial instruments

Derivative financial instruments are recognised at fair value with any gains or losses being recognised in profit or loss, within 'Net income/expenditure' in the Statement of Financial Activities.

Fund accounting

General funds are unrestricted funds which are available for use at the discretion of the trustees in furtherance of the objectives of the charity and which have not been designated for other purposes.

Restricted funds are funds which are to be used in accordance with specific restrictions imposed by the donors.

Pension costs – Institute of Physics Retirement Benefits Plan 1975

The Institute operates the Institute of Physics Retirement Benefits Plan 1975 providing pension benefits based on final pensionable pay. This scheme was closed to new members on 31 December 2001. The assets of the scheme are held separately from those of the group in an independently administered fund. This defined benefit scheme is accounted for in accordance with FRS 102. The service cost of pension provision relating to the year, together with the cost of any benefits relating to past service if the benefits have vested, is charged to the Statement of Financial Activities. A charge equal to the increase in the present value of the scheme liabilities (because the benefits are closer to settlement) and a credit equivalent to the group's long term expected return on assets (based on the market value of the scheme assets at the start of the year), are also included in the Statement of Financial Activities.

The difference between the market value of the assets of the scheme and the present value of the accrued pension liabilities is shown as an asset or liability on the balance sheet. Any differences between the actual and expected return on assets during the year are recognised in the Statement of Financial Activities along with differences arising from experience or assumption changes. The defined benefit pension expense recognised in the Statement of Financial Activities is allocated to expenditure on charitable activities in proportion with the expenditure on these activities. The defined benefit pension expense is recognised in unrestricted funds.

Pension costs – Institute of Physics Group Personal Pension Schemes

The group operates two group personal pension schemes. They are both defined contribution pension schemes with assets held in the names of the individual members.

The first was established from 1 January 2002 and is managed by Aviva. This scheme closed to new members on 31 January 2014. For those members of staff who are members of this scheme, the Institute contributes 10-18% of basic salary.

The second was established from 1 February 2014 and is managed by Aviva. For those members of staff who choose to join the scheme the Institute contributes 2-12% of basic salary.

Contributions to the group's defined contribution pension schemes are charged to the Statement of Financial Activities in the year in which they become payable.

1 Accounting policies (*continued*)

Foreign currencies

Functional currency and presentation currency

The individual financial statements of each group entity are presented in the currency of the primary economic environment in which the entity operates (the 'functional currency'). The consolidated financial statements are presented in Sterling, which is the charity's and the group's presentation currency.

Transactions and balances

In preparing the financial statements of the individual entities, transactions in currencies other than the functional currency of the individual entity are recognised at the spot rate at the dates of the transactions or at an average rate where this rate approximates the actual rate at the date of the transaction. At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Non-monetary items that are measured in terms of historical cost in a foreign currency are not retranslated. Foreign exchange differences that arise are recognised in profit or loss, within 'Net income/expenditure' in the Statement of Financial Activities.

Translation of group companies

For the purpose of presenting consolidated financial statements, the assets and liabilities of the group's foreign operations are translated from their functional currency to Sterling using the exchange rate ruling on the balance sheet date. Income and expenses are translated using an average rate for the period, unless exchange rates fluctuated significantly during that period, in which case the exchange rates at the dates of the transactions are used. Exchange differences arising on translation of group companies are recognised within 'Other recognised gains/losses' in the Statement of Financial Activities.

Operating leases

Rentals payable under operating leases are charged to the Statement of Financial Activities on a straight-line basis over the terms of the leases.

Rental income receivable under operating leases with a third party is recognised in the Statement of Financial Activities on a straight-line basis over the terms of the leases.

The group has taken advantage of the transitional relief available for lease incentives, such that where a lease commenced before the date of transition to FRS 102, the remaining benefit of the lease incentive may continue to be recognised in accordance with previous UK GAAP.

Significant judgements and estimates

Preparation of the financial statements requires the Executive Board and Senior Management Team to make significant judgements and estimates. The items in the financial statements where these judgements and estimates have been made include:

Leases:

The key judgement is whether leases entered into by the group either as lessor or lessee are operating leases or finance leases. The conclusion depends on an assessment of whether the risks and rewards of ownership have been transferred from the lessor to the lessee on a lease by lease basis.

Investment property:

The investment property is revalued annually. The valuation uses market rental values and yields, but as each property is unique, a certain degree of judgement is required and the value can only reliably be tested in the market itself.

1 Accounting policies (continued)

Revenue recognition:

Income from production of in-house and external partner journals with a majority of the income received in advance is recognised in line with the fair value of content delivered. Judgement is required in the recognition of revenue where contracts with customers span multiple years.

