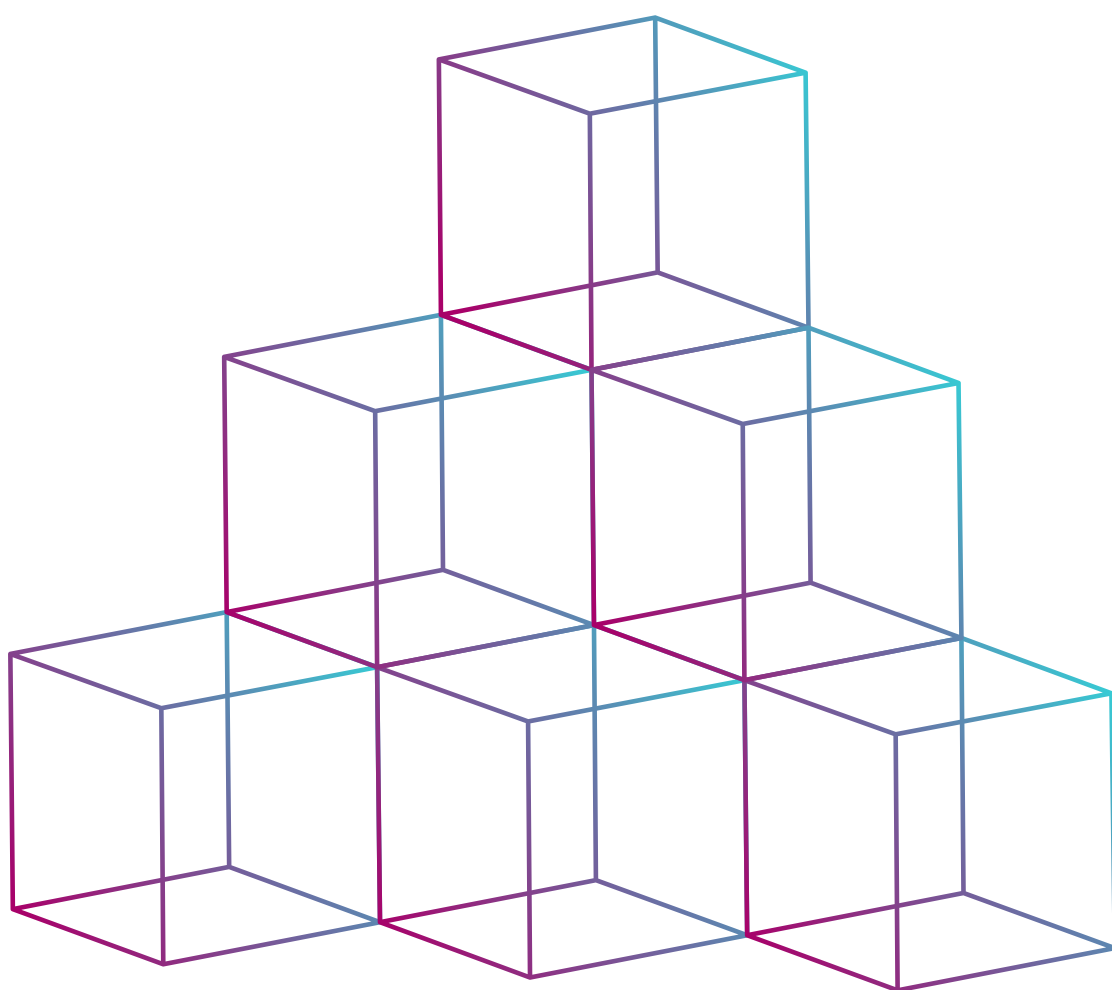


# Annual Trustees' Report and Financial Statements

20  
23

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**Institute** of  
**mathematics**  
& its applications

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# The Institute of Mathematics and its Applications

This is the Annual Report of the Trustees of 'The Institute of Mathematics and its Applications' (IMA) for the year 2023. The Institute is governed according to a Royal Charter and Byelaws granted in 1990 and revised in 1997, 1999, 2002, 2008 and 2015. The governance and control of the Institute is vested in its Council (Council Members are also the Trustees). The charity registration number is 1017777. The Companies House registration number is RC000714.

## Meeting our objectives and activities for the public benefit

The Royal Charter sets the IMA's Object(ive)s as:

- to advance mathematics and its applications in all areas including commerce, engineering, finance, health, industry, scientific and other academic disciplines and the public sector and to promote and foster research and other enquiries directed to the advancement, teaching and application of mathematics for the public benefit;
- to seek to establish and maintain high standards of professional conduct for Corporate Members;
- to seek to promote, encourage and guide in the development of education and training in all matters relevant to the advancement of mathematics and its applications for members and all other persons who are engaged in or likely to be engaged in mathematics or its applications.

The activities for the Public Benefit are as set out as Mission and Goals in the Council approved Strategic Review (2018-2023). In particular the Mission is to benefit society through:

- Providing a suite of member focused services commensurate with its position as the principal professional and learned body for mathematics and its applications in the United Kingdom;
- Being a driving force for the use of mathematics in industry and commerce;
- Ensuring that the importance of mathematics is well represented to Government; a major contributor to the promotion of mathematics within the education systems of the United Kingdom, and helping further improve the quality of mathematics teaching, and the supply and support of mathematics teachers;
- Being a major contributor to the promotion of mathematics within the education systems of the United Kingdom, and helping further improve the quality of mathematics teaching, and the supply and support of mathematics teachers;
- Being an influencing voice for the use of mathematics in science, technology, engineering, economics and other fields of endeavour;
- Advancing its reputation as a major contributor to mathematics research initiatives;
- Engaging proactively at all levels with the full spectrum of the media and society for the promotion of mathematics in the UK;
- Adding value to the worldwide mathematics community by providing a range of services, conferences, publications and events that are fulfilling and beneficial for its membership and for mathematics;
- Promoting high standards of professional conduct for members;
- Regulating the Chartered Mathematician and Chartered Mathematics Teacher designations;
- Working with other mathematical organisations to develop a unified voice for mathematics in the UK;
- Collaborating with organisations in other countries to promote mathematics at an international level.

# Foreword

I am delighted and honoured to be President of the IMA because it provides such an amazing opportunity to interact with and share my passion for maths as part of this immensely talented and engaged community.

2024 marks the 100th anniversary of IMA first President Sir James Lighthill's birth, 20 years since the Early Career Mathematicians group were formed and, most importantly, the 60th anniversary of the IMA itself this April. It is not just an exciting time, but a critical one as well – for maths and all its applications.

Maths underpins the foundations of so many things we are facing as a global community – AI, ethics, climate change, healthcare, and so much more. More than ever, a massively diverse range of people are open and eager for trusted sources to help them navigate the nuances of the modern mathematical world and I believe the IMA is wonderfully placed to guide and encourage that curiosity and drive.

Additionally, the Government's announcement that it will fund the development of a national Academy for mathematical sciences will raise the profile of maths at the government level and we hope to see more funding for mathematical sciences research, greater awareness of the impact mathematics has on society, greater support for mathematics teachers, and increased efforts to reverse harmful maths stereotypes.

The IMA will play a key role in this. We are so lucky to have diverse membership working in all kinds of sectors, across academia, research, to industry, business and government. Our new strategy includes formalising special interest groups in areas which can play a significant role, Climate and Sustainability, AI and even EDI, looking at innovative solutions which maths can provide.

I'd like to take this opportunity to thank Immediate Past President Professor Paul Glendinning FRSE FIMA for his dedication to the IMA throughout his term.

I'm so looking forward to celebrating this 60th year with you and playing my part to help shape the next 60 years of the IMA.

**Professor Hannah Fry HonFREng FIMA**



# Introduction

The IMA's Annual Report for Trustees and Members for 2023 merges our two previous annual reports into one document, retaining the new style and format introduced in 2022 to better illustrate and celebrate the key achievements of the Institute over the last year which are, as always, due to the tireless efforts of our volunteers and staff.

2023 was a significant year for the Institute as we prepared for our Strategy Weekend in July. Following an incredible response from our boards, committees, Branches and ECMs, we appointed an external expert facilitating team to lead our weekend. There, we focused on gaining collective agreement of the IMA's key strategic objectives to shape our new strategy. See page 35 for more details.

New activities are well underway. This includes development work on a new online mentoring platform, IMA Exponential, which will be launched in early 2024, highlighting our commitment to increasing our digital offering and supporting members. We also created a new post in the team to support our membership retention and growth, with Jenny May Roberts joining us in September to deliver our university and industry liaison activities and help identify other ways to support members and the mathematics community.

2022 Gold Medal winner Philip Maini FRS FIMA gave a wonderful lecture at the IMA 2023 Summer Reception in June. We also added a new event to our calendar, a joint lecture evening with talks by the 2023 winners of the Hedy Lamarr and John Blake Teaching Medal prizes, Julia Gog and Chris Sangwin, filmed for on-demand access via our YouTube channel. Another highlight was the joint 2020 and 2022 Christopher Zeeman Medal winners' event; Matt Parker and Simon Singh drew a huge audience to central London and inspired and impressed in equal measure.

IMA representatives remained actively engaged in externally-led work to support wider mathematics aims, notably providing advice, guidance and support to the proto-Academy for the Mathematical Sciences, CMS and the Alliance for Data Science Professionals. And not forgetting the next generation of mathematical scientists, staff and volunteers again returned to the Big Bang at the NEC and exhibited for the first time at the Greenwich Maths Time and RAF Cosford Museum; public engagement events to highlight maths and put the M back in STEM.

Nonetheless, significant external factors affecting many charitable organisations remained omnipresent so we continued to focus on our costs. Following our reduction in leased office space over 2022, attention now turned to Catherine Richards House (CRH). We commissioned an independent options report from third sector property advisory service, Ethical Property Foundation. Their report highlighted a combination of factors, such as the impact of blended working patterns for staff, achieving our sustainability goals and the dilapidated state of CRH. After reviewing the report Council agreed that the executive team could look for new, leased premises in 2024 and undertake a disposal plan for CRH with a view to re-investing funds raised to ensure suitable and sustainable financial returns to underpin the Institute's charitable goals.

2024 will be an even more exciting year as we mark our 60th anniversary, the 100th anniversary of Sir James Lighthill's birth and the 20th anniversary of the ECMs. We do hope you can join in the celebrations and mark this exciting time in the Institute's history!

**Rosalind Azouzi**  
**Executive Director**

<http://ima.org.uk>

# Education and Outreach

The IMA's education and outreach activities are led by the Honorary Secretary Education, with two committees covering Schools, FE and HE and a dedicated Education Manager and one funded post. The IMA actively promotes the engagement of the Institute's members in mathematics education, including work to share communications online and through our flagship publication Mathematics Today. For instance:

- notification of the publication of key reports;
- invitations to participate in events and / or contribute to external initiatives;
- opportunity to provide feedback on specific issues;
- invitations to contribute to Institute responses to consultations;
- publication of the Institute's submissions to consultation exercises.

The IMA also provides direct support to a number of programmes to support mathematics education, teaching and learning across the UK and for all levels of education. We attend major STEM events to showcase mathematics 'in action' to young people, teachers, parents and other key influencers, aiming to overturn stereotypes surrounding mathematics and signpost visitors to further resources such as [MathsCareers.org.uk](https://www.mathscareers.org.uk).

The IMA also delivers the Mathematics Teacher Training Scholarship Programme, on behalf of DfE, working with partners including LMS, RSS, STEM Learning and MEI.

During 2023, our contribution to mathematics education was led by Professor Catherine Hobbs CMath FIMA (Honorary Secretary with responsibility for Education). Professor Andrew Osbaldestin FIMA (Chair, HEdSA), Professor Noel-Ann Bradshaw CMath FIMA (Chair, Higher Education Committee), Dr Gordon Laing CMathTeach CMath FIMA (Chair, S&FE) and Vanessa Thorogood (Education Manager) together with all our education committee members. Jaydene Merry joined the team as Scholarships Officer. After many years supporting the IMA's education work as Deputy Honorary Secretary Education, Professor Nigel Steele CMath HonFIMA stepped back from this role but continued to support the IMA as MTTTS Scholarships Advisor.

Both Education Committees discussed their aims for the IMA's strategy review. They worked collaboratively to ensure that the educational aspects of the strategy are well-aligned and fulfil the key objectives outlined in our Royal Charter. In addition, both education committees reviewed their Terms of Reference, essential in defining the scope, responsibilities, and objectives of each committee.

Other highlights including responding to the discussion paper for the Royal Society's Mathematical Futures programme and Ofqual's consultation on the proposed alterations in the assessment of mathematics, physics, and combined science GCSEs scheduled for 2024.

## Higher Education

1

In 2023, the HEdSA Committee warmly welcomed Professor Noel-Ann Bradshaw as the new Chair, succeeding Professor Andrew Osbaldestin, who completed his second three-year term in the position.

During 2023, the committee was renamed to the Higher Education Committee to ensure clarity of its role within the IMA governance structure. HEC continued to monitor the quality of the IMA's degree accreditation programme. Other topics of oversight were the HE Teaching and Learning Series and Induction Course for New Lecturers. The Committee also oversaw the IMA's University Liaison work and progress of the IMA's participation in the Levelling Up: Mathematics programmes.

Other consideration was given to a special report, “Mathematical Sciences recruitment and graduate outcomes – A diversity perspective of the landscape of Mathematical Sciences in UK”. Commissioned by the Heads of Departments of Mathematical Sciences (HoDoMS), the report examines the landscape regarding recruitment to mathematical sciences first degree subjects across the UK and outcomes achieved by graduates from these degrees and the announced closures of some low-tariff entry Mathematics Departments.

## Course Accreditation

The Institute’s Course Accreditation scheme accredits university degree courses from which all its graduates will meet the educational requirements for the CMath designation. A total of 70 universities currently have degrees accredited by the Institute.

A list of accredited degree courses can be found on the Course Accreditation page of the Institute’s website.

In the ongoing strategy review, IMA is presently reassessing the Course Accreditation scheme. As part of this evaluation, a survey was conducted among HoDoMS members to gather insights on their utilisation of accreditation, assess the perceived utility of the accreditation process, and solicit suggestions on how to disseminate best practices identified by external assessors.

## HE Teaching and Learning Series

The HE Teaching and Learning Series consists of a call for a series of teaching and learning-related workshops and induction course for new lecturers.

## HE Teaching and Learning Workshops Series

The Higher Education Teaching and Learning Series, led by the IMA, is a joint activity with the LMS and RSS, and provides an opportunity for higher education mathematical sciences departments to request supporting funds for facilitating a teaching and learning related workshop.

During 2023, the following workshops from the 2019/20 (marked with a \*) and 2022/23 HE Teaching and Learning Workshop Series took place:

- University of Nottingham - Project-based and synoptic modules\*
- University of Sheffield - Effectively teaching small classes as a postgraduate demonstrator\*
- University of Edinburgh - A Manifesto for Higher Education in Mathematical Sciences 2023+
- University of Glasgow - Outreach and widening participation in mathematical sciences
- University of Greenwich - Assessment in mathematics and mental health

Workshop reports are available on our website.

In December 2023, the fifth call for the Higher Education Teaching and Learning Series was released.



## Induction Course for New Lecturers in the Mathematical Sciences

The Induction Course for New Lecturers took place on 18-19 September 2023 at the Isaac Newton Institute for Mathematical Sciences, Cambridge.