Defined benefit pension scheme valuation:

Valuation of the assets and liabilities of the group defined benefit pension scheme are performed by a professional actuary.

2 Prior year adjustments

i) Adjustment to reclassify assets with a net book value of £1,159k from tangible to intangible assets, as well as £312k of depreciation reclassified as amortisation. These assets represent internally generated IT assets.

ii) Adjustment to recognised in equity a proportion of the 2014, 2015 and 2016 Gift Aid payments from IOP Publishing Limited to IOP, which had previously been reported as part of 'amounts due to other Group companies' (£3,296k).

Neither of these adjustments necessitated a change to previously reported profit, with only adjustment ii) requiring an adjustment to reserves, shown in note 22.

3 Income: comparatives by fund

	Note	2017 Restricted £'000	2017 Unrestricted £'000	2017 Total £'000	2016 Restricted £'000	2016 Unrestricted £'000	2016 Total £'000
Income from:							
Donations and legacies		19	-	19	23	-	23
Charitable activities:							
Community		-	2,150	2,150	-	2,125	2,125
Discovery		60	57,144	57,204	45	59,605	59,650
Economy		-	-	-	-	146	146
Education		600	3,098	3,698	592	2,699	3,291
Society		12	176	188	40	173	213
Other trading activities		-	1,734	1,734	-	1,588	1,588
Investments	6	-	840	840	-	412	412
Total income	5	691	65,142	65,833	700	66,748	67,448

4 Expenditure: comparatives by fund

	Note	2017 Restricted £'000	2017 Unrestricted £'000	2017 Total £'000	2016 Restricted £'000	2016 Unrestricted £'000	2016 Total £'000
Expenditure on:							
Raising funds		-	(173)	(173)	-	(63)	(63)
Charitable activities:							
Community	7	-	(3,665)	(3,665)	-	(3,473)	(3,473)
Discovery	7	(32)	(45,450)	(45,482)	(69)	(50,778)	(50,847)
Economy	7	-	(423)	(423)	-	(790)	(790)
Education	7	(507)	(6,771)	(7,278)	(619)	(5,670)	(6,289)
Society	7	(33)	(1,147)	(1,180)	(13)	(1,242)	(1,255)
Other	7	-	(951)	(951)	-	(287)	(287)
Total expenditure		(572)	(58,580)	(59,152)	(701)	(62,303)	(63,004)

5 Analysis of incoming resources

By geographical market	2017 £'000	2016 £'000
Europe, Middle East and Africa	26,571	27,223
The Americas	26,292	26,937
Asia Pacific	12,970	13,288
Total	65,833	67,448
By class of business	2017 £'000	2016 £'000
Publishing operations	57,722	60,059
Charitable activities	5,887	5,584
Membership income	1,365	1,370
Other	859	435
Total	65,833	67,448

6 Investment income

	2017 £'000	2016 £'000
Interest from listed investments	733	299
Property rental income	88	93
Interest from cash and short term investments	19	20
Total	840	412

7 Expenditure on charitable activities

	Activities undertaken directly £'000	Grant funding activities £'000	Support costs £'000	2017 £'000	2016 £'000
Community	1,598	-	2,067	3,665	3,473
Discovery	44,120	-	1,362	45,482	50,847
Economy	105	-	318	423	790
Education	3,900	76	3,302	7,278	6,289
Society	463	-	717	1,180	1,255
Total	50,186	76	7,766	58,028	62,654

Grant funding represents 151 (2016: 157) STFC grants made to schools to help them run physics and astronomy related activities.

8 Analysis of governance and support costs

Included within expenditure on charitable activities are governance and support costs amounting to £7,766k (2016: £6,983k). These are analysed as:

	Management Costs (Directorate + Staff) £'000	Central Costs (IT, HR, Facilities) £'000	Finance Costs £'000	2017 £'000	2016 £'000
Community	1,084	774	209	2,067	1,974
Discovery	570	624	168	1,362	1,132
Economy	252	52	14	318	535
Education	1,177	1,673	452	3,302	2,537
Society	451	209	57	717	805
Total	3,534	3,332	900	7,766	6,983

Management costs (directorate + staff)

IOP charity staff time spent on activity

Central costs (IT, HR, Facilities)

IOP charity staff time spent on activity

Finance costs

IOP charity total costs in the activity

Analysis of governance costs

	2017 £'000	2016 £'000
Fees payable to the charity's auditors for the audit of the charity's annual financial statements	30	31
Fees payable to the charity's auditor for other services:		
The audit of the charity's subsidiaries pursuant to legislation	45	31
Other services	15	20
Other taxation services	43	24
	133	106

9 Staff

	2017 £'000	2016 £'000
Wages and salaries	21,625	21,168
Social security costs	1,908	2,000
Pension costs	2,313	2,324
Redundancy and severance costs	427	435
	26,273	25,927

The number of employees earning more than £60,000 (excluding employer pension contributions) per year can be analysed in the following bands:

	2017	2016
£60,000 - £69,999	16	14
£70,000 - £79,999	13	15
£80,000 - £89,999	7	6
£90,000 - £99,999	5	4
£100,000 - £109,999	2	1
£110,000 - £119,999	1	3
£120,000 - £129,999*	4	2
£130,000 - £139,999	-	-
£140,000 - £149,999	1	1
£150,000 - £159,999	2	-
£160,000 - £169,999	2	2
£170,000 - £179,999	2	-
£180,000 - £189,999	-	1
£190,000 - £199,999	-	1
£200,000 - £209,999	1	-
£210,000 - £219,999	1	-
£240,000 - £259,999	-	1
£260,000 - £269,999	-	1
£280,000 - £289,999	-	1
£350,000 - £359,000	1	-

* This banding includes the remuneration of the Group Chief Executive Officer (2017 and 2016).

The above banding includes 45 (2016: 49) staff for whom retirement benefits are accruing under defined contribution schemes and 9 (2016: 9) staff for whom retirement benefits are accruing under defined benefit schemes. Contributions by the group for the year for the above employees to defined contribution schemes amounted to £540k (2016: £540k). 19 staff included above (2016: 13) are paid in dollars and their earnings are subject to foreign exchange fluctuations when translating from \$ to £.

9 Staff (continued)

Additional information on the total remuneration package of employees earning over £60,000 per year is shown below.

Institute of Physics - Charity

Salary and Compensation	Bonus and commission	Non pensionable allowances and other benefits	Employer Pension Contribution	2017	2016
£60,000 - £64,999	-	-	£5,000 - £14,999	-	1
£65,000 - £69,999	-	-	£5,000 - £14,999	1	-
£70,000 - £74,999	-	-	£5,000 - £14,999	2	2
£75,000 - £79,999	-	-	£5,000 - £14,999	1	2
£80,000 - £84,999	-	-	£5,000 - £14,999	1	-
£125,000 - £129,999*	-	-	£20,000 - £24,999	1	1
£135,000 - £139,999^	£35,000 - £39,999	£20,000 - £24,999	-	-	1

* This banding includes the remuneration of the Group Chief Executive Officer (2017 and 2016).

^ This banding includes a member of key management personnel seconded from IOP Publishing Ltd to the Institute of Physics with effect from 1 January 2016. The bonus and commission payment received by this employee in 2016 relates to a contractual performance based incentive linked to IOP Publishing Ltd in 2015.

Institute of Physics - Group

Within the trading subsidiaries of the Institute of Physics group (IOP Enterprises Ltd, IOP Publishing Ltd, IOP Educational Publishing Ltd, Turpion Ltd, Turpion-Moscow Ltd, IOP Publishing Inc., IOP Business Publishing Inc., IOP Publishing Consultants (Beijing) Co Ltd, IOP Marketing and Promotion Services Private Limited), some staff, dependant on role, have contractual performance based incentives linked to the subsidiaries revenue or profit growth. Staff may also receive non pensionable allowances and medical benefits in addition to employer pension contributions.

UK employer pension contributions are made at a maximum of 18% of pensionable salary.

9 Staff (continued)

The average number of full time equivalent employees during the year was:		2017	2016
		number	number
Charitable work:	- Institute of Physics	96	122
Business operations:	- IOP Publishing Limited	237	231
	- IOP Publishing Inc.	39	36
	- IOP Enterprises Limited	-	-
	- Turpion-Moscow Limited	8	8
	- IOP Publishing Consultants (Beijing) Co Ltd	9	8
	- IOP Marketing and Promotion Services Private Ltd	2	2
Management and administration:	- Institute of Physics	25	29
	- IOP Publishing Limited	109	106
		525	542

The full time equivalent employees as at 31 December 2017 was 508 (2016: 559).

10 Key management personnel remuneration

Key management personnel include all members of Council. The President, honorary officers and members of Council give their time to the Institute on a voluntary basis and are paid no remuneration for this work. They are reimbursed the actual costs of travel and subsistence necessarily incurred on the official business of the Institute and/or its subsidiaries. In the year to 31 December 2017 total expenses incurred and reimbursed to 27 trustees (2016: 20) were £45k (2016: £35k).