Through a community initiative supported by the IMA, INI and HoDoMS, and endorsed by the RSS and the LMS, The Induction Course for New Lecturers in the Mathematical Sciences has been designed by the mathematics community so that it is ideally suited for anyone who is new to or has limited experience teaching mathematics or statistics within UK higher education.

## IMA John Blake University Teaching Medal

The 2023 IMA John Blake University Teaching Medal was awarded to Professor Chris Sangwin FIMA of the University of Edinburgh. A new event saw Chris give a wonderful presentation at De Morgan House on Wednesday 29 November 2023.

The video is now available to view at the IMA's YouTube channel.



Chris Sangwin receiving the John Blake University Teaching Medal from IMA President Paul Glendinning

## University and Early Career Liaison

The IMA works closely with universities to increase membership, awareness of and participation with the IMA amongst undergraduate and postgraduate students, and the university community. We provide grants to postgraduate and undergraduate student mathematical societies, careers talks for mathematics undergraduates and support careers events and student conferences.

In 2023, the IMA's long-serving University Liaison Officer, Erica Tyson, entered retirement but not before delivering 12 careers talks and returning to help with the handover to her successor.

The Tomorrow's Mathematicians Today (TMT) conference was hosted online in March by the University of Greenwich, with over 100 delegates registered across the two days, and 33 student presentations.

During the year we provided £2,400 in grants to Mathematical student societies in the UK and Ireland and to the IMA-SIAM Joint Student Chapters. We made Undergraduate awards to societies at the universities of Warwick, UCL, Manchester, Nottingham Trent and Cardiff; and to the IMA-SIAM Joint Student Chapter at Warwick. We supported Society activities and conferences, competitions, talks and participated in IMA conferences. We supported the SIAM UKIE Student Annual Conference with a grant of £450.

## Membership Development

We created a new role to build on the relationships built by the outgoing ULO and increase our focus on supporting members across our Mathematical community with the aim of increasing opportunities and promotion of our community and improving member engagement to build our relationships with academia and industry. The new Membership Development Executive is reviewing opportunities to recruit, retain and engage members at all stages of their journey. This includes promoting the IMA to graduates at industry events and developing new membership benefits to support our members at all career stages.

# Details of Membership Development Activities from Sept 2023

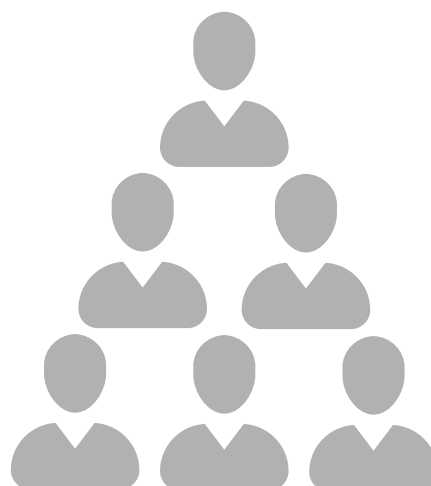
## Grants Applied for and in pipeline

### Undergraduate:

- UCL
- Nottingham Trent University
- Southampton University
- Newcastle University
- Durham University
- Essex University

### Joint Chapters:

- SIAM/IMA - Durham chapter



## University Engagement – Undergraduate Careers Talks

- 19 September – University of Bristol
- 22 September – University of Lincoln
- 27 September - Nottingham Trent University
- 27 September - Oxford Brookes University
- 24 October – Aston University
- 1 November – Lancaster University (Online)
- 8 November – Loughborough University (Online)
- 9 November – University of Portsmouth (Online)
- 9 November – Northumbria University (Online)
- 22 November – Newcastle University (Online)
- 28 November – University of Salford (Online)

## Engagement Activities from Sept 2023 include:

- 20th Sept - IMA Employers Forum – University of Warwick
- 3rd Oct – Black Heroes Conference – Online
- 13th Oct - LMS/IMA joint meeting on 'The Mathematical Foundations of Artificial Intelligence'
- 19th Oct - MemberWise Conference 2023 'Membership Growth Accelerator'
- 7th Nov - AWE 'Meet the Institutes'

## 2024 events in the pipeline:

- 10th Jan Retreat for Women in Applied Maths – Edinburgh online talk overview of IMA & Benefits of Membership
- 17th Feb - Oxford – Women in Maths – In person
- 7th March - AWE 'Meet the Institutes' – In person
- 22nd March - SIAM/IMA annual meeting – University of Manchester
- BAMC/ECM event – 8th – 11th April – In person
- May - Early Career Mathematicians Conference
- June/July - Keele MEI Teachers' Conference
- July - Wolverhampton STEM Festival

## Levelling Up: Mathematics education programme

The IMA continued its role as a partner in the Levelling Up: Mathematics programme, working closely with the London Mathematical Society and the project founder. The programme provides A Level maths students who have little or no access to additional learning support, such as private tuition, with access to tutors recruited from local university maths undergraduate cohorts and dedicated materials to complement the curriculum, developed by LMS.

With five universities on board at the beginning of 2023, the IMA welcomed University of Exeter as an additional new university partner in September, bringing the total to six.

Over 2023, the IMA and the LMS have worked with an educational specialist to produce an evaluation framework to assist participating universities to determine the impact of the programme. The framework includes key common metrics that universities can collect whilst allowing for individual differences in delivery model and cohort. The framework has been approved by the universities and will be available for them to use at the end of the current cohort.

The IMA have been exploring ways to support and assist with the development of Levelling Up: Mathematics for Engineering. A team of IMA members working in engineering fields and/or with expertise in teaching Maths for Engineering have been in discussions with IMA secretariat and the programme founder to help develop and adapt new materials with a view to launching in Autumn 2024.

The IMA continues to support the Levelling Up: Maths Black Heritage associated project, backed by Past President Professor Nira Chamberlain OBE CMath CSci FIMA, to provide a programme specifically designed by and for students and tutors of black heritage. Other developments include regional hubs to run the programme in Scotland and Wales.

## Schools and Further Education Committee (S&FE)

In 2023, the S&FEC discussed key topics in relation to the national curriculum, including:

- the utilisation of scientific calculators in exams
- A Level Mechanics
- the Labour Party announcement proposing to establish a 'maths equivalent to phonics,'
- the AQA timetable for digital GCSE exams
- the proposed Advanced British Standard.

The Honorary Secretary for Education also responded in support of the exam regulator Ofqual's proposal to allow 2024 GCSE Year 11 Maths students, among others, to be allowed access to formulae sheet in their exams, following the ongoing impact resulting from disruption to their learning during the pandemic.

The committee also met with the lead writer of the IMA's MathsCareers website for updates and to provide input into the website.

## Mathematics Teacher Training Scholarships

The IMA, working with LMS, MA, MEI, STEM Learning and RSS, delivered the eleventh year of the Mathematics Teacher Training Scholarships on behalf of the Department for Education. The overall aim of the Scholarships scheme is to improve the quality, and widen the pool, of applicants for secondary teacher training by attracting highly qualified graduates and career-changers who might not normally consider teaching as a career.

The 2022/23 cohort opened for applications in January 2023, with a target of awarding 270 Scholarships to those who commence secondary mathematics teacher training in the 2023/24 academic year. The number of applications and awards were up in comparison to the previous year, reflecting overall applications to mathematics initial teacher training 2022/23.

The IMA once again led the development of a dedicated CPD programme to this year's Maths Scholars, drawing on our network of mathematics education experts as follows:

- Welcome Webinar, including the NRICH webinar with Dr Ems Lord FIMA
- Common Room (online networking)
- Developing positive classroom culture in mathematics (webinar) - Ed Southall\*
- Bletchley Park Super Visit 2023
- Maths Scholars Resources Workshop 2023
  - Applying Mathematics – Steve Lyon (STEM Learning)
  - Hands on Maths - Dr Katie Chicot (CEO, MathsWorldUK)
  - Maths beyond the curriculum - Michael Anderson (STEM Learning)
- Common Room (online networking)
- Maths Scholars CPD Workshop 2023\*:
  - Trigonometry the Right (Angled) Way - Aidan Gollaglee (Maths Hub Lead, London South East Plus)
  - How do you problem solve? - Bernard Murphy (MEI)
  - Taking the dry out of Maths & Computing! – Tig Williams



Members of our MTTS Alumni were also invited to the events in the list above marked with a \*.

The twelfth year (2023/24) of the Mathematics Teacher Training Scholarships was announced in October 2023 and applications opened in January 2024. The Maths Scholarship will offer a £30k tax-free bursary to successful applicants. Again, there are 270 Maths Scholarships available for individuals commencing secondary mathematics teacher training in the 2024/25 academic year.

## Maths Enrichment

The IMA again took to the road in 2023 to exhibit at key outreach events across the UK with interactive maths activities and impartial information, advice and guidance on routes into mathematics to visitors, which included young people, teachers and parents.

### The Big Bang Fair 2023

The Big Bang Fair took place on 21-23 June at The NEC Birmingham. With a 30m<sup>2</sup> 'Maths in Action' space, volunteers, including the incoming VP Communications Nathan Turner CMath FIMA, Dr John Meeson FIMA and university students, along with the IMA's Education team ran an interactive stand with fun and engaging STEM activities to pupils, teachers and parents who came from schools from across the UK.

- Can you beat the Cube?
- Galton Board
- Soap Bubbles
- Aerofoil
- Bernoulli Blower



### Greenwich Maths Time

We were delighted to join this event for the first time on 4 July 2023, an outreach event run by the University of Greenwich Maths Centre and Advanced Maths Support Programme. The event is aimed at pupils from local schools with a selection of mathematical talks, workshops and hands-on activities for year 9 and 10 students.

The IMA made a financial contribution to the event, and also run our Can you beat the Cube? activity.

### Forces in STEM

Forces in STEM is run by the RAF Air Force Museum Midlands and in partnership with the RAF. Exhibitors such as Raytheon, Collins Aerospace, Team Tempest, Dyson attend the event to run drop-in activities. Around 1200 KS2 students attend on the day.

Eduard Campillo-Funollet MIMA, ECM and IMA Councillor attended on behalf of the IMA, and demonstrated the aerofoil and Bernoulli Blower to hundreds of local school children.

# Knowledge and Learned Society

The IMA's learned activities include the work of our Research Committee, which leads the IMA's efforts to support and recognise mathematics research, and our prestigious, peer-reviewed suite of scholarly publications which are overseen by the Journals Board of Management. This work is underpinned by our flagship publication, *Mathematics Today*, which provides our members with the latest news from the IMA and its members, as well as in-depth articles on applied mathematics topics, led by Editor Rob Ashmore CMath CSci FIMA. The IMA also provides a number of learned conferences, workshops and talks, steered by the Conference Committee and individual organising committees, providing fora for knowledge sharing, discussion and debate.

## Research Committee

The Research Committee meets three times per year, and is responsible for (among other things) the IMA Hedy Lamarr Prize for Knowledge Exchange.

Dr Martine Barons CMath FIMA, Vice President, Learned Society commenced her second term as Committee Chair in 2023. The full membership of the Research Committee can be viewed on the IMA website: <https://ima.org.uk/roles/research-committee/>

The Research Committee met three times in 2023 to discuss their usual agenda, and two additional meetings were held to focus specifically on their contribution to the Strategic Review.

The Research Committee contribute to the IMA's discussions with the research funding councils and policy makers, and work to promote the benefits of fundamental and applied mathematical research to the economy and society. They also oversee assessments of Small Grant applications. Throughout the year the Research Committee maintained their commitment to representing the mathematical community; to follow are just two of the 2023 highlights:

### LMS / IMA Joint Conference on the Mathematical Foundations of AI

This hybrid event took place on the 13th October 2023, hosted at De Morgan House in London. Its purpose, to bring together top mathematicians and computer scientists working in both academic and the private sectors to highlight key developments in the field. Speakers at the event included:

- David Saad FIMA – The Space of Functions Computed by Deep-learning Networks
- Gitta Kutyniok – Reliable AI: Successes, Challenges, and Limitations
- Lisa Kreusser – Differential equations for machine learning
- Michael Bronstein – Physics-inspired graph neural networks
- Petar Velickovic – Capturing Computation with Algorithmic Alignment

Abstracts can be found on the following webpage: <https://ima.org.uk/22377/ima-lms-joint-conference-on-the-mathematical-foundations-of-ai/>

The event was a great success with 'in-person' attendance sold out and a very good online audience, with excellent facilities to support hybrid attendance.

### 2023 IMA Hedy Lamarr Prize

We were delighted to award the 2023 Hedy Lamarr Prize for Knowledge Exchange in Mathematics and its Applications to Professor Julia Gog OBE. Julia has shown consistently strong interest in raising public awareness about the usefulness of mathematics in our everyday lives. It was during the pandemic that Julia truly showed her mathematical greatness, as a member of SPI-M and SAGE making an active contribution towards the Covid-19 response at the highest level, and frequently appearing on television explaining the maths behind Covid.

Julia received her award at a joint ceremony with Chris Sangwin, recipient of the IMA John Blake University Teaching Medal, on the 29th November, where she delivered an interesting and entertaining lecture on her career journey through mathematics and zoology and key role in the Covid-19 pandemic.



*Julia Gog receiving the Hedy Lamarr prize from IMA President Paul Glendinning*

## External nominations

The committee also provided nominations for external programme and scientific committee/boards led by the INI and ICIAM.

## Journals

The Institute's eight academic journals are published by Oxford University Press (OUP). Three of these are traditional hybrid print journals:

### IMA Journal of Applied Mathematics

Editors: Professor Alan Champneys CMath FIMA, (Bristol), and Professor Demetrios Papageorgiou FIMA, (Imperial);

### IMA Journal of Numerical Analysis

Editors: Professor Arieh Iserles FIMA, (Cambridge), Professor Endre Süli FRS FIMA, (Oxford) and Professor Charles Elliot FIMA (Warwick);

### Teaching Mathematics and its Applications: an International Journal of the IMA

Editors: Professor Duncan Lawson MBE CMath FIMA, (Coventry); Professor Christopher Sangwin FIMA, (Edinburgh) and Dr Cathy Smith AMIMA (OU).

Four are online only hybrid journals:

### IMA Journal of Mathematical Control and Information

Editors: Professor Christophe Prieur FIMA (Grenoble), Professor Sarah Spurgeon OBE FREng CMath FIMA, (UCL) and Professor Joachim Rudolph FIMA (Saarland University);

### Mathematical Medicine and Biology: A Journal of the IMA

Editors: Professor Oliver Jensen CMath FIMA, (Manchester); Professor John King CMath FIMA, (Nottingham), Professor James Keener CMath FIMA, (Utah) and Professor Bob Guy (University of California Davis);

### Information and Inference: A Journal of the IMA

Editors: Professor Robert Calderbank, (Duke); Professor David Donoho MIMA, (Stanford); Professor John Shawe-Taylor CMath FIMA, (UCL) and Professor Jared Tanner MIMA, (Oxford);

### IMA Journal of Management Mathematics

Editor: Aris Syntetos, (Cardiff).

One is an open access only online journal:

### Transactions of Mathematics and its Applications: A Journal of the IMA

Editor in Chief: Professor Arieh Iserles FIMA (Cambridge) and Professor Dominic Vella FIMA (Oxford);

Several of the journals awarded prizes in 2023. The IMA Journal of Numerical Analysis awarded the 21st IMA Leslie Fox Prize to Alice Cortinovis (Stanford) and Melanie Weber (Harvard) on Monday 26th June 2023 at the Fox Prize event at the University of Strathclyde. This was held in conjunction with the Alan Turing Institute. The IMA Journal of Applied Mathematics awarded the Lighthill Thwaites Prize at the 2023 BAMC to Clare Rees-Zimmerman (Oxford).