Remunerated key management personnel include the members of the Institute of Physics senior management team and directors of the Institute's subsidiary companies. The Group Chief Executive Officer and the Chief Financial Officer perform group roles across all entities within the IOP Group. The Group Chief Executive Officer and the Chief Financial Officer form part of the Institute of Physics senior management team which also includes the Chief Operating Officer; Associate Director, Policy, Programmes & Performance; and Managing Director, IOP Publishing Ltd. All members of the senior management team are remunerated by the Institute of Physics with the exception of the Managing Director of IOP Publishing

In addition to the members of the Institute's senior management team, remunerated key management personnel comprise:

IOP Publishing Ltd

Commercial Director Publishing Director
Finance Director Head of Marketing and B2B*
IT Director

IOP Enterprises Ltd

Managing Director

IOP Publishing Inc.

Managing Director

*As director of IOP Business Publishing Inc.

The total compensation paid to key management personnel for services provided to the group was £2,056k (2016: £2,459k). This includes all remuneration, salary, benefits, bonuses and commission, employer's pension contributions, employers national insurance contributions and any compensation payments made.

11 Physics World

During the year the Institute contributed £266k (2016: £266k) to IOP Publishing Limited towards the cost of copies of Physics World supplied to members, and £68k (2016: £74k) towards the cost of copies of Physics Education supplied to the Institute's affiliated schools programme.

12 Taxation

As a registered charity, the Institute is not liable to taxation on the net revenue from its charitable activities. The subsidiary companies make qualifying donations of taxable profit to The Institute of Physics.

13 Irrecoverable VAT

There is a group VAT registration for the Institute of Physics and its subsidiaries. The VAT group is partly exempt and, because of this, there are restrictions on the amount of VAT recoverable.

14 Intangible assets

	IT Assets	Goodwill on consolidation	Trademarks	Total
	As restated £'000	£'000	£'000	£'000
Institute of Physics - Group				
<i>Cost or valuation</i>				
At 1 January 2017	6,837	126	-	6,963
Additions	1,344	-	180	1,524
	8,181	126	180	8,487
<i>Accumulated amortisation</i>				
At 1 January 2017	(4,657)	(25)	-	(4,682)
Provision for the year	(928)	(25)	-	(953)
	(5,585)	(50)	-	(5,635)
<i>Net book value</i>				
At 31 December 2017	2,596	76	180	2,852
At 31 December 2016	2,180	101	-	2,281

The group previously had an investment in a joint venture, Turpion Limited, which was held directly by IOP Publishing Ltd, itself a wholly owned subsidiary of the Institute of Physics. On 1 December 2015, IOP Publishing Ltd purchased the remaining 50% of Turpion Limited bringing IOP Publishing Ltd's shareholding to 100%. The balance stated above represents the goodwill arising on this acquisition.

14 Intangible assets (continued)

Assets in the course of construction

Included in IT assets are £297k (2016: £190k) of assets in the course of construction which relate to the elements of new IT systems which are ongoing. These assets are not being depreciated. These assets will begin to be depreciated upon being brought into use.

15 Tangible fixed assets

	Investment property	Freehold property	Short leasehold property	Fixtures and equipment As restated	Total
Institute of Physics - Group	£'000	£'000	£'000	£'000	£'000
<i>Cost or valuation</i>					
At 1 January 2017	2,547	14,740	2,397	6,869	26,553
Additions	-	4,111	-	451	4,562
Disposals	-	-	(2)	(798)	(800)
At 31 December 2017	2,547	18,851	2,395	6,522	30,315
<i>Accumulated depreciation</i>					
At 1 January 2017	-	-	(1,385)	(5,489)	(6,874)
Charge for the year	-	-	(241)	(486)	(727)
Disposals	-	-	1	738	739
At 31 December 2017	-	-	(1,625)	(5,237)	(6,862)
<i>Net book value</i>					
At 31 December 2017	2,547	18,851	770	1,285	23,453
At 31 December 2016	2,547	14,740	1,012	1,380	19,679

15 Tangible fixed assets (continued)

	Investment property £'000	Freehold property £'000	Short leasehold property £'000	Fixtures and equipment £'000	Total £'000
<i>Institute of Physics - Charity</i>					
<i>Cost or valuation</i>					
At 1 January 2017	2,547	14,740	2,362	1,667	21,316
Additions	-	4,111	-	66	4,177
Disposals	-	-	-	(1)	(1)
At 31 December 2017	2,547	18,851	2,362	1,732	25,492
<i>Depreciation</i>					
At 1 January 2017	-	-	(1,365)	(1,508)	(2,873)
Charge for the year	-	-	(236)	(113)	(349)
Disposals	-	-	-	(1)	(1)
At 31 December 2017	-	-	(1,601)	(1,622)	(3,223)
<i>Net book value</i>					
At 31 December 2017	2,547	18,851	761	110	22,269
At 31 December 2016	2,547	14,740	997	159	18,443

Investment property

During the year ended 31 December 2015, the Institute purchased a new freehold property. This property is currently being held for its investment potential and it has therefore been classified as an investment property. The investment property forms part of an integrated plan for the use of the new site in London, therefore it has been included within tangible fixed assets in the financial statements.

The investment property is valued annually on 31 December at fair value. As permitted by FRS 102, the valuation as at 31 December 2017 was undertaken internally by the trustees. The valuation was based on capital value growth indices published by commercial real estate services firms, but as each property is unique, a certain degree of judgement is required and the value can only reliably be tested in the market itself.

As a result of this valuation, no revaluation was considered necessary (2016: Increase of £151k)

Assets in the course of construction

During the year ended 31 December 2013, the Institute purchased a new freehold property. The property has not yet been brought into use, therefore freehold property assets of £18.85m (2016: £14.74m) are in the course of construction and are not being depreciated.

16 Fixed asset investments

Institute of Physics - Charity

Subsidiary
undertakings
£'000

Cost and net book value

At 1 January 2017 and 31 December 2017

3,001

The Institute's subsidiary undertakings at 31 December 2017 were as follows:

Name	Country of incorporation / registration	Class of shares held	Percentage held	Nature of business	Year end
<i>Subsidiary undertakings</i>					
IOP Publishing Ltd	UK	Ordinary	100%	Publishing	31 Dec 2017
IOP Enterprises Ltd	UK	Ordinary	100%	Conference venue	31 Dec 2017
IOP Educational Publishing Ltd	UK	Ordinary	100% *	Dormant	31 Dec 2017
IOP Publishing Inc.	USA	Ordinary	100%	Publishing	31 Dec 2017
IOP Business Publishing Inc.	USA	Ordinary	100% ^	Publishing	31 Dec 2017
IOP Publishing Consultants (Beijing) Co Ltd	China	Ordinary	100% *	Publishing consulting	31 Dec 2017
Turpion Limited	UK	Ordinary	100% *	Publishing	31 Dec 2017
Turpion-Moscow Ltd	Russia	Ordinary	100% +	Publishing	31 Dec 2017
IOP Marketing and Promotion Services Private Limited	India	Ordinary	100% –	Publishing	31 Mar 2018

* The investments in IOP Educational Publishing Ltd, IOP Publishing Consultants (Beijing) Co Ltd and Turpion Limited are held directly by IOP Publishing Ltd.

^ The investment in IOP Business Publishing Inc. is held directly by IOP Publishing Inc.

+ The investment in Turpion-Moscow Ltd is held directly by Turpion Limited.

– The investment in IOP Marketing and Promotion Services Private Limited is 0.01% owned by IOP and 99.99% by IOP Publishing Ltd.

Address of IOP Publishing Ltd is Temple Circus House, Temple Way, Bristol BS1 6HG

Address of IOP Publishing Inc. is 190 N. Independence Mall West Suite 601 Philadelphia, PA 19106

Details of the net assets, turnover, expenditure and profit for the year of IOP Publishing Limited, IOP Enterprises Limited, IOP Publishing Inc., IOP Business Publishing Inc., IOP Publishing Consultants (Beijing) Co Ltd, Turpion Limited and IOP Marketing and Promotion Services Private Limited are as follows:

16 Fixed asset investments (continued)

	Company No.	Net assets 2017 £'000	Turnover 2017 £'000	Expenditure 2017 £'000	Profit 2017 £'000
IOP Publishing Limited	00467514	290	58,695	(58,695)	-
IOP Enterprises Limited	03471563	1	90	(90)	-
IOP Publishing Inc.	26-2659520	4,506	5,010	(4,340)	670
IOP Business Publishing Inc.	26-2301131	955	214	(209)	5
IOP Publishing Consultants (Beijing) Co Ltd	No.05292	139	916	(891)	25
Turpion Limited	02463452	249	2,617	(2,617)	-
IOP Marketing and Promotion Services Private Limited	U74999TN201 6FTC103739	20	113	(100)	13

Profit for the year of IOP Publishing Limited, IOP Enterprises Limited, IOP Publishing Inc., IOP Business Publishing Inc., and Turpion Limited are shown after the profits generated by each entity have been distributed by gift aid to IOP.