The IMA journals have had a successful year. Six journals currently have Impact Factors (IF). While these figures declined over 2023, this was mainly due to the introduction of a different method for IF calculation by Clarivate. However, it was positive to see that each remained greater than 1.

- IMAIAI 1.6
- IMAJNA 2.1
- IMAMAN 1.7
- IMAMAT 1.2
- IMAMCI 1.5
- IMAMMB 1.1

IMAMAN continued to create webinars to promote their special issues; the 2023 'Last Mile Logistics' is now available to view on the OUP Youtube Channel. Online use of all of the IMA journals has increased over the last year.

The growth of Open Access publishing continues to have an inevitable impact on the IMA journals. Open Access publishing is where an article is made immediately available to the public upon publication, as opposed to the traditional subscription model. The impact on journal revenue as a result of this change has been ameliorated by Oxford University Press negotiating 'Read and Publish' deals with libraries. These allow authors to utilise funding to publish their articles via Open Access. The most significant UK deal is with JISC, this covers a large number of UK institutions. Various similar deals have been made with other groups worldwide. Traditional subscriptions also help up better than expected over 2023. Our thanks to the Journals Board of Management Chair, Professor Iain Duff CSci FIMA, our Journal Editors and Associate Editors for steering the journals over this transitional period.

Work is ongoing to provide free online access to IMA members to our suite of journals and raise awareness among authors of the Read and Publish funding that is available for them to publish work under an Open Access licence.

## Conferences and Events

### Conferences Committee

The Conferences Committee met twice in 2024 and at its first meeting welcomed Dr Dan Tilley CMath FIMA and Professor Corina Constantinescu FIMA as the new Committee Co-Chairs. Dan has been involved with the IMA since 1996 and has served on Council, as well as chairing the Early Career Mathematicians group. He has also been involved with organising several conferences over the years taking on roles including chair and programme chair. Corina is an academic based at the University of Liverpool with extensive experience in organising learned conferences and events.

The committee has been focused on planning for the Institute's 60th anniversary year with an emphasis on marketing and sponsorship opportunities. The committee is also keen to increase engagement on social media platforms and use technology to encourage delegate feedback.

The committee wishes to thank Dr Richard Pinch CMath CSci FIMA for chairing the committee over the past few years. A full list of members of the committee can be found at <https://ima.org.uk/roles/conferences-committee/>

### 2023 review

IMA Conferences attracted around 500 delegates in 2023, offering a range of in-person and online conferences to again encourage more diverse attendance.

The programme for 2023 demonstrated the breadth of our activity, from education and early careers support, to showcasing the latest applied mathematics research in different fields.

## 2023 Calendar

- Python for A-Level Mathematics and Beyond – Online 20 & 21 January 2023
- Post-modern cryptography - How quantum computers are already changing the world – Online 24 January 2023
- Future of last-mile logistics – Online 27 January 2023
- From transport to energy, a tour of lessons learnt applying mathematics to industrial problems – Online 7 February 2023
- The Role of Applied Mathematics in Military Intelligence – Online 23 February 2023
- Levelling Up: Python School Workshop – Online 23 March 2023
- ECM Networking Icebreaker at the BAMC 2023 – Online 2 April 2023
- 4th IMA and OR Society Conference on Mathematics of Operational Research – 27 April 2023
- Idea exchange: early career mathematicians and statisticians teaching in Higher Education - Online 31 May 2023
- 12th IMA International Conference on Modelling in Industrial Maintenance and Reliability (MIMAR) - 4 July 2023
- 7th IMA Conference on Mathematics in Defence and Security: Mathematics Adapting to a Changing World - 7 September 2023
- Induction Course for New Lecturers in the Mathematical Sciences 2023 – 18 September 2023
- Employers Forum - AI, automation and mathematics in supporting business decisions – 20 September 2023
- Online Workshop: Python for A-Level Mathematics and Beyond - Autumn 2023 – 22 & 23 September 2023
- Equity, Diversity and Inclusion Event – Sponsored by the Early Career Mathematicians Committee (ECM) - Online 13 October 2023
- 19th IMA International Conference on Cryptography and Coding – 12 December 2023

We would like to thank every mathematical organising committee for making these events possible, filling them with great invited speakers and delegates! We look forward to delivering a strong 2024 event programme.



Attendees at the 19th IMA International Conference on Cryptography and Coding, December 2023

## Mathematics Today

The IMA continued to publish six issues annually of our flagship membership magazine, Mathematics Today in 2023. The magazine provides refreshing insights into mathematics, applied mathematics topics, reflections on mathematical achievements, articles from IMA medal winners, updates on activities, and news on events and projects led by the IMA and our partners.

Online access to Mathematics Today introduced in 2022 provides IMA members with greater and more flexible access to their magazine via the myIMA platform. This is a more sustainable way to access Mathematics Today, with over 350 readers opting for an online-only version.

We celebrated the use of Mathematics in Computer Games in the October special issue, guest edited by Richard Lissaman, which emphasised using gaming to 'increase participation in, and appreciation of, our amazing subject'.

We ended the year, with the Mathematics Today version of the 'IMA Presidential Address – A Mathematical Eye' from outgoing President Professor Paul Glendinning FRSE FIMA, who highlights the mathematics in a myriad of subjects, from knitting to art.

The Graham Hoare Prize for Early Career Mathematicians was awarded to Matthew Cotton AMIMA and Brady Metherall AMIMA for their article 'Settling Scores and Gambling on Goals' which was published in the December 2023 issue. The Catherine Richards Prize continues to select the best article published each year and this is also awarded to Matthew and Brady for their brilliant article.



# Grants

The IMA provided two grant funds in 2023, the Small Grants Scheme and the Education Grants scheme. We also provided occasional support through our special Grants without Portfolio scheme for applications which do not meet the eligibility criteria for the above but demonstrate clear objectives which are aligned to those of the IMA.

We also provide administration support on behalf of the QJMAM fund for Applied Mathematics which exists to support UK research in the broad area of applied mathematics and theoretical mechanics. The fund is administered by the Institute of Mathematics and its Applications, but decisions on the award of grants are made by a panel appointed by the Trustees, chaired by Professor Andrew Norris. Details of these awards can be found on our website.

## Small Grants

The IMA's Small Grants Scheme is designed to be flexible, so that it can be used to facilitate any research activity within the scope of mathematics and its applications. Grants are available up to a value of £600 for individuals and up to £1,200 when enabling an event to take place. Applications are limited to IMA members only.

The budget for 2022 was £13,100, reflecting increased interest over the year. The Scheme received 27 applications during 2023, requesting a total amount of £22,052. 13 requests were awarded in full, eight were partial awards and six were declined. Awards for 2023 are shown on the IMA site and include support from helping early career researchers participate in international conferences and workshops to academic research visits and mathematical modelling research.



## Education Grants

The Education Grants Judging Panel consists of the Institute's Honorary Secretary Education and the Chairs of the education committees.

During 2023, the Education Grants scheme received 14 applications; of which four were awarded a grant for the full amount requested, and 10 were declined with awards totalling £2,173 for the following activities:

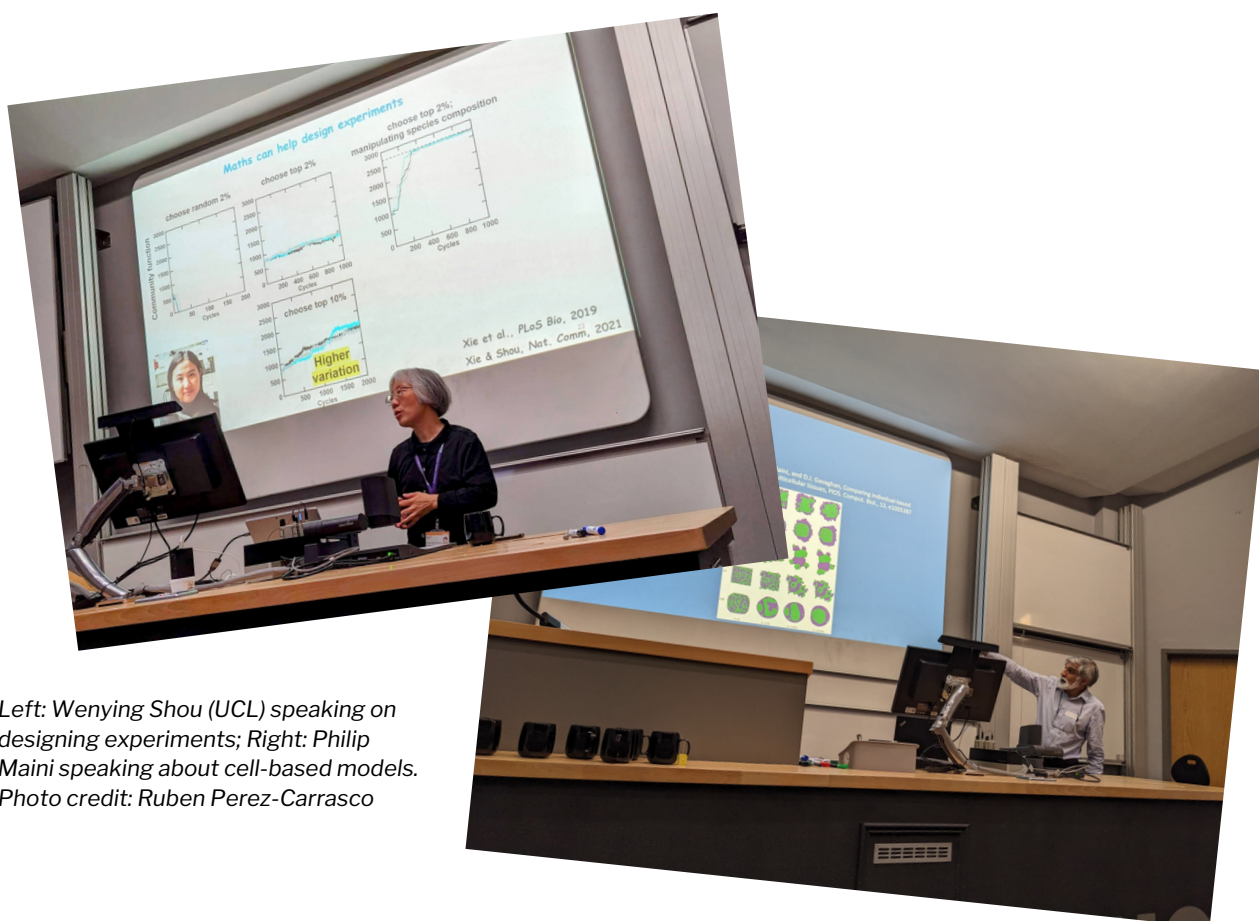
- A project to present mathematical-based statistical questions to children, through games, at the Cheltenham Science Festival, 4th-9th of June 2024 including a booth with games that the attendees can get involved with in order to learn about statistical concepts in an exciting way.
- A project to bring together the mathematical community to understand the limitations and to improve accessibility for visually impaired people with aim of alleviating gaps in accessibility for visually impaired people which can deter them from pursuing mathematical sciences with administration, culture and curricula among the highest-rated obstacles for visually impaired people studying mathematics.
- Support towards the Manchester Interdisciplinary Mathematics Undergraduate Conference (MIMUC) which will be held in April 2024. MIMUC simulates the experience of an academic conference for undergraduates. Organised jointly by staff and students, it includes talks by visiting academics, industry professionals, and students, fostering interdisciplinary discussions and showcasing mathematics applications across disciplines.
- The STEM Challenge, a competition-based schools' outreach programme aimed at year 9 and 10 students, run by a group of Civil Servants. This will provide students with three hypothetical real-world problems that STEM can tackle and ask them to provide possible solutions via a report or poster.

## Other Grants

Two grants were made by the Executive Board from the IMA's Grants Without Portfolio (GWP) fund. The first was to Dr Maciej Matuszewski MIMA of Durham University to support the inaugural meeting of the Northern Mathematics Education Research Network on 4 September 2023.

The second was made to Professor Michael Grove FIMA of Birmingham University, to enable attendance at the 2023 Induction Course for New Lecturers by refugee mathematicians who are part of the joint INI-LMS Solidarity for Mathematics Programme.

More details about the IMA's support to university student societies can be found in our University and Early Career Liaison section.



Left: Wenying Shou (UCL) speaking on designing experiments; Right: Philip Maini speaking about cell-based models. Photo credit: Ruben Perez-Carrasco

# Communications and Community Engagement

The IMA seeks to work closely with the community it represents drawing on expertise from across our networks, as well as through external partnerships and relationships. Dr Peter Rowlett CMath FIMA, VP – Communications, chaired the Institute’s Communications Committee in 2023 which is made up of maths communication experts, and advises IMA staff throughout the year on communications-related matters. The MathsCareers Steering Group provides advice on content, topics and competitions for our dedicated careers website which runs separately to the IMA’s corporate site.

The IMA also benefits from seven Branches located across the UK, delivering regional engagement opportunities for the local community and beyond following the introduction of hybrid events. Our Early Career Mathematicians Committee leads on activities targeted to the needs of the next generation of mathematical talent, contributing to our event programme with themes relating to career progression and personal development. The Institute’s Academic Liaison group advise the IMA on university engagement and student support.

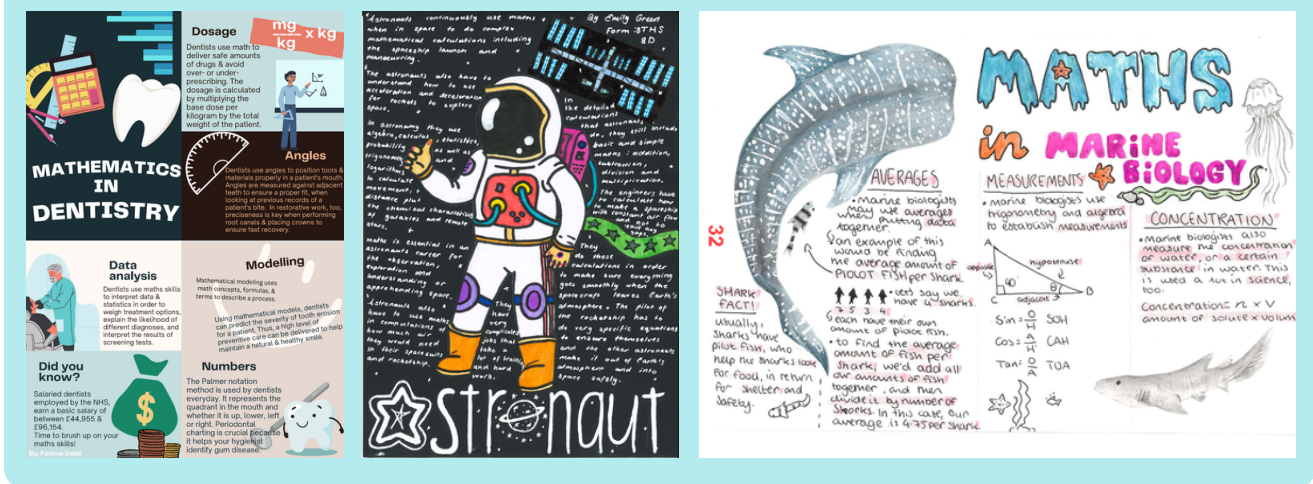


## MathsCareers Website

MathsCareers.org.uk is a dedicated website which provides impartial information, advice and guidance on mathematics pathways as well as inspirational case studies from role models from a wide range of profession, and competitions for schools, working with experts from maths education and communication, industry and academia.

During 2023 MathsCareers received 314,877 views and continued to be one of the top websites of its kind within the STEM community, popular among undergraduates seeking career advice as well as school audiences. Highlights from content posted in 2023 include The Maths of Music by Professor Sarah Hart and Climate Change - Using Maths in Antarctica by Dr Sammie Buzzard.

MathsCareers ran two contests during 2023. The spring contest had the theme of ‘an exciting career which uses maths’ and the Autumn contest asked entrants to create a short video about mathematics. Competitions are aimed at ages 11-18 with three age groups based on school year (Years 7-8, 9-11, 12-13). MathsCareers poster contests frequently attract between 200 – 300 entries.



Our career profiles continue to highlight diversity among those working in mathematics-based professions, as well as demonstrating the wide variety of roles available to maths graduates. The website also showcases how maths and numeracy is vital in other areas, from space exploration to computer game design, music and climate science.

Social Media is used to raise the profile of IMA MathsCareers, and it now has 7,840 followers on X (previously Twitter). The profile of the site, as well as mathematics generally, is raised via the distribution of eye-catching classroom posters to schools.

### IMA e16plus Newsletter

The e16plus Newsletter published six full editions in 2022. It is designed to inspire and raise interest in mathematics amongst 16-19 year-olds and has 1577 subscribers. The regular puzzle feature continues to be popular with readers, and the links in the newsletter are designed to encourage engagement with MathsCareers and the IMA websites.

### Virtual Maths Teas

Our Virtual Maths Tea series is a collection of online events where members can come together for an informal discussion, much like a coffee morning. Each individual event has its own topic of focus and hosts are hand-picked for their expertise and experience in each topic area. The Virtual Maths Teas (VMTs) began during lockdown in 2020, to keep our members connected when in-person networking and events weren't possible.



Due to their popularity, the positive feedback and high demand, we decided to continue them long after lockdown. Many attendees have said the VMTs have provided them with the first opportunity they've had to engage in an IMA event, or mathematical event due to their individual access challenges. Each event is an hour long, attendees can log in from anywhere in the world (and we often do have international attendees). The VMTs are inclusive events, open to all IMA members of all grades, genders, backgrounds, and interests and popular themes include career development, ethics and diversity and inclusion. The Early Career Mathematicians Committee were greatly involved this year, chairing four out of five Virtual Maths Teas.

In 2023 we hosted five Virtual Maths Teas with 219 registrations in total:

- March – Embrace Equity, Celebrating Women in Maths
- April – Skills in industry for Early Career Mathematicians
- June – Interviewing for a job in industry
- September - Programming practices: the good, the bug and the undefined
- October – Coding as a vehicle for outreach and engagement

## IMA Website and Social Media

The good work the IMA does is reflected across our social media channels, website and our member exclusive eBulletin. We have a collective of 72,000 followers across our four main social channels Twitter, Facebook, LinkedIn, YouTube and Instagram, consisting of those interested in the services and work of the IMA and those interested in Mathematics in the wider sense. This is an increase of 6% from 2022.



We continue to celebrate the successes of our Members and the community, raising the profile of Mathematics across a multitude of celebratory and awareness days promoting inclusivity. We continue to see particularly high engagement and popularity with our campaigns during LGBTQ+ History Month, Women's History Month and Black History Month where we share people's stories, resources and celebrate the successes and triumphs of those who have overcome challenges and biases. We engage in many mathematical days such as Fibonacci Day, International Day of Mathematics, Maths Weeks to name a few as well as other STEM related days and National Numeracy day, which is helping raise low levels of numeracy among both adults and children in the UK and promoting the importance of everyday maths skills to the wider public, challenging negative attitudes towards mathematics

Demographic information provided by Google Analytics of the visitors to the IMA website has been informative: in 2023 more than half of the visitors to the IMA site have been under 34 years of age (54.74%); and the gender distribution of total visitors is around 57/43 split of male to female (in comparison to the current total IMA member split of 74/24/2 male/female/all others<sup>[1]</sup>).

Sessions to the IMA website in 2023 are at an all-time high. Sessions in 2023 to the IMA website are up versus 2022 (+8.3%) and remain up versus the particularly busy year of 2021 (+2.3%).

[1] IMA membership data at time of writing: currently 74% male, 24% female, 2% all others which includes those who opt for 'Other', 'prefer not to say' or not set.

## Academic Representatives

The Academic Representatives scheme was established by the Institute in 2017, and we currently have 60 Representatives at 57 universities. Representatives are members of academic staff and they support the Institute by highlighting the work of the IMA in the community and beyond, to their students and colleagues, as well as providing feedback on the priorities of academic members.

Members joined the IMA to contribute to our Strategy Review providing vital insights into current student experiences.



## Branches

IMA Branch committees are led by local IMA members and volunteers across the UK, offering free talks on mathematics topics to members and non-members. The Branches are:

- East Midlands
- London
- North West
- Scottish
- West Midlands
- South West and Wales



During 2023, our Branches delivered free talks covering an array of current and interesting topics:

North West	Dr Richard Pinch	Post-modern cryptography – How quantum computers are already changing the world and how mathematics, old and new, is meeting the challenge	24/01/2023
West Midlands	Kieran Kalair	From transport to energy, a tour of lessons learnt applying mathematics to industrial problems	07/02/2023
North West	LCpl Pollock	The Role of Applied Mathematics in Military Intelligence	23/02/2023
London	Helmuth R. Malonek	Arshak Tonyan (1888-1942) and the rise of Mathematics in the 1919 founded University of Yerevan	28/02/2023
West Midlands	Katerina Kouri	Modelling across scales and disciplines: from fertilization and embryogenesis to disease transmission	14/03/2023
Scottish	David Sirl	Peer assessment via comparative judgement	26/04/2023
London	Dr Madhav Vempali	Mathematics in the Management of Eye Care	30/05/2023
North West	Dr Ems Lord	Ten Ways to Maximise the Potential of NRICH in the Secondary Mathematics Classroom	05/06/2023
North West	Dr Dawn Geatches	Knowledge Exchange, Transfer and Funding Opportunities for Mathematical Sciences	17/11/2023
West Midlands	Derrick Willer MBE	Sums. They're Math Magic	06/12/2023
North West	Jean Al Ani and Rachel Campbell	A Celebration of the Best Maths Projects in the North West 2023	13/12/2023

Where permission was granted, talks are available on the [IMA YouTube Channel](#).

In addition to the programme of talks, Professor Paul Glendinning toured the UK to deliver the Presidential Address: A Mathematical Eye, to each Branch:

North West	Hybrid (University of Manchester)	15/03/2023
West Midlands	Hybrid (University of Birmingham)	27/04/2023
Scottish	Hybrid (University of Glasgow)	04/05/2023
East Midlands	University of Nottingham	12/10/2023
SW & Wales	Kingswood School, Bath	07/11/2023

## Early Career Mathematicians Group

The Early Career Mathematicians (ECM) Group aims to provide those starting out in the profession with opportunities to develop their skills and network with peers and is made up of early career professionals from industry, academia and government. In 2023 the committee was chaired by Dr Maciej Matuszewski MIMA.

Over 2023 the group organised ten events across a varied selection formats such as the IMA Virtual Maths Teas, online conferences, and seminars providing fantastic networking opportunities. This included two ECM seminar talks and three conference events:

- 13 July - **How Maths Helped Me to Annoy My Insurance Company**
- 20 September - **Mathematics & modelling: better than watching paint dry**
- 13 October - **Equity, Diversity and Inclusion Event** – Sponsored by the Early Career Mathematicians Committee (ECM)
- 31 May - **Idea exchange: early career mathematicians and statisticians teaching in Higher Education**
- 2 April - **ECM Networking Icebreaker at the BAMC 2023**

The ECM Group continues to help recruit student members and is also active on social networking sites.



# Professional Affairs and Industry

Mathematicians play a vital role across business, industry and government. Chaired over 2023 by VP Professional Affairs Dr Jennifer Macey CMath CSci FIMA, the IMA's Professional Affairs Committee (PAC) brings together representatives from IMA Corporate Affiliates and those with expertise in applied mathematics in a variety of industrial and commercial settings. The committee is also responsible for the IMA's Chartered Mathematician (CMath) designation and the IMA professional Codes of Conduct. PAC also oversees the IMA's requirements to the Science Council as a licensed body to assess Chartered Scientist (CSci) applications, including meeting external quality assurance requirements and CPD compliance. PAC also supports the IMA's contribution to the Data Science Professional recognition framework.

Details of our Corporate Affiliate members can be found at:

<https://ima.org.uk/affiliates/corporate-affiliates/>

## Professional Affairs Committee

The Committee met several times during 2023 via remote conference facilities and once in person in London. PAC also have communicated throughout the year via Basecamp, with a particular focus on AI.

In addition to regular provision of industry expertise to support the IMA's objectives, key agenda items have been to provide SME guidance for AI and machine learning in response to feedback from the British Chambers of Commerce, and leading the programme for the IMA Employers' Forum which returned in 2023. PAC also ensured industry representation and recognition within the proto-Academy for the Mathematical Sciences (AcadMathsSci), and supported the continuing work of the Alliance for Data Science Professionals (AfDSP). Advice for the IMA's new mentoring platform development, IMA Exponential, was also provided.

## Strategy Review

In addition to the three regular meetings, PAC provided extensive contributions to the Strategy Review, holding a special meeting in April and extending the regular meeting in May to allow the Committee time to focus specifically on providing industry feedback for the Strategic Review. Dr Macey also convened a special meeting in May for SME representatives to present their specific needs from the IMA. These activities made a significant contribution to the IMA's new strategy.

## Data Science Professional Standards

The IMA's Executive Director and Admin Support Officer continued to attend weekly AfDSP meetings throughout the year which focused on the development of a new governance model to be launched in 2024. The IMA Honorary Officer for Membership, Professor Paul Glaister CBE CMath CSci FIMA also led the Alliance's work to develop accreditation models for degree programmes.

PAC members also volunteered to join the IMA's ADSP application review group, chaired by Paul Glaister, to begin awarding certification to qualifying existing Advanced Members. In June 2023, IMA Past President Professor Nira Chamberlain OBE CMath CSci FIMA received the first IMA-awarded Advanced Data Science Professional Certificate at our 2023 Gold Medal event.

## Employers' Forum

The first IMA's Employers' Forum to take place after the pandemic was held in September 2023 at the University of Warwick, with the generous support of VP Learned Society, Dr Martine Barons CMath FIMA. Not only did the university's support include a fantastic venue and catering contribution, but also a team of videographers came along to film the talks to share across the mathematics community after the event.

Not only were the talks excellent, but also provided an opportunity for IMA members and fellows in industry to come together and provide suggestions for future events, including the new AI Congress in September 2024.

The talks can be viewed on the [IMA YouTube channel](#).



*Dr Howard Haughton speaking on AI and Machine Learning Policy Guidance at the Employers' Forum, 2023*

## Artificial Intelligence/Machine Learning Policy Guidance for SMEs

A policy guidance document for SMEs was independently written by Dr Howard Haughton CMath FIMA, launched at the Employer Forum and published on our website in September.

The document provides impartial guidance on a framework for an AI policy which can be adapted to meet the specific requirements of an organisation. The policy was shared with SMEs at our Employers' Forum where interest in the IMA delivering future workshops and guidance on this topic to help the SME community was welcomed by attendees.

## STEM Futures

The IMA was delighted to sign a new agreement as a supporter of STEM Futures, a programme led by the UK Government's Department for Science, Innovation and Technology (DSIT). The programme aims to establish a network of employers and create knowledge exchange opportunities and professional development programmes to develop skills and expertise in UK STEM employment.

# Case Study



## IMA Employer Forum 2023 | AI, automation and mathematics in supporting business decisions

20 September 2023 saw the long-awaited return of the IMA's Employers' Forum which brings together experts from across academia, business, industry and government to share knowledge and build networks. The University of Warwick kindly agreed to provide sponsorship in kind to the event, including venue, videographer and photography and a contribution to catering.

With AI dominating the media and policy discussions in the UK and around the world, this year's theme aimed to provide an opportunity for businesses, including SMEs, to explore how AI and mathematics can impact business in the widest sense.

We were joined by high calibre speakers who gave thought-provoking talks on topics such as AI and mathematical modelling in finance, decision-making, risk, archiving, digital twin development, sustainability and efficiencies and empowering the next generation.

- **Howard Haughton CMath FIMA, Holistic Risk Solutions Ltd/King's College London** - The application of model driven engineering for validating financial models
- **Martine Barons CMath FIMA, University of Warwick** - Combining mathematical sciences, data and human expertise for decision support – an example from digital archiving.
- **Veronica (Ronni) Bowman OBE CMath FIMA, DSTL** – Real World Digital Twins with applications in Defence
- **Karrie Liu CMath FIMA, Maths in the workplace** – Empower the next generation
- **Mark Round, QinetiQ** - Text-generative AI – anticipating the transformation that will be enabled by ChatGPT-like technologies
- **Kieran Kalair, Smith Institute** – How consultancy on machine learning, mathematical modelling and analytics provides clarity and decision intelligence to solve complex challenges.

Guests included mathematicians and data scientists working in a wide range of fields, from national security to the hospitality sector. The Q&A discussion themes included: the need for ethical data sets and use of AI models; securing the talented pipeline of skilled professionals; and, how mathematics can unlock many solutions which organisations across the private and public sector - large and small - are facing, particularly as recent technology growth has outpaced regulation and ethical considerations.

The IMA also launched the AI/ML Policy for SMEs' and guidance at the event and there was strong interest in running follow-on training sessions which we will be pursuing in the coming year.

View the talks (where permissions have been granted) via the IMA YouTube channel.

Look out for the IMA's inaugural AI Congress in September 2024 which will bring together members, stakeholders, featuring expert speakers on key AI and mathematics topics, and mini symposia on a range of areas including legal and medical applications.

## External affairs

### Alliance for Data Science Professionals



The IMA joined the AfDSP in 2020 to support the development of professional frameworks for those working in data standards fields. Other Alliance members are the RSS, ORS and BCS, National Physical Laboratory (NPLY) and the Alan Turing Institute.

The Alliance is committed to:

- Defining the standards of professional competence and behaviour expected of people who work with data which impacts lives and livelihoods. These currently include data scientists, data engineers, data analysts and data stewards.
- Delivering these standards as data science certifications offered by the Alliance members to their professional members, with processes to hold certified members accountable for their professional status in this area.
- Using these standards as criteria for Alliance members to accredit data science degrees, and data science modules of associated degrees, as contributing to certification.

2023 saw the first applicants via the IMA to achieve Data Science Professional status.

Professor Rachel Hilliam CMath MIMA, FRSS stepped down as chair in 2023 with Vice-Chair Paul Martynenko leading the process to identify her replacement, In December, Professor Edward Rothead CMath FIMA was appointed as the new chair following a competitive process.

The Alliance will launch the new governance structure in readiness to welcome new members in 2024. Accreditation of data science related degrees continues to be a focus and the Alliance is working towards Chartership in the future, through the RSS.

### Council for the Mathematical Sciences (CMS) and the proto-Academy for the Mathematical Sciences (AcadMathsSci)



Professor Alison Etheridge OBE, FRS, FIMA chaired CMS throughout 2023. Composed of IMA, LMS, RSS, EdMS, and ORS, there were important discussions between CMS member societies and the proto-Academy team to identify objectives and support for an academy for Mathematical Sciences.