17 Investments

	Group and charity	
	2017 £'000	2016 £'000
Market value at beginning of the year	24,450	22,056
Purchases in year	14,300	5,200
Disposal proceeds in year (Losses) / gains	(9,727)	(5,200)
	(78)	2,394
	<hr/>	<hr/>
Market value at end of the year	28,945	24,450
	<hr/>	<hr/>
Historical cost	27,523	21,483
	<hr/>	<hr/>

No investment management cost was incurred in 2017 or 2016.

	Group and charity	
	2017 £'000	2016 £'000
The analysis of investments by class is as follows:		
Invesco Perpetual	10,359	-
CR Ruffer Absolute Return Fund	9,478	19,333
CCLA COIF Charities Property Fund	5,307	5,117
Vanguard	3,801	-
	<hr/>	<hr/>
Market value of investments	28,945	24,450
	<hr/>	<hr/>

18 Debtors

	Group 2017	Group 2016	Charity 2017	Charity 2016 As restated
	£'000	£'000	£'000	£'000
Trade debtors	3,619	5,231	73	109
Amounts owed from group undertakings	-	-	-	2,291
Other debtors	1,918	3,049	1,132	1,250
Prepayments and accrued income	6,623	5,526	619	570
	12,160	13,806	1,824	4,220

An impairment loss of £357k (2016: £277k) was recognised in the consolidated Statement of Financial Activities for the period in respect of bad and doubtful trade debtors. An impairment loss of £45k (2016: £67k) was recognised in the Charity Statement of Financial Activities for the year in respect of bad and doubtful trade debtors.

Included within Other debtors is an amount of £196k (2016: £146k) relating to recoverable Indian withholding tax that is expected to fall due for payment in greater than one year.

19 Creditors: amounts falling due within one year

	Group	Group	Charity	Charity
	2017	2016	2017	2016
	£'000	£'000	£'000	£'000
Trade creditors	792	1,271	389	444
Amounts owed to group undertakings	-	-	101	-
Other creditors	5,207	5,417	370	394
Loss in fair value of derivatives	-	1,580	-	-
Other taxes and social security	364	533	-	-
Accruals	4,411	4,445	869	1,094
Deferred income	12,396	15,620	506	537
	23,170	28,866	2,235	2,469

Deferred income represents income received in advance:

	Group	Group	Charity	Charity
	2017	2016	2017	2016
	£'000	£'000	£'000	£'000
Journals subscriptions	10,956	13,880	-	-
Membership subscriptions	445	434	442	434
Other	995	1,306	64	103
	12,396	15,620	506	537

20 Financial instruments

The Group's and Charity's financial instruments may be analysed as follows:

	Group	Group	Charity	Charity
	2017	2016	2017	2016
	£'000	£'000	£'000	£'000
Financial assets				
Financial assets measured at fair value through profit or loss	28,945	24,450	28,945	24,450
Financial assets measured at amortised cost	27,715	36,562	8,293	9,992
Financial liabilities				
Financial liabilities measured at fair value through profit or loss	-	1,580	-	-
Financial liabilities measured at amortised cost	(10,410)	(11,133)	(1,729)	(2,937)

Financial assets measured at fair value through profit or loss comprise fixed asset investments in a trading portfolio of listed company shares.

Financial assets measured at amortised cost comprise stocks, trade debtors, other debtors, amounts owed by joint ventures and group undertakings, current asset investments and cash at bank.

Financial liabilities measured at fair value through profit or loss comprise the loss in fair value of foreign currency exchange contracts.

Financial liabilities measured at amortised cost comprise trade creditors, other creditors, accruals and amounts owed to joint ventures and group undertakings.

21 Provisions

	Group	Group	Charity	Charity
	2017	2016	2017	2016
	£'000	£'000	£'000	£'000
Provisions	760	738	760	738

Included within provisions is a provision of £760k (2016: £738k) for costs relating to the exit of leasehold premises which are not expected to crystallise before 2021. The amount payable will be agreed through future negotiation at such point that an exit occurs.