Staff and volunteers from the AcadMathSci team joined CMS meetings to provide updates, seek advice and support. This led to an announcement in the UK 2023 Autumn Statement for commitment of up to £6M over three years for an academy, subject to consultation, in 2024. CMS have agreed to work together to respond to the consultation.

CMS also continued also to liaise with UKRI and other stakeholders. In the run up to a 2024 General Election, CMS agreed to produce a joint Maths Manifesto for policymakers across parties with AcadMathSci, led by Professor Catherine Hobbs CMath FIMA.

CMS members again agreed to jointly fund the Mathematics Competition at STEM for Britain finals, March 2023 in Westminster, and supported research by HoDoMS into the negative impact of reduced student numbers on low-tariff entry mathematical science degrees and the societal impact on graduate outcomes through the report “Mathematical Sciences recruitment and graduate outcomes – A diversity perspective of the landscape of Mathematical Sciences in UK universities.”

At CMS meetings, Paul Glendinning, as IMA President, played an active role, notably, ensuring that more mathematics was included in POST activities, initiating and drafting a letter to the UKRI Chief Executive on the role of mathematics in research which led to the formation of special meetings about embedding maths in the UKRI special areas. The President also argued for clear links between the Academy for the Mathematical Sciences and the learned societies, and was part of the arguments about what the Academy needed to facilitate for the Learned Societies, making sure that CMS liaison meetings with EPSRC were important and should be facilitated by the Academy.

## London Mathematical Society (LMS)

Throughout 2023 we continued to work with the LMS in many areas including research, Mathematics Initial Teacher Training Scholarships and mathematics education.



Together we award the David Crighton Medal for Services to Mathematics and the Mathematics Community, and the Christopher Zeeman Medal for Mathematics Promotion. We held an event at the Royal Society in March 2023 to present the 2020 and 2022 Christopher Zeeman medals to award winners, Matt Parker and Simon Singh respectively, one of our biggest in-person events of the year, with an audience of over 200.

As documented in the Research Committee section of this report, a well-attended, fifth scientific meeting of the current IMA-LMS series, titled 'The Foundational Mathematics of AI' took place online and in person on 16 September.

## Other UK Mathematics Organisations

We continue to work with the Association of Teachers of Mathematics, the Mathematical Association and NANAMIC in the management of the Chartered Mathematics Teacher Registration Authority.

We also work with external organisations such as the Royal Society ACME, NCETM, and the Joint Mathematical Council to promote and support mathematics whenever possible.

## UK STEM and Global

The IMA continued membership of CaSE. We also attended the Alan Turing Institute AIUK 2023 showcase event and later in the year, a data science professional skills workshop. We continued to attend events run by the National Numeracy charity during the year which strives to improve everyday mathematical literacy among the general public.

## Science Council

The IMA is a member and licence holder of the Science Council attending its CEO and Leaders meetings throughout the year and maintaining our licence.

## EuMS

The IMA is a member of the EuMS offering IMA members access to discounted subscriptions which are paid directly to EuMS.

## ICIAM

The IMA has continued its membership and support of the International Council for Industrial and Applied Mathematics and provided a grant to our IMA representative to attend the 2023 Congress in Tokyo.

The President attended the Board meeting of ICIAM in August in Tokyo on behalf of the IMA.

## SIAM



Becoming a member of SIAM / IMA chapter is free and open to any student in the final year of a BSc or MMath degree programme, Masters and PhD candidates, postdoctoral researchers, and faculty members who are engaged or interested in mathematics or scientific computing and their applications.

Other IMA members who live in the UK may receive a discounted SIAM membership fee under our reciprocity agreement. (A reciprocal arrangement exists for SIAM members who live in the US). We have joint promotional campaigns and co-operative activities with SIAM and SIAM UKIE.

There are lots of SIAM / IMA student chapters nationally who have come together to form a society of students and faculty members who are interested in mathematics or scientific computing and their real-world applications.

Some objectives for these thriving chapters:

- To promote the application of mathematics and computational techniques to problems of interest in science and industry.
- To further fundamental research in applied mathematics and scientific computing leading to new methods and techniques useful to industry and science.
- To facilitate effective interactions between researchers and students from across the University and between University members and industry by creating a forum for the exchange of scientific ideas in an inspiring and supportive environment.

A list of members who represented the IMA to external organisations in 2023 is presented in Appendix B.

# Creating a Diverse and Inclusive Culture

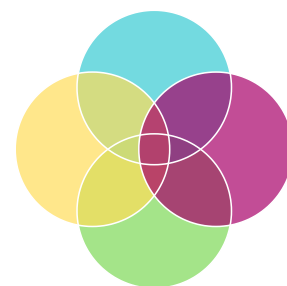
The IMA is a signatory of the Science Council Declaration on Diversity, Equality and Inclusion, and Council has appointed champions to lead the IMA in this important agenda. Dr Snezana Lawrence FIMA continued to deliver this role in 2023 but decided to step down at the end of the year. A new Champion was appointed at the November Council and we look forward to working with Howard Haughton in the coming year.

By identifying diversity as a cross-cutting theme in all IMA committee meetings many improvements have been identified and achieved. This is reflected in key events and programmes across our portfolio of activities which the IMA has led or partnered in 2023 including:

- International Women's Day Virtual Maths Tea event in March
- ECM Online Diversity Conference 2023
- Black Heroes of Mathematics 2023 Conference in October;
- Encouraging Women in STEM via Work Experience – article in Mathematics Today by VP Martine Barons
- Continued role with the Levelling Up: Mathematics programme to provide extra Mathematics tuition for disadvantaged A-Level students, including agreeing to support a new project: Mathematics for Engineering
- Continued commitment to increasing engagement from underrepresented groups through the e16plus Newsletter, MathsCareers website and social media activities;

## EDI Working Group

The IMA's EDI working group formed in September 2022 met monthly throughout 2023 to identify a number of areas in which the IMA could focus its efforts. Furthermore, the group responded extensively to the IMA strategic review, ensuring that the EDI was embedded throughout our pillars of activity. In this respect it was felt the group should become a permanent committee of the IMA to support our new strategic aims and a formal request was agreed at November Council. Other activities included:



- Identify ways to address underrepresentation in mathematics, both directly and via possible partnerships with other organisations .
- Provide support and guidance to IMA boards and committees, including identifying suitable EDI training, where appropriate, guidance for Terms of Reference and other useful frameworks specific to their goals.
- Plan engagement activity with the funds generously provided by Professor Peter Clarkson FIMA.

Incoming EDI Champion Howard Haughton also gave talks at key events including the London International Youth Science Forum which invites STEM students from around the world to participate in a two-week programme of learning in the UK each July.

The Executive Director continued to represent the IMA on the Science Council/Royal Academy of Engineering Progression Framework Implementation Group which is made up of the professional scientific and engineering bodies and provides a forum to share experiences, EDI approaches and particular challenges for membership bodies. It also provides an opportunity to help develop future iterations of the Progression Framework for future benchmarking activities.

# Recognition and Professional Standards

IMA membership grades are designed to suit every level of mathematical interest, from current students to professional and experienced mathematicians. Advanced Membership offers two grades to recognise professional achievement: Member and Fellow. Applications are overseen by the Membership Committee, chaired by the Honorary Secretary – Membership, Professor Paul Glaister CBE. The Committee also oversees applications for the Chartered Mathematician, Chartered Scientist and Chartered Mathematics Teacher designations.

The IMA, both independently and in partnership with others, also offers a number of medals and prizes which recognise mathematical achievement across a diverse spectrum.

The Institute's Gold Medal is awarded in recognition of outstanding contributions to mathematics and its applications over a period of years, with medals being awarded every two years.

IMA members and fellows are the beating heart of the organisation, volunteering in all areas of activity, from local Branches, delivering public engagement activities to sitting on IMA boards, committees and groups to support and deliver the IMA's objectives.

In 2023 we have had the privilege to welcome 613 new members and assist 86 existing members in transferring to a higher grade. We have also recruited 20 new Chartered Mathematicians and/or Chartered Scientists.

Membership figures at 31 December 2023:

<b>Honorary Fellow</b>	<b>17</b>
<b>Fellow</b>	<b>1407</b>
<b>Member</b>	<b>1250</b>
<b>Associate Member</b>	<b>1740</b>
<b>Affiliate</b>	<b>447</b>
<b>Student</b>	<b>445</b>
<b>Total</b>	<b>5306</b>

Of the above memberships, 1,369 are registered as Chartered Mathematicians and 191 as Chartered Scientists.

The Chartered Mathematician (CMath) designation represents high levels of professionalism and competence in mathematics. It is awarded by the Institute of Mathematics and its Applications to practising professional mathematicians who demonstrate, as well as their professional status and competence, a commitment to keep pace with advancing knowledge in mathematics and its applications.

The Institute has continued to support UK University Mathematics Departments by offering over 100 IMA Graduate Prize Memberships in 2023.

## Chartered Mathematics Teachers

The Chartered Mathematics Teacher Registration Authority consists of representatives from IMA, Association of Teachers of Mathematics, Mathematical Association, and National Association of Numeracy and Mathematics in Colleges. Professor Paul Glaister CBE, the chair of the Institute's Membership Committee, also chairs the Chartered Mathematics Teacher Registration Authority. At 31 December 2023, we have 40 registered Chartered Mathematics Teachers.

## Medals and Awards 2023

### Hedy Lamarr Prize for Knowledge Exchange in Mathematics 2023

The Hedy Lamarr Prize is awarded to a mathematician who demonstrates meritorious knowledge exchange in mathematics and its applications.

In 2023, the panel awarded this prestigious medal to Professor Julia Gog OBE FIMA.

### IMA John Blake University Teaching Medal

The John Blake University Teaching Medal, introduced in 2020, is awarded to an individual in recognition of their significant and sustained contribution to the teaching of mathematical sciences at university level.

The 2023 IMA John Blake University Teaching Medal was awarded to Professor Chris Sangwin.

### Journal Prizes

The IMA Journal of Numerical Analysis awarded the 21st IMA Leslie Fox Prize to Alice Cortinovic (Stanford) and Melanie Weber (Harvard) on Monday 26th June 2023 at the Fox Prize event at the University of Strathclyde. This was held in conjunction with the Alan Turing Institute.

The IMA Journal of Applied Mathematics awarded the Lighthill Thwaites Prize at the 2023 BAMC to Clare Rees-Zimmerman (Oxford).

The 2023 IMA Journal of Management Mathematics best paper prize was awarded to Xiaoshi Guo and Sarah Ryan of Iowa State University, USA.

### Gold Medal 2023 Summer Reception

In June 2023, Philip Maini, winner of the 2022 IMA Gold Medal gave a wonderful lecture at the IMA's Summer Reception, held at the Royal Society.

In addition, several other awards were presented at the event, as follows:

## Certificates of Service

The following Certificates of Service were awarded at IMA Gold Medal lecture event, held in June 2023.

### Academic Representatives since 2019

- Dr Thomas Woolley, MIMA
- Dr Tim Reis, FIMA
- Dr Marco Discacciati, FIMA
- Professor Simon Blackburn, FIMA
- Dr Rosalyn Porter, FIMA (since 2018 – unable to accept in 2022)

### ECM Members > 3 years' service

Dr Eduard Campillo-Funollet MIMA – For over 3 years dedicated service to the ECM in a variety of roles, and more recently his service to the IMA as a Council Member.

### Branch Representatives > 3 years' service

Dr John Craske AMIMA of Imperial College London, for dedicated service to the IMA London Branch since 2016.

Dr Amit Chattopadhyay FIMA of Aston University, for dedicated service to the West Midlands Branch since 2015

## Special Recognition Awards

Claire Baldwin CMathTeach MIMA – Long service award. Claire has been a member of the Mathematics Today Board since May 2016.

Dr James Van Yperen AMIMA – In recognition of outstanding contribution to the Early Careers Mathematicians Committee and invaluable support to the Committee Chair.

## Honorary Fellowship

At the 2023 Gold Medal Event held at the Royal Society, Dr Richard Pinch CMath CSci FIMA was presented with an Honorary Fellowship of the IMA, in recognition of his long, and distinguished service to the IMA as a Trustee and member of many strategic IMA committees.



# IMA Strategy 2023-2028

The IMA published its new five-year Strategy in December 2023, following a consultation period over the last year across the organisation's boards, committees and networks.

Marking the IMA's 60th anniversary in 2024, our new strategy builds on the legacy built over the last six decades by continuing to develop new and exciting engagement opportunities to support a diverse and inclusive mathematics community and deliver public benefit.

An overwhelming sense of pride in being both a mathematical scientist and being part of the IMA, with its emphasis on mathematics and its applications, was one of the key takeaways from the consultation period. Our plan capitalises on this sense of belonging and community, allowing for us to strategically plan in order to keep pace with rapid changes across society. We will focus on change which influences, and is influenced by, mathematics in order to meet the expectations of the different generations and stakeholders we represent.

The 2023-28 plan is mapped across three broad strategic priority areas:

## 1 Advancing the mathematics profession and achieving our Mission

The IMA will play a major role in advancing mathematics and its applications and maintaining high standards of professional conduct. We will promote and guide education and training standards and support activities to attract and retain today's and tomorrow's mathematical scientists. We will develop our EDI strategy to create an inclusive culture within the IMA and across the mathematics and its applications community.

## 2 Securing a Sustainable IMA Future

We will modernise the governance model and infrastructure which underpin our services to the mathematics community to ensure they are fit for the future. We will monitor existing, and create new, revenue streams and encourage a collaborative working culture. We will develop policies around environmental sustainability and social inclusivity while ensuring we have the right digital tools and systems to deliver our services safely and securely. Our activities will ensure the IMA remains a natural home for all those interested in mathematics and its applications, providing both local support through the Branches, and targeted expertise through mentoring and Special Interest Groups.

## 3 Showcase and Develop Mathematics for Societal Challenges

The IMA will foster and facilitate debate, discussion and learned output on key topics which affect society and the mathematical sciences community. This includes thought leadership and knowledge sharing on grand challenges where mathematical sciences will play a major role in shaping solutions, such as Climate Change, Artificial Intelligence and Disease Modelling. We will convene Special Interest Groups to develop these activities, building on our successful conference programme, journals and publications, and through new engagement opportunities including training, workshops, podcasts and digital content.

Our plan builds on opportunities that a more hybrid and digital world can offer, as well as developing existing and new activities to support our community and generate new income.

Throughout the next five years, people and partnerships will remain at the heart of our activities. We will continue to provide successful IMA activities and services including our Branch network, MathsCareers website, conferences, events, workshops and publications whilst delivering public benefit.

Our delivery plan will also include review points for new and ongoing programmes to assess suitability for the future in line with our strategic goals and vision for the IMA for the next 60 years.



*IMA staff and committee members at the Strategy Planning Weekend in 2023*

# Looking Ahead - 2024

2024 will be another exciting year for the IMA. The year will include a series of special events and activities to celebrate three key milestones in our history:

- The IMA's 60th anniversary
- The 100th anniversary of the birth of our founder Sir James Lighthill
- The 20th anniversary of the Early Career Mathematicians group.

We also aim to mark the IMA's legacy to mathematics over the last 60 years with a special MT Archive project, to revisit some significant articles and authors and through attendance at outreach events and online celebrations via social media to celebrate our past, present and future.

A number of new projects and working groups will be formed in support of our new strategy and we hope to launch our first Special Interest Group during the year.

We will launch our new mentoring platform in early 2024, IMA Exponential, to bring together experienced members from across our community of mathematicians in academia, business, government and the public sector, to provide advice, mentoring and support to other mathematicians seeking career development advice and/or achieve professional recognition.

We have set aside further funding to look at other ways we can provide services to our members and the mathematics community through digital sources, such as online careers support and other ways we can increase a sense of belonging and mathematical identity for members in an increasingly AI world.

Our focus on sustainability, people and wellbeing will focus on measuring our current carbon emissions to identify reductions, and relocate to office premises which provide an engaging and collaborative environment for staff, while being kinder on the planet and make best use of our financial resources.

We will continue to focus on creating an inclusive culture within the IMA through development of our EDI strategy and supporting others with support and advice.

A number of new and exciting conferences are being planned and September will see the launch of our first AI Congress in Birmingham, to complement our existing programmes.

The Alliance for Data Science Professionals, through the RSS, will be seeking approval of a Chartership application by Privy Council, following which Advanced Data Science Professionals, now and in the future, will be able to apply for Chartered status. We will continue to support DSIT on its consultation for a national academy for mathematical sciences, and the next steps.

There will be increased public engagement to promote mathematics, including our first exhibit at the Royal International Air Tattoo in July. IMA members are also supporting the development of a Levelling Up: Mathematics programme for Engineering to assist A Level Mathematics students seeking to study engineering. We hope that our Branches will hold local events and activities to showcase their activities and celebrate our anniversaries.

Finally, we hope that 2024 will see members and stakeholders across our community coming together at our celebration events and look forward to the next 60 years.

# Finance and Governance

This is the Annual Report of the Trustees of 'The Institute of Mathematics and its Applications' (IMA) for the year 2023. The Institute is governed according to a Royal Charter and Byelaws granted in 1990 and revised in 1997, 1999, 2002, 2008 and 2015. The governance and control of the Institute is vested in its Council (Council Members are also the Trustees). The charity registration number is 1017777. The Companies House registration number is RC000714.

The Institute's Head Office is:

Catherine Richards House,  
16 Nelson Street,  
Southend-on-Sea,  
Essex, SS1 1EF.

Its bankers are:

Lloyds Banking Group,  
Business Service Centre,  
Sedgemoor House,  
Deangate Avenue,  
Blackbrook Business Park,  
Taunton, TA1 2UG.

Its auditors are:

Rickard Luckin  
19 Clifftown Rd,  
Southend-on-Sea,  
Essex, SS1 1AB

## Council

The constitution of the Council on 31 December 2023 was as follows:

### PRESIDENT

Professor H Fry FIMA (From 1 January 2024)

### VICE-PRESIDENTS

Mr N Turner CMath MIMA (From 1 January 2024)

Dr M Barons CMath FIMA

Dr J Macey FIMA

### HONORARY TREASURER

Professor A. Osbaldestin FIMA

### HONORARY SECRETARIES

Professor P Glaister CBE CMath CSci FIMA

Professor C Hobbs CMath FIMA

## PAST PRESIDENTS

Professor A Fitt CMath CSci FIMA  
Professor N C Chamberlain OBE CMath CSci FIMA  
Professor P Glendinning FRSE FIMA

## MEMBERS OF THE COUNCIL

Dr F de Melo Viríssimo AMIMA  
Professor G Niblo FIMA  
Dr E Campillo Funollet MIMA  
Dr S Lawrence FIMA  
Dr S Carr CMath CSci FIMA  
Ms C Baldwin CMathTeach MIMA  
Ms E Bowley CMath MIMA  
Professor AC Croft CMath FIMA  
Dr H Haughton CMath FIMA  
Professor C Budd OBE CMath FIMA  
Mr C Chipperton CMathTeach CMath FIMA  
Professor TN Phillips FIMA  
Dr M Matsuzewski MIMA

The following completed their term of office as Councillor and Trustee at the 2023 AGM:

Professor N Steele CMath Hon FIMA  
Professor E Rothead CMath FIMA  
Professor R Bearon FIMA  
Mr N Brusby CMath MIMA

The following completed their term of office as Councillors and Trustees at the end of 2023:  
Dr P Rowlett CMath FIMA, Vice President with responsibility for Communication.  
Professor S Lombardo FIMA

Professor H Fry FIMA, who became President on 1 January 2024 chaired Council as it considered the content of this report. Professor Paul Glendinning's two-year term as President ended on 31 December 2023.

In 2023, Councillor nominations exceeded vacancies, so a ballot was held. Council was pleased to welcome the following members to serve as members of Council and Trustees effective from the close of the AGM held on the 28 June 2023:

Ms Claire Baldwin (elected member);  
Miss Emma Bowley (elected, formerly co-opted member);  
Professor Anthony Croft (elected member);

Additionally, Dr Maciej Matsuzewski, Chair of the Early Careers Mathematicians Committee, was co-opted to Council immediately following the AGM.

Finally, during 2023, Dr Snezana Lawrence advised Council of her intention to step down from her role as Diversity Champion at the end of 2023. The IMA are pleased to announce that Dr Howard Haughton has accepted Council's invitation to replace her as Equity, Diversity and Inclusion Champion in this role effective 1 January 2024.

The members of Council are also the Trustees.

## Appointment of Trustees

The appointment of Trustees is governed by the Royal Charter byelaws 35 to 43. No person or external body is entitled to make such appointments.

### Past Presidents

Royal Charter byelaw 36. The immediate three Past Presidents who are able and willing to serve and are Advanced Members of the Institute shall be ex-officio members of Council.

It is customary for there to be three past presidents to sit on Council. Should Past Presidents choose to remain on Council for all or part of this time, they will remain Trustees.

### Elected Members

The election of members starts in February when there is an open call for nominations. The Notice advises our members how many places are available for election that year.

The Royal Charter states: "39. Election of the elected members of the Council shall take place in the following manner:

- (A) Not less than ten weeks before each Annual General Meeting the Council shall cause to be addressed to all Corporate Members of the Institute a notice inviting nominations.
- (B) Nominations may be sent in writing to reach the Chief Executive at the Office not less than eight weeks before the date of the Annual General Meeting. ..."

If the number of nominations exceed the number of places, an election is held. Elected Members become Trustees with effect from the day after the AGM (normally 1 July or very close to that date)

### Honorary Officers

It is usually the case that Honorary Officers are considered by the Nominating Committee and proposed to Council for approval / ratification.

### Co-Opted Members

Byelaw 40: The Council may co-opt any Corporate Member to be a member of the Council, provided that at any time the total number of co-opted members shall not exceed six, of whom not more than one shall be an Associate Member, not more than one shall be a Student Member, and not more than one shall be an Affiliate Member.

Byelaw 41. The Council may at any time appoint or co-opt any eligible person to be an Honorary Officer or member of the Council to fill a casual vacancy. In event of the vacancy resulting from an elected member ceasing membership of Council the co-option will cover the period of office outstanding.

The Chair of the ECM is a co-opted member, and they are normally encouraged to stand for election in the year following their co-option to Council.

## Responsibilities of the Trustees

The Trustees (Council members) 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 Royal Charter of Incorporation and the law applicable to charities in England & Wales requires the Trustees' (Council members) to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the Institute and of the incoming resources and application of resources of the Institute for that period. In preparing these financial statements, the Trustees (Council members) are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in the Charities SORP;
- make judgements and estimates that are reasonable and prudent;
- state whether applicable accounting standards 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 Institute will continue in business.

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

Byelaw 34 of the Royal Charter states that The Honorary Treasurer, who is a member of Council and the Executive Board and also chairs the Finance Committee, shall be responsible to the Council for the administration of the financial affairs of the Institute and for ensuring that proper accounts are kept in accordance with these Byelaws but may delegate such responsibility to the Chief Executive [Executive Director] who may be assisted by the other salaried staff in the discharge of such responsibility.

The Finance Committee reviews the IMA budgets and end of financial year accounts and provides reports and recommendations to Council which also approves the accounts at its March meeting following the audit.

## Executive Board

The Executive Board includes all Honorary Officers of the Institute, together with the Equality and Diversity Champion. Selected staff members from the Secretariat are invited to attend as required.

## Secretariat

At 31 December 2023, the IMA employed a total of 19 members of staff, including six part-time employees. One post remained vacant. The Secretariat is led by the Executive Director and provides a number of functions in support of the IMA's aims and objectives. A full list of the 2023 team is provided in the References and Glossary section.

# The Trustees' Report 2023

The 2023 budget was forecasted as an unrestricted loss of £2,828. The end of year result is an unrestricted surplus of £4,740.

The Trustees are content with the tight cost controls that have kept the performance close to budget.

At the end of 2023 the total assets less current liabilities is £1,525,202 of which £139,401 is in relation to restricted reserves. In 2022 the equivalent figure was £1,454,609 of which £73,548 was in relation to restricted reserves.

Funds were used to support our charitable aims. There is a clear public benefit in our activities to support education; to run educational conferences; to support mathematics to government; to regulate the profession of Chartered Mathematician; to contribute to the advancement of research initiatives; to be an influencing voice for the use of mathematics across STEM, industry and commerce; and to promote mathematics across media and society in the UK.

Members receive a membership publication. The revenue received from member subscription exceeds the value of direct membership services. The subscription surplus is spent on meeting our charitable objectives.

Finance Committee, which reports to Council, sets the pay and remuneration of the charity's personnel.

## Reserves Policy

The Institute is a charitable organisation that promotes mathematics and its applications. It is a learned society and a professional body where income is principally based on subscriptions, and revenue from conferences and publications. The Institute requires adequate reserves to provide for any shortfall in immediate income and to allow remedial action in event of any long-term adverse change in circumstances. The Institute also requires financial reserves in order to respond to any major opportunities to develop and promote its objectives.

Council considers that reserves equivalent to one year's standard expenditure (excluding large projects which are not part of standard long-term activities) would be an appropriate level.

When Restricted Funds exist, for example the IMA Leslie Fox Fund, those funds will be used for the purpose for which they are restricted. Restricted reserves will not be counted when calculating the amount of reserves for general purposes.

Two months' operating expenses should be held as liquid reserves.'

At the end of 2023, the total reserves are £1,525,202, of which £139,401 is in relation to restricted reserves, which is close to one year's standard expenditure, and is therefore deemed to meet this policy.

## Free reserves

As the year end the Charity held total free reserves of £1,290,253 (2022: £1,285,522).

## Sources of funding

Key unrestricted revenue streams were:

Publications £548,405  
Membership Subscriptions £351,722  
Conference Income £96,629

Some of our most significant expenditure on charitable activities during the year were:

Promoting Maths £242,116  
Education £29,225  
Maths Today £166,818  
Conference Expenditure £195,587  
Grants £66,932

The expenditure of our incoming resources on these charitable activities was fully in line with our charitable objectives.

The non-current reserves of the Institute on 31/12/2023 were held with the following Finance Organisations: £105,848 is held at the Charity Bank, £210,884 at the Clydesdale Bank, £316,520 at Shawbrook Bank, and £1,066,168 at Lloyds; and £139,401 at Lloyds held on behalf of the Leslie Fox and QJMAM.

## Management of Risks

Council has delegated the oversight of risk to the Finance Committee in the first instance.

The Finance committee assesses risk annually at a minimum, or more frequently in periods of economic or other uncertainties. Operationally, risks are under constant scrutiny by the senior management team, and any risk 'events' are reported via established processes.

The Risk Register is managed by the Governance Manager with input from the senior leadership team and other subject matter experts. The Risk Register is divided into the following categories:

- People, Leadership and Culture
- Financial
- Governance & Risk (including Data/GDPR)
- Operational Risk (including IT Resilience, Change Management & Procurement)

Risks are assessed on both an inherent and residual basis, and based on risk appetite, the top risks are reported at a senior level, along with the control environment that they operate in.

In 2023, the key areas of risks under scrutiny could be summarised as follows:

- **IT Risk – Cybersecurity**

The protection of member and staff data is of utmost importance to the IMA. Due to the prevalence of cybersecurity risk across all sectors, and the impact a breach of our security may have, we foresee this risk remaining a focus for some time.

- **Governance – Regulatory Compliance**

Compliance with our Royal Charter, the Charity Commission, GDPR and other external regulations is core to our culture; the oversight and reporting of all aspects of this risk is kept under constant scrutiny.

- **Financial Sustainability**

Compliance with our Royal Charter, the Charity Commission requirements and IMA Accounting and Investment policies, including meeting reserves and 'going concern' obligations.

- **Reputational Risk**

The materialisation of any risk has the potential to damage the IMA's reputation, and this drives our focus on risk management. Further to that, we have our codes of professional conduct for all members which is made by the Council in line with the Royal Charter

There were no material risk events reported within the accounting period 1 January – 31 December 2023.

## Notes to the Financial Statements for the year ended 31 December 2023

The accounts given in Appendix A provide the IMA's full, formal financial statements and accounting policies.

This Annual Trustees' Report to Members 2023 was approved by the Trustees at the Council meeting of March 2024.

On behalf of the IMA Trustees

President Hannah Fry

# INDEPENDENT AUDITORS' REPORT TO THE TRUSTEES OF THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

## Opinion

We have audited the financial statements of Institute of Mathematics and Its Applications (the 'charity') for the year ended 31 December 2023 which comprise the statement of financial activities, the balance sheet, the statement of cash flows and notes to the financial statements, including significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting Standard 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland (United Kingdom Generally Accepted Accounting Practice).

In our opinion, the financial statements:

- give a true and fair view of the state of the charity's affairs as at 31 December 2023 and of its incoming resources and application of resources, for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Charities Act 2011.

## Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of our report. We are independent of the charity in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

## Conclusions relating to going concern

In auditing the financial statements, we have concluded that the use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the charity's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the trustees with respect to going concern are described in the relevant sections of this report.

## Other information

The other information comprises the information included in the annual report other than the financial statements and our auditor's report thereon. The trustees are responsible for the other information contained within the annual report. Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon. 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 course of the audit, or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether this gives rise to a material misstatement in the financial statements themselves. 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 in this regard.

## Matters on which we are required to report by exception

We have nothing to report in respect of the following matters in relation to which the Charities (Accounts and Reports) Regulations 2008 require us to report to you if, in our opinion:  
the information given in the financial statements is inconsistent in any material respect with the report; or  
sufficient accounting records have not been kept; or  
the financial statements are not in agreement with the accounting records; or  
we have not received all the information and explanations we require for our audit.

## Responsibilities of trustees

As explained more fully in the statement of trustees' responsibilities, the trustees are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees 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 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 cease operations, or have no realistic alternative but to do so.

## Auditor's responsibilities for the audit of the financial statements

We have been appointed as auditor under section 144 of the Charities Act 2011 and report in accordance with the Act and relevant regulations made or having effect thereunder.

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 auditor's 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.

The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below.

We identified areas of laws and regulations that could reasonably be expected to have a material effect on the financial statements from our: general commercial and sector experience; through verbal and written communications with those charged with governance and other management; through communications with legal counsel, and via inspection of the charity's regulatory and legal correspondence.

We discussed with those charged with governance and other management the policies and procedures regarding compliance with laws and regulations.

We communicated identified laws and regulations to our team and remained alert to any indicators of non-compliance throughout the audit, we also specifically considered where and how fraud may occur within the charitable company.

The potential effect of these laws and regulations on the financial statements varies considerably.

Firstly, the charity is subject to laws and regulations that directly affect the financial statements, including: the charity's constitution; relevant financial reporting standards; company law; the Statement of Recommended Practice applicable to charities preparing their accounts in accordance with FRS 102 (effective from 1 January 2019); and we assess the extent of compliance with these laws and regulations as part of our procedures on the related financial statement items.