22 Movement on reserves

	General fund £'000	Restricted funds £'000	Pension reserve (Deficit) £'000	Total £'000
Institute of Physics - Group				
At 1 January 2017	54,150	715	(31,137)	23,728
Incoming resources	63,644	691	1,498	65,833
Outgoing resources	(57,775)	(572)	(805)	(59,152)
Realised gains on investment sales during the year	1,467	-	-	1,467
Unrealised gains on investments	(1,545)	-	-	(1,545)
Exchange adjustments	(295)	-	-	(295)
Actuarial gains / (losses)	-	-	11,855	11,855
Balances carried forward	59,646	834	(18,589)	41,891

	General fund £'000	Restricted funds £'000	Pension reserve (Deficit) £'000	Total £'000
Institute of Physics - Charity				
At 1 January 2016 (as previously stated)	43,506	716	(17,684)	26,538
Prior year adjustment	2 3,296	-	-	3,296
At 1 January 2016 (as restated)	46,802	716	(17,684)	29,834
Incoming resources	19,181	700	1,000	20,881
Outgoing resources	(14,795)	(701)	(661)	(16,157)
Realised gains on investment sales during the year	781	-	-	781
Unrealised gains on investments	1,764	-	-	1,764
Actuarial gains / (losses)	-	-	(13,792)	(13,792)
Balances carried forward	53,733	715	(31,137)	23,311

At 1 January 2017 (as previously stated)	50,437	715	(31,137)	20,015
Prior year adjustment	2 3,296	-	-	3,296
At 1 January 2017 (as restated)	53,733	715	(31,137)	23,311
Incoming resources	21,159	691	1,498	23,348
Outgoing resources	(15,942)	(572)	(805)	(17,319)
Realised gains on investment sales during the year	1,467	-	-	1,467
Unrealised gains on investments	(1,545)	-	-	(1,545)
Actuarial gains / (losses)	-	-	11,855	11,855
Balances carried forward	58,872	834	(18,589)	41,117

22 Movement on reserves (continued)

Group and charity	Balance at 1 Jan 2017 £'000	Incoming resources £'000	Resources expended £'000	Balance at 31 Dec 2017 £'000
<i>Restricted funds</i>				
Prize funds	38	10	(7)	41
Other funds	677	681	(565)	793
	715	691	(572)	834

Restricted funds are held by the Institute and were given to the Institute to spend towards specific projects and purposes. Prize funds are held by the Institute to give out as awards to individuals for their exceptional contribution towards Physics. Other funds are to be spent on specific projects.

Analysis of Net Assets by Fund

	General fund £'000	Restricted funds £'000	Pension reserve (Deficit) £'000	Total £'000
Institute of Physics Group				
Intangible Fixed Assets	2,852	-	-	2,852
Tangible Fixed Assets	23,453	-	-	23,453
Investments	28,945	-	-	28,945
Current Assets	28,326	834	-	29,160
Current Liabilities	(23,170)	-	-	(23,170)
Non-Current Liabilities	(760)	-	(18,589)	(19,349)
Balances carried forward	59,646	834	(18,589)	41,891

23 Pensions

The group operates three pension schemes.

Defined benefit pension scheme

The Institute of Physics Retirement Benefits Plan 1975 was closed to new members on 31 December 2001. The Institute continues to support the scheme for those who were members on the effective date of closure.

A group personal pension scheme was established to replace the defined benefit scheme with effect from 1 January 2002. This scheme closed to new members on 31 January 2014 and a new group person pension scheme was established from 1 February 2014. The Institute has also designated a stakeholder pension scheme in compliance with the Pensions Act 1995.

The most recent FRS 102 valuation of the Institute of Physics Retirement Benefits Plan 1975 dated 31 December 2017 showed that the value of the scheme's assets as at that date was £81,743k (2016: 74,846k) and that the actuarial value of those assets represented 71% (2016: 71%) of the benefits that had accrued to members, after allowing for expected future increases in earnings.

The Institute's and employees' contributions are 18% and 7% respectively. The next triennial valuation is due on 1 January 2020.

The principal actuarial assumptions used by the actuary at the balance sheet date were:

	2017	2016
	%	%
Discount rate	2.40	2.65
Aggregate long-term expected rate of return on assets (net of expenses)		
Inflation (RPI)	3.40	2.45
Inflation (CPI)	2.30	2.45
Future increases in deferred pensions	2.30	2.45
Rate of increase in salaries	3.40	3.45
Rate of increase to pensions in payment:		
LPI (max 6.5%) based on RPI	3.40	3.45
LPI (max 2.5%) based on RPI	2.10	2.15
Mortality assumptions:		
Life expectancy of male aged 65 now	22.3	22.4 ('light' 23.5)
Life expectancy of male aged 65 in 20 years	23.7	24.1 ('light' 25.1)
Life expectancy of female aged 65 now	24.2	24.5 ('light' 25.4)
Life expectancy of female aged 65 in 20 years	25.7	26.4 ('light' 27.3)

Cash commutation:

2017: Members take 75% of their max allowable pension commencement lump sum, with current commutation factors.