Secondly the charity is subject to many other laws and regulations where the consequences of non-compliance could have a material effect on the amounts or disclosures in the financial statements, for instance through the imposition of fines and penalties, or through losses arising from litigations. We identified the following areas as those most likely to have such an affect: legislation directly applicable to charities sector such as the Charities Act 2011, employment legislation; health and safety legislation; the regulatory requirements of the Charity Commission; data protection legislation; anti-bribery and anti-corruption legislation.

International Auditing Standards (UK) limit the required procedures to identify non-compliance with these laws and regulations to the procedures, and no procedures over and above those already noted are required. These limited procedures did not identify any actual or suspected non-compliance which laws and regulations that could have a material impact on the financial statements.

In relation to fraud, we performed the following specific procedures in addition to those already noted:

- Challenging assumptions made by management in its significant accounting estimates in particular: depreciation and accrued income;
- Identifying and testing journal entries, in particular any entries posted with unusual nominal ledger account combinations, journal entries posted by senior management, journal entries crediting cash or any revenue account and large year end journals;
- Performing analytical procedures to identify unexpected movements in account balances which may be indicative of fraud;
- Ensuring that testing undertaken on both the Statement of Financial Activity (SoFA) and the Balance Sheet includes a number of items selected on a random basis;

These procedures did not identify any actual or suspected fraudulent irregularity that could have a material impact on the financial statements.

Owing to the inherent limitations of an audit, there is an unavoidable risk that we may not have detected some material misstatements in the financial statements, even though we have properly planned and performed our audit in accordance with International Auditing Standards UK). For example, the further removed non-compliance with laws and regulations is from the events and transactions reflected in the financial statements, the less likely the procedures that we are required to undertake would identify it. In addition, as with any audit, there remains a high risk of non-detection of irregularities, as these might involve collusion, forgery, intentional omissions, misrepresentation, or the override of internal controls. We are not responsible for preventing non-compliance with laws and regulations or fraud, and cannot be expected to detect non-compliance with all laws and regulations or every incidence of fraud.

A further description of our responsibilities is available on the Financial Reporting Council's website at: <https://www.frc.org.uk/auditorsresponsibilities>. This description forms part of our auditor's report.

## Use of our report

This report is made solely to the charity's trustees, as a body, in accordance with part 4 of the Charities (Accounts and Reports) Regulations 2008. Our audit work has been undertaken so that we might state to the charity's trustees those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the charity and the charity's trustees as a body, for our audit work, for this report, or for the opinions we have formed.

Caroline Peters (Senior Statutory Auditor)  
for and on behalf of Rickard Luckin Limited

Chartered Accountants  
Statutory Auditor

1st Floor  
County House  
100 New London Road  
Chelmsford  
Essex  
CM2 0RG

Appendix A

# Financial Statements

# APPENDIX A – FINANCIAL STATEMENTS

## Financial Statements of Activities 31 December 2023

### THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

#### STATEMENT OF FINANCIAL ACTIVITIES INCLUDING THE INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 DECEMBER 2023

	Unrestricted Funds 2023 £	Restricted Funds 2023 £	Total Funds 2023 £	Unrestricted Funds 2022 £	Restricted Funds 2022 £	Total Funds 2022 £	Notes
<b>Income and endowments from:</b>							
<i>Donations and legacies</i>							
Appeal Fund, Donations and Bequests	38	0	38	16,878	0	16,878	
<i>Charitable activities</i>							
Member Entrance fees	2,545	0	2,545	2,401	0	2,401	
C. Math/C Math Teacher Member Entrance fees	580	0	580	709	0	709	
Member Subscription fees	351,722	0	351,722	338,339	0	338,339	
Conference and symposium fees	96,629	0	96,629	75,132	0	75,132	
Publications income and Institutional subscriptions	548,405	100,000	648,405	555,280	0	555,280	
Donations	12,135	0	12,135	2,728	0	2,728	
Scholarships	0	145,098	145,098	103,579	0	103,579	
<i>Investment Income</i>	9,584	874	10,458	4,347	70	4,417	17
<b>Total</b>	<b>1,021,638</b>	<b>245,972</b>	<b>1,267,610</b>	<b>1,099,393</b>	<b>70</b>	<b>1,099,463</b>	
<b>Expenditure on:</b>							
<i>Charitable Activities</i>							
Branches and groups	4,746	0	4,746	10,212	0	10,212	
Conferences	195,587	0	195,587	136,861	0	136,861	
Education	29,225	0	29,225	23,277	0	23,277	
Grants/Donations	66,932	0	66,932	75,772	0	75,772	1a
Promoting Mathematics (including Scholarships)	238,071	145,098	383,169	400,395	0	400,395	1c
Mathematics Today	165,197	0	165,197	180,479	0	180,479	
Membership	123,187	0	123,187	105,236	0	105,236	
Professional development	57,015	0	57,015	35,788	0	35,788	
Other publications	39,766	35,021	74,787	39,925	59,857	99,782	
<i>Governance</i>	97,172	0	97,172	55,205	0	55,205	1d
<b>Total</b>	<b>1,016,898</b>	<b>180,119</b>	<b>1,197,017</b>	<b>1,063,149</b>	<b>59,857</b>	<b>1,123,007</b>	1a
<b>Net movement in funds</b>	<b>4,740</b>	<b>65,853</b>	<b>70,593</b>	<b>36,241</b>	<b>(59,787)</b>	<b>(23,546)</b>	
Reconciliation of funds							
Total Funds brought forward at 1 January 2023	1,381,061	73,548	1,454,609	1,344,819	133,335	1,478,154	
Total Funds carried forward at 31 December 2023	<b>1,385,801</b>	<b>139,401</b>	<b>1,525,202</b>	<b>1,381,060</b>	<b>73,548</b>	<b>1,454,608</b>	

No separate Statement of Total Recognised Gains and Losses has been presented as all such gains and losses have been dealt with in the Statement of Financial Activities.

The net movement in funds arises from the charity's continuing operations.  
The detailed Income and Expenditure Account (2023) is attached (Appendix 1a).

## Balance Sheet

### THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

#### BALANCE SHEET AS AT 31 DECEMBER 2023

	2023 £	2022 £	Notes
<b>FIXED ASSETS</b>			
Tangible assets	95,548	93,538	2
	<u>95,548</u>	<u>93,538</u>	
<b>CURRENT ASSETS</b>			
Stock	4,842	4,842	3
Debtors	35,799	40,920	4
Cash at bank and in hand	1,838,960	1,731,169	
	<u>1,879,601</u>	<u>1,776,931</u>	
<b>LIABILITIES</b>			
Creditors: amounts falling due within one year	449,947	415,860	
	<u>449,947</u>	<u>415,860</u>	5
<b>NET CURRENT ASSETS</b>	<u>1,429,654</u>	<u>1,361,070</u>	
<b>TOTAL ASSETS LESS CURRENT LIABILITIES</b>	<u>1,525,202</u>	<u>1,454,608</u>	
Creditors: amounts falling due after one year	0	0	
<b>TOTAL NET ASSETS</b>	<u>1,525,202</u>	<u>1,454,608</u>	
<b>FUNDS</b>			
Restricted income funds	139,401	73,548	
Unrestricted income funds:			
General funds	1,385,801	1,381,060	
<b>TOTAL CHARITY FUNDS</b>	<u>1,525,202</u>	<u>1,454,608</u>	

The Financial Statements together with the Trustees' Annual Report (2023) were approved and authorised for issue by the Council on 27 March 2024 and signed on their behalf by

PROFESSOR ANDREW OSBALDESTIN

Honorary Treasurer

PROFESSOR HANNAH FRY

President

# Cash Flows

## THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

### STATEMENT OF CASH FLOWS FOR THE YEAR ENDED 31 DECEMBER 2023

Notes

	2023 £	2022 £	
<b>Net Cash (used in)/provided by:</b>			
Operating activities	<u>108,175</u>	<u>222,711</u>	16
Investing activities	10,458	4,417	17
Financing activities	(10,842)	0	
Cash flow for the period	<u>107,791</u>	<u>227,127</u>	
Unrealised gains or losses arising on cash and equivalents held in foreign currencies	0	0	
Opening cash and cash equivalents;	1,731,169	1,504,042	
Closing cash and cash equivalents	<u>1,838,960</u>	<u>1,731,169</u>	

# The Institute Of Mathematics and its Applications

## Financial Statements For The Year Ended 31 December 2023

### Accounting Policies

#### Basis Of Accounting

The financial statements have been prepared in accordance with Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard in the UK and Republic of Ireland (FRS102) (Charities SORP (FRS102)) as updated by the Charities SORP (FRS 102) update bulletin 1 & 2, and the Charities Act 2011 and applicable regulations.

The charity has elected to apply the provisions of Section 11 'Basic Financial Instruments' and Section 12 'Other Financial Instruments Issues' of FRS 102 to all of its financial instruments. Financial instruments are recognised in the charity's balance sheet when the charity becomes party to the contractual provisions of the instrument.

Financial assets and liabilities are offset, with the net amounts presented in the financial statements, when there is a legally enforceable right to set off the recognised amounts and there is an intention to settle on a net basis or to realise the asset and settle the liability simultaneously.

#### Incoming Resources

All incoming resources are included in the Statement of Financial Activities when the charity is legally entitled to the income and the amounts can be quantified with reasonable accuracy. The following specific policies are applied to particular categories of income:

- Investment income is included on receipt;
- Incoming resources from publications and conferences are accounted in the period in which services are provided;
- Subscriptions are recognised over the period to which the fees relate;
- Scholarship income is recognised on a performance basis.

To the extent that reliable estimations are available with regard to the final settlement of each accounting year's publication income and expenditure, provision is made for the final settlement figure. Where reliable estimations are not available, no provision is made.

#### Funds Structure

Unrestricted funds comprise those funds which the Trustees are free to use in accordance with the charitable objects. Restricted funds are funds which have been given for particular purposes and projects (see note 7).

#### Resources Expended

Resources expended are recognised in the period in which they are incurred and include attributable Input VAT that cannot be recovered. Resources expended are allocated to the particular activity where the cost relates directly to that activity.

Governance costs include the costs of governance arrangements that relate to the general running of the charity. These activities provide the governance infrastructure that allows the charity to operate and to generate the information required for public accountability. They include the strategic planning processes that contribute to the future development of the charity.

Direct expenditure is allocated to categories of activity. Where expenditure cannot be directly allocated it represents support costs and is apportioned on a basis consistent with the use of resources, by reference to the % allocation of staff working on each activity.

The Institute makes grants and donations to members of the mathematics community. The purpose of the grants and donations is to facilitate research activity in all areas of mathematics.

## Government Grants

Government grants are recognised at the fair value of the asset received or receivable when there is reasonable assurance that the grant conditions will be met and the grants will be received. A grant that specifies performance conditions is recognised in income when the performance conditions are met. Where a grant does not specify performance conditions it is recognised in income when the proceeds are received or receivable. A grant received before the recognition criteria are satisfied is recognised as a liability.

## Branches

The Statement of Financial Activities represents the results of the charity only. The Institute has seven current branches and these are not consolidated on the basis they are not material to the charity. There are no other related parties.

## Leased Assets and Obligations

All leases are “operating leases” and the annual rentals are charged to the Statement of Financial Activities on a straight line basis over the lease term.

## Tangible Fixed Assets

Depreciation is provided on all tangible fixed assets other than freehold land at rates calculated to write each asset down to its estimated residual value evenly over its expected useful life, as follows: -

Freehold buildings	2%
Fixtures, fittings and equipment	15%
Computer equipment	33%

Following the implementation of FRS 102, the charity has followed the transitional provisions to retain the book value of freehold buildings re-valued on 31 December 1991, but not to adopt a policy of revaluation in the future.

## Stock

Stocks are stated at the lower of cost and estimated selling price less costs to complete and sell. Cost comprises direct materials and, where applicable, direct labour costs and those overheads that have been incurred in bringing the stocks to their present location and condition. Items held for distribution at no or nominal consideration are measured the lower of replacement cost and cost.

## Basic Financial Assets

Basic financial assets, which include debtors and cash and bank balances, are initially measured at transaction price including transaction costs and are subsequently carried at amortised cost using the effective interest method unless the arrangement constitutes a financing transaction, where the transaction is measured at the present value of the future receipts discounted at a market rate of interest. Financial assets classified as receivable within one year are not amortised.

## Cash at Bank

Current asset investments are investments which a charity holds for resale or pending their sale and cash or cash equivalents with a maturity date of less than one year. This heading includes cash on deposit and cash equivalents with a maturity of less than one year held for investment purposes rather than to meet short-term cash commitments as they fall due.

## Basic Financial Liabilities

Basic financial liabilities, including creditors, are initially recognised at transaction price unless the arrangement constitutes a financing transaction, where the debt instrument is measured at the present value of the future payments discounted at a market rate of interest. Financial liabilities classified as payable within one year are not amortised.

Debt instruments are subsequently carried at amortised cost, using the effective interest rate method.

Trade creditors are obligated to pay for goods or services that have been acquired in the ordinary course of operations from suppliers. Amounts payable are classified as current liabilities if payment is due within one year or less. If not, they are presented as non-current liabilities. Trade creditors are recognised initially at transaction price and subsequently measured at amortised cost using the effective interest method.

## Pensions

The Institute operates a defined contribution scheme. The amount charged to the Statement of Financial Activities in respect of pension costs and other post retirement benefits are the contributions incurred in the year.

## Judgements and Estimates

In preparing financial statements it is necessary to make certain judgements, estimates and assumptions that affect the amounts recognised in the financial statements. The following judgements and estimates are considered by the Trustees to have the most significant effect on amounts recognised in the financial statements:

- Depreciation and amortisation charges are based on the estimated useful life of the assets held.
- Publication income is based on the budgeted royalty commission from the OUP.

THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED 31 DECEMBER 2023

1. Expenditure on:

a) Analysis of expenditure on	2023				2022				Notes
	Support Costs	Direct Costs	Staff Costs	Total	Support Costs	Direct Costs	Staff Costs	Total	
	£	£	£	£	£	£	£	£	
<u>Unrestricted funds</u>									
Operating activities in furtherance of Charity's objectives									
Branches and groups	622	1,279	2,845	4,746	1,725	1,664	6,823	10,212	
Conferences	20,998	78,491	96,098	195,587	17,847	48,419	70,595	136,861	
Education	4,490	4,188	20,547	29,225	4,246	2,235	16,796	23,277	
Grants/donations	2,279	54,221	10,432	66,932	3,649	57,689	14,434	75,772	
Promoting Mathematics	35,051	24,101	178,919	238,071	58,850	29,125	232,779	320,754	1e
Mathematics Today	17,614	66,975	80,608	165,197	18,644	88,091	73,744	180,479	
Membership	20,446	9,172	93,569	123,187	19,705	7,588	77,943	105,236	
Professional development	9,463	4,245	43,307	57,015	6,701	2,581	26,506	35,788	
Other publications	3,385	20,892	15,489	39,766	3,848	20,858	15,221	39,925	
Governance	5,319	67,512	24,341	97,172	4,910	30,875	19,420	55,205	
Total unrestricted resources expended	119,667	331,076	566,155	1,016,898	140,125	289,125	554,261	983,508	1b

Restricted funds

Operating activities in furtherance of Charity's objectives									
QJMAM	0	33,400	0	33,400	0	59,857	0	59,857	
Scholarships	18,481	60,550	66,067	145,098	5,839	50,708	23,094	79,641	
Mathematics Today (Leslie Fox Prize Fund award)	0	1,621	0	1,621	0	0	0	0	
Total resources expended	138,148	426,648	632,222	1,197,017	145,964	399,690	577,355	1,123,006	

b) Analysis of Total Support Costs

	Conferences	Education	Maths Membership Today	Governance	Other
	£	£	£	£	£
<u>Unrestricted funds</u>					
DMH premises 18 Nelson Street	1,274	272	1,069	323	4,203
Communications & IT	6,233	1,333	5,228	1,579	20,565
Postage & printing	964	206	808	244	3,180
Financial costs	11,185	2,392	9,383	2,833	36,905
Depreciation	1,342	287	1,126	340	4,429
Total unrestricted	20,999	4,490	17,614	5,319	69,281

	2023	2022
	£	£
Conferences	20,999	17,847
Education	4,490	4,246
Mathematics Today	17,614	18,644
Membership	20,446	19,705
Governance	5,319	4,910
Other	69,281	80,612
	138,148	145,964

**THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS**

**NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED 31 DECEMBER 2023**

**c) Analysis of promoting mathematics costs**

	2023				2022			
	Support	Direct		Total	Support	Direct		Total
	Costs	Costs	Staff Costs		Costs	Costs	Staff Costs	
£	£	£	£	£	£	£	£	
Maths Careers	3,523	6,366	16,122	26,011	4,180	6,296	16,533	27,009
Other	31,529	17,735	162,797	212,061	54,670	22,829	216,246	293,745
Total promoting mathematics costs	35,052	24,101	178,919	238,072	58,850	29,125	232,779	320,754
Scholarships	18,481	60,550	66,067	145,098	5,839	50,708	23,094	79,641
	<u>53,533</u>	<u>84,651</u>	<u>244,986</u>	<u>383,169</u>	<u>64,689</u>	<u>79,833</u>	<u>255,873</u>	<u>400,395</u>

Maths Careers is only supported by the Institute of Mathematics and its Applications.

**d) Analysis of governance costs**

	2023				2022			
	Support	Direct		Total	Support	Direct		Total
	Costs	Costs	Staff Costs		Costs	Costs	Staff Costs	
£	£	£	£	£	£	£	£	
Audit fees - Audit of Financial Statements	0	14,500	0	14,500	0	10,255	0	10,255
Legal and professional	0	2,386	0	2,386	0	2,500	0	2,500
Irrecoverable VAT	0	0	0	0	0	0	0	0
Strategy Review Weekend	0	18,912	0	18,912	0	0	0	0
Cost of AGM and Trustee travel etc.	0	31,714	0	31,714	0	0	0	0
Apportionment of staff costs	0	0	24,341	24,341	0	0	19,420	19,420
General overhead costs	5,319	0	0	5,319	4,910	18,120	0	23,030
Total governance costs	<u>5,319</u>	<u>67,512</u>	<u>24,341</u>	<u>97,172</u>	<u>4,910</u>	<u>30,875</u>	<u>19,420</u>	<u>55,205</u>

**e) Analysis of grants expended**

	2023		2022	
	Total	Total	Total	Total
	£	£	£	£
Educational Grants	2,174		600	
Small Grants	14,282		10,020	
University Liaison Officer Grants	3,568		8,861	
CMS	19,510		21,006	
	<u>39,533</u>		<u>40,487</u>	
	0		0	
	<u>39,533</u>		<u>40,487</u>	

See in the Trustees Annual Report where details are given for Educational Grants, Small Grants & University Liaison Officer Grants.  
The grants are payable to individuals £0 and institutions £20,024 and £19,510 to CMS

## THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

### NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2023

#### 2. TANGIBLE FIXED ASSETS

	Freehold property & land	Fixtures fittings & equipment	TOTAL
Cost or valuation:	£	£	£
Property 1 January 2023	230,000	168,261	398,261
Additions	6,200	4,642	10,842
Disposals	<u>0</u>	<u>0</u>	<u>0</u>
31 December 2023	<u>236,200</u>	<u>172,903</u>	<u>409,105</u>
Depreciation			
1 January 2023	142,576	162,147	304,723
Charged in the year	4,655	4,177	8,832
Disposals	<u>0</u>	<u>0</u>	<u>0</u>
31 December 2023	<u>147,231</u>	<u>166,324</u>	<u>313,555</u>
Net book value:			
31 December 2023	<u>88,969</u>	<u>6,579</u>	<u>95,548</u>
31 December 2022	<u>87,424</u>	<u>6,114</u>	<u>93,538</u>

## THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

### NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2023

#### 3. STOCKS

	2023	2022
	£	£
Goods for resale	<u>4,842</u>	<u>4,842</u>

#### 4. DEBTORS

	2023	2022
	£	£
Due within one year:		
Trade debtors	546	1,059
Prepayments and accrued income	<u>35,253</u>	<u>39,861</u>
	<u>35,799</u>	<u>40,920</u>

#### 5. CREDITORS

	2023	2022
	£	£
Amounts falling due within one year:		
Trade creditors	3,986	28,605
Other taxation and social security costs	60,073	58,305
Accruals and Deferred Income	<u>385,888</u>	<u>328,951</u>
	<u>449,947</u>	<u>415,861</u>

#### 6. Deferred Income

	2023	2022
	£	£
Deferred income b/fwd.	312,408	315,305
Amounts released	(312,408)	(315,305)
Deferred in year	<u>358,461</u>	<u>312,408</u>
Deferred income c/fwd	<u>358,461</u>	<u>312,408</u>

Deferred income mainly consists of publishing and membership income relating to 2023 and will therefore be released next year.

#### 7. MOVEMENTS IN FUNDS

	2023		Transfer between funds	2022	
	£	£		£	£
Restricted reserves					
Scholarships	0	145,098	(145,098)	0	0
Leslie Fox Prize Fund	1,452	0	(1,621)	0	3,073
QJMAM	<u>137,949</u>	<u>100,874</u>	<u>(33,400)</u>	0	<u>70,475</u>
	<u>139,401</u>	<u>245,972</u>	<u>(180,119)</u>	0	<u>73,548</u>
Unrestricted funds					
Unrestricted Reserves	<u>1,385,801</u>	<u>1,021,638</u>	<u>(1,016,898)</u>	0	<u>1,381,061</u>
	<u>1,385,801</u>	<u>1,021,638</u>	<u>(1,016,898)</u>	0	<u>1,381,061</u>
Total restricted and unrestricted funds	<u>1,525,202</u>	<u>1,267,610</u>	<u>(1,197,017)</u>	0	<u>1,454,609</u>

QJMAM funds are held to provide grant awards to applicants that are successful in submitting papers included in the QJMAM journal

The Scholarships funds are spent on the administration and events surrounding the DFE maths teacher scholarships scheme

The Leslie Fox Prize Fund may be used to award biennially for best submission in Numerical Analysis.

## THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

### NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2023

#### 8. ANALYSIS OF NET ASSETS BETWEEN FUNDS

	Tangible fixed assets	Net current assets	Fund balance balance
	£	£	£
Unrestricted funds	95,548	1,290,253	1,385,801
Restricted funds	0	139,401	139,401
	<u>95,548</u>	<u>1,429,654</u>	<u>1,525,202</u>

#### 9. COMMITMENTS UNDER OPERATING LEASES

At the reporting end date the charity had outstanding commitments for future minimum lease payments under non-cancellable operating leases, which fall as follows:

	2023	2022
	£	£
<b>Plant and machinery</b>		
Within one year	0	1,134
Between two and five years	0	0
	<u>0</u>	<u>1,134</u>

#### 10. PENSION COSTS

The Institute makes payments to personal pension funds set up by individual members of staff. Contributions payable by the Institute amounted to £48,746 (2022: £53,275).

#### 11. EMPLOYEES

The following number of employees received employee benefits (excluding employer pension costs) during the year between:

	2023	2022
£70,001 - £80,000	1	1

The total employee benefits including pension contributions of the key management personnel were £149,612 (2022 - £133,435).

#### 12. STAFF NUMBERS

The average weekly number of persons employed by the Institute regardless of whether they are part time or full time during the year was:

	2023	2022
Administration:	15	15
Management:	2	2
Scholarships	2	1
	<u>19</u>	<u>18</u>

	2023	2022
	£	£
Staff costs for the above persons:		
Salaries	524,569	488,954
Pension contributions	54,082	39,314
Social security costs	44,202	41,237
Other costs	9,369	7,853
	<u>632,222</u>	<u>577,358</u>

## THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

### NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2023

#### 13. TAXATION

The Institute is accepted by HM Revenue & Customs as an educational charity and as such is not subject to corporate taxation for activities within its charitable objects.

#### 14. RELATED PARTY TRANSACTIONS

During the year payments were made to Dr Snezana Lawrence in relation to services provided as an assessor for the mathematics teacher training scholarships amounting to £434. (2022 £826 relating to services provided by Dr Snezana Lawrence and £1,967 for Dr Sophie Carr as assessors on the teacher training scholarships). In addition, re-imbursed expenses for travel and subsistence to Council Members amounted to £8,266, 13 members re-imbursed (2022: £6,209, 12 members re-imbursed).

#### 15. SCHOLARSHIPS

In 2012 the Teaching Agency approached the IMA to run a Mathematics Initial Teacher Training Scholarship Scheme.

Under such a scheme the institute would be paid by the DFE (for England only) to run the Scheme. In 2012 costs associated with the negotiation were borne by the IMA. In addition DFE paid for a small grant to develop the submission. DFE announced on 21st December 2012 that the Scheme would be run. The amounts awarded by the DFE were as follows:

Year	Award
2019	137,739
2020	128,053
2021	119,920
2022	103,579
2023	143,028

#### 16. Reconciliation of net movement in funds to net cash flow from operating activities

	2023	2022
	Total	Total
	£	£
Net movement in funds	70,593	(23,546)
Add back depreciation	8,831	9,649
Deduct investment income	(10,458)	(4,417)
Decrease/(increase) in stock	(0)	1
Decrease/(increase) in debtors	5,121	298,298
(Decrease)/increase in creditors	34,087	(57,273)
Net cash provided by/(used in) operating activities	<u>108,175</u>	<u>222,711</u>

#### 17. INVESTMENT INCOME

	2023	2022
	Total	Total
	£	£
Interest on cash deposits	10,458	4,417

Investment income includes £874 (2022 £70) in respect of restricted funds.

#### 18. ANALYSIS OF CHANGES IN NET DEBT

	As at 1 Jan 2023	Cash flows	other non- cash changes	As at 31 Dec 2023
Cash	1,731,169	107,791	0	1,838,960
Loans falling due within one year	0	0	0	-
Loans falling due after one year	0	0	0	-
Balance at the end of the year	<u>1,731,169</u>	<u>107,791</u>	<u>0</u>	<u>1,838,960</u>

Appendix B

# Secretariat, IMA representatives and Glossary

## APPENDIX B | Secretariat, IMA representatives and Glossary

### IMA Staff Team

The Institute staffing in 2023 was:

Executive Director – Rosalind Azouzi;

Operations Director – Alan Peacock;

Administration Assistant – Debbie Sullivan

Administration Officer – Karen Hedderley

Administration Officer – Emma Emmerton

Conference and Administration Assistant – Ella Dixon

Conference and Administration Officer – Pamela Bye

Conference and Events Executive – Maya Everson

Editorial Officer – Rebecca Waters

Education Manager and Project Manager, Scholarships – Vanessa Thorogood

Governance Manager – Emma-Jane Wheal

Governance & Diversity Officer – Stacie Lang

IT & Systems Executive – Eugene Kidwell

Marketing Officer – Nikki Barnes

Membership Assistant – Sabeen Hansraj

Membership Development Executive – Jenny May Roberts (from September 2023)

Membership Officer – Natalie Stanton (until November 2023, position vacant at 31 December 2023)

Membership Manager – Caroline Irwin

Scholarships Project Officer – Jaydene Merry

Special Projects Officer – Joanna Baldacci

University Liaison Officer – Erica Tyson (retired February 2023, new post created)

### UK Maths

The IMA continues to work with many organisations in Mathematics, Science and Engineering. The Institute's representatives included over 2023:

- **CMS**

Professor Paul Glendinning (IMA President, University of Manchester)

Dr Martine Barons (IMA Vice President – Learned Society, University of Warwick)

Rosalind Azouzi (Executive Director)

- **Heads of Departments of Mathematical Sciences (HoDoMS)**

Professor M. Grove (University of Birmingham)

- **Joint Mathematical Council**

Professor P. Glaister CBE (IMA Honorary Secretary – Membership University of Reading)

- **sigma**

Professor D. Lawson (Coventry University)

## UK STEM and Others

- **Alliance for Data Science Professionals**  
Professor Paul Glaister CBE (IMA Honorary Secretary – Membership, University of Reading)  
Rosalind Azouzi (Executive Director)
- **EPSRC**  
Professor Sara Lombardo (Herriot-Watt University)
- **Science Council**  
Rosalind Azouzi (Executive Director)

## International

- **ICIAM**  
Professor I.D. Abrahams (Isaac Newton Institute for Mathematical Sciences)  
Professor I. Duff (STFC)

## Glossary

ACME – Advisory Committee on Mathematics Education  
AcadMathSci – Academy for Mathematical Sciences  
AfDSP – Alliance for Data Science Professionals  
AI- Artificial Intelligence  
AMS – Australian Mathematical Society  
BCS – British Computing Society, the Chartered Institute for IT  
BSHM – British Society for the History of Mathematics  
CMath – Chartered Mathematician  
CMS – Council for the Mathematical Sciences  
CPD – Continuing Professional Development  
DfE – Department for Education  
DSIT – Department for Science, Innovation and Technology  
ECM – Early Career Mathematicians  
ED – Executive Director  
EdMS – Edinburgh Mathematical Society  
EPSRC – Engineering and Physical Sciences Research Council  
EuMS – European Mathematical Society  
FE – Further Education  
FRS – Fellow of the Royal Society  
HE – Higher Education  
HEC – Higher Education Committee  
HEdSA – Higher Education Services Area  
HEIs – Higher Education Institutions  
HoDoMS – Heads of Departments of Mathematical Sciences  
ICIAM – International Council for Industrial and Applied Mathematics  
ICMS – International Centre for Mathematical Sciences  
ICTP – International Centre for Theoretical Physics  
IF – Impact Factor  
IMA – Institute of Mathematics and its Applications  
InFOMM – Industrially Focused Mathematical Modelling  
INI – Isaac Newton Institute for Mathematical Sciences  
KE – Knowledge Exchange  
KS2 – Key Stage 2  
KS3 – Key Stage 3  
LMS – London Mathematical Society  
MA – The Mathematical Association  
MEI – Mathematics in Education and Industry  
ML – Machine Learning  
NANAMIC – National Association of Numeracy and Mathematics in Colleges  
NCETM – National Centre for Excellence in the Teaching of Mathematics  
OBE – Order of the British Empire  
OR – Operational Research  
ORS – Operational Research Society  
OU – Open University  
OUP – Oxford University Press  
PAC – Professional Affairs Committee  
QAA – The Quality Assurance Agency for Higher Education  
RSS – Royal Statistical Society  
S&FE – Schools and Further Education  
SIAM – Society for Industrial and Applied Mathematics  
SIAM UKIE – UK and Republic of Ireland Section of SIAM  
STEM – Science, Technology, Engineering and Mathematics  
STFC – Science and Technology Facilities Council  
UKRI – UK Research and Innovation



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