2016: Members take 75% of their max allowable pension commencement lump sum, with current commutation factors.

23 Pensions (continued)

<i>Reconciliation of fair value of plan liabilities:</i>	2017	2016
	£'000	£'000
At the beginning of the year	105,983	80,929
Current service cost		
Interest cost	2,780	3,080
Remeasurement (gains) / losses:		
Actuarial (gains) and losses	(6,274)	23,839
Benefits paid	(2,157)	(1,865)
	<hr/>	<hr/>
At the end of the year	100,332	105,983
	<hr/>	<hr/>
<i>Changes in the fair value of plan assets:</i>	2017	2016
	£'000	£'000
At the beginning of the year	74,846	63,245
Interest income	1,975	2,419
Remeasurement (losses) / gains:		
Return on scheme assets excluding interest	5,581	10,047
Contributions by employer	1,498	1,000
Benefits paid including expenses	(2,157)	(1,865)
	<hr/>	<hr/>
At the end of the year	81,743	74,846
	<hr/>	<hr/>
Actual return on plan assets	7,079	12,466
	2017	2016
	£'000	£'000
Fair value of plan assets	81,743	74,846
Actuarial value of plan liabilities	(100,332)	(105,983)
	<hr/>	<hr/>
Net pension scheme liability	(18,589)	(31,137)
	<hr/>	<hr/>
	Group and charity	
	2017	2016
	£'000	£'000
Pension liability recognised on the balance sheet	18,589	31,137
	<hr/>	<hr/>

23 Pensions (continued)

Amounts recognised in profit or loss are as follows:

	Group and charity	
	2017 £'000	2016 £'000
Current service cost	-	-
Net interest cost	805	661
	<hr/>	<hr/>
Total	805	661
	<hr/>	<hr/>

Analysis of actuarial loss recognised within the Statement of Financial Activities gains and losses category

	Group and charity	
	2017 £'000	2016 £'000
Actual return less interest income included in net interest income	5,581	10,047
Changes in assumptions underlying the present value of the scheme liabilities	6,274	(23,839)
	<hr/>	<hr/>
Actuarial gain / (loss) on defined benefit pension scheme	11,855	(13,792)
	<hr/>	<hr/>

Composition of plan assets

	Group and charity	
	2017 £'000	2016 £'000
Equities	33,764	32,258
Diversified growth funds	21,236	19,535
Annuities	10,134	10,778
Liability Driven Investment funds	9,418	8,982
Corporate bonds	3,102	2,919
Partners Fund	3,575	-
Cash	514	374
	<hr/>	<hr/>
Total plan assets	81,743	74,846
	<hr/>	<hr/>

23 Pensions (continued)**Defined contribution pension schemes**

The amount recognised in the Statement of Financial Activities as an expense in relation to the group's defined contribution pension schemes is £2,069k (2016: £2,114k). There was no outstanding payable to the schemes at the year end of 2017 and 2016.

24 Analysis of changes in net funds

	2017 £'000	2016 £'000
(Decrease) / increase in cash and cash equivalents	(6,958)	3,845
Exchange translation	(295)	591
Movement in net funds in the year	(7,253)	4,436
Net funds brought forward	24,253	19,817
Net funds carried forward	17,000	24,253

25 Commitments under operating leases**Group**

The group has minimum lease payments under non-cancellable operating leases as set out below:

	Land and buildings 2017 £'000	Land and buildings 2016 £'000
Not later than 1 year	1,303	1,285
Later than 1 year and not later than 5 years	2,741	3,577
Later than 5 years	272	434
	4,316	5,296

25 Commitments under operating leases (continued)**Charity**

The charity has minimum lease payments under non-cancellable operating leases as set out below:

	Land and buildings 2017 £'000	Land and buildings 2016 £'000
Not later than 1 year	916	916
Later than 1 year and not later than 5 years	1,966	2,883
	<hr/> 2,882 <hr/>	<hr/> 3,799 <hr/>

26 Amounts receivable under operating leases

The charity has minimum lease payments receivable under non-cancellable operating leases as set out below:

	Land and buildings 2017 £'000	Land and buildings 2016 £'000
Not later than 1 year	845	845
Later than 1 year and not later than 5 years	1,857	2,703
	<hr/> 2,702 <hr/>	<hr/> 3,548 <hr/>

27 Related parties

The charity has taken advantage of the exemption available to not disclose transactions with its wholly owned subsidiaries.

The charity did not receive any donations without conditions from the trustees or any other related party (2016: nil).