Editorial

Communication is such a universal human concept that it can be hard to untangle precisely what at the IMA should come under the brief of 'Communications and Public Engagement'.

The IMA published your research in one of its journals? That's communication, clearly in the remit of the Vice President for Learned Society.

The IMA invites you to speak about your teaching practice at a workshop? That's communication too, taking place in the area of the Honorary Officer for Education.

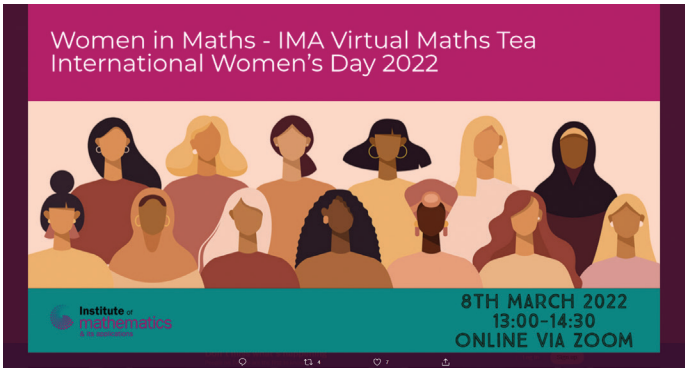
The IMA delivers a workshop at your company about the benefits of chartership? Another communication, overseen by the Vice President for Professional Affairs and Industry.

And so on. Yet I am the Vice President for Communications, tasked with looking after 'Communications and Public Engagement' from 2020 to 2023. I chair the 'Communications Committee', renamed from the 'Web Committee' by my predecessor Noel-Ann Bradshaw CMath FIMA. So just what is it I'm responsible for?

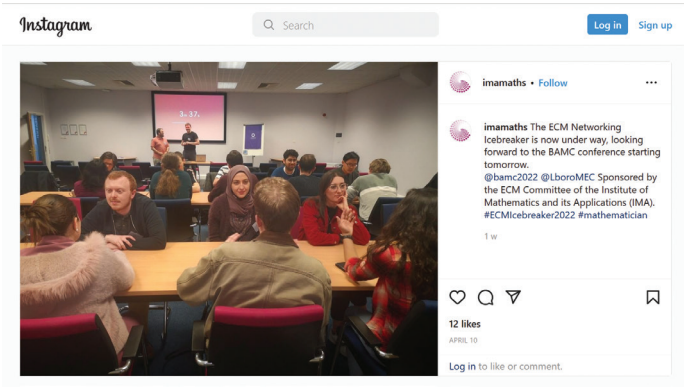
There are core operations for a modern membership organisation, including managing the website, social media and member communications. This work is important and I am keen that the IMA takes a professional approach, empowering its excellent staff – led by Eugene Kidwell and Nikki Barnes – rather than relying on ad hoc volunteer action for this core, day-to-day activity, with the Communications Committee providing strategic input as this is needed.

During the early days of the pandemic, aware that many members were locked-down and newly living their entire professional lives online, we set up a fast-response Social Media Task Group. Social media is operated day-to-day by secretariat staff; this group provides suggestions to and responds to queries from those staff. If you have a flair for social media and might be interested in joining this group, I'd be pleased to hear from you.

This group also developed our Virtual Maths Tea format, an informal, moderated, thematic chat that takes place in a virtual meeting room, nominally over a cuppa. I am grateful to Jenny Macey CMath CSci FIMA, Richard Pinch CMath CSci FIMA and others who have contributed to this successful series on topics such as working from home, diversity and the ethics of AI. We are keen to hear ideas for future topics.



A tweet inviting members to a Maths Tea



ECM Icebreaker at the BAMC

Then there are broader aspects of communication related to our Institute's mission of promoting mathematics.

In communications work it is vital to think of your audience. We communicate with different audiences in different ways, of course. When my six-year-old asks me for a mathematical joke, I might ask him why 6 is afraid of 7, rather than telling him the one about the Banach–Tarski paradox. But there's more than mathematical sophistication to consider when thinking about the different audiences with whom we communicate.

The IMA communicates with its members – including via the excellent magazine you are currently reading – and the wider mathematical sciences community. We might be trying to enable mathematicians to develop themselves professionally or empower them to work towards the IMA's charitable aims for the good of the discipline. We might be trying to convince non-members that they should join the Institute, knowing that we are stronger and more effective in greater numbers, and that individuals, mathematics and society all benefit from professional recognition and chartership.

> … help represent mathematics in the best possible light in areas of public interest …

Our Early Career Mathematicians (ECM) group is active in this area. You may have seen that they recently began publishing interviews with early career mathematicians via the *IMAmaths* YouTube channel, a communication that speaks to IMA members and the wider mathematical community.

Then there is a world of communication beyond professional mathematicians. This comes in lots of different flavours, focused on promoting mathematics as a discipline in different ways.

I've long thought one of the key member benefits is the work the IMA does talking with government and other national bodies on behalf of our community. I am proud to support this important work through my membership fee, and we are currently thinking about how we decide which consultations we respond to and whether we are doing this in the most effective way.

Then there is the question of how we can help represent mathematics in the best possible light in areas of public interest. One of the issues brought to light by the pandemic was the awarding of A-level grades via a dreaded 'algorithm' (gasp!).

Developing understanding of the SARS-CoV-2 virus and its effects has brought greater public attention to the use of data and processes of mathematical modelling. With public attention

on these topics comes poor perception led by misunderstanding of concepts. Why are algorithms heartless? Why don't mathematical models make cast-iron predictions?

I'm pleased to say the IMA has been active in this area through a Modelling and Algorithms Working Party led by Chris Budd OBE CMath FIMA. Through this group, the IMA sponsored a successful meeting of the Parliamentary and Scientific Committee led by David Youdan FIMA and Martine Barons CMath FIMA.

I am keen to explore how the IMA reacts to issues of public interest and engages with the media, and I'm delighted to say Kit Yates FIMA has recently joined the Communications Committee to support our developing thinking.

Beyond topical issues, a really important part of the IMA's mission is promoting mathematics to the general public and especially to future generations.

The IMA can be proud of its record of successful engagement with large-scale maths events. The Institute's own *Festival of Mathematics and its Applications* was established for our 50th anniversary in 2014 and its fourth outing is planned to take place this summer at my own institution, Sheffield Hallam University. The IMA has a vibrant outreach offer for this and other national events such as the *Big Bang STEM Fair* and *New Scientist Live*, work led expertly by Vanessa Thorogood.

Important though this is, I am aware of how much maths engagement work takes place all over this country at local level. The stall at a local library run by academics and students from the nearby university, mathematicians volunteering as STEM Ambassadors, and freelancers tirelessly touring their innovative offerings, to name just a few.

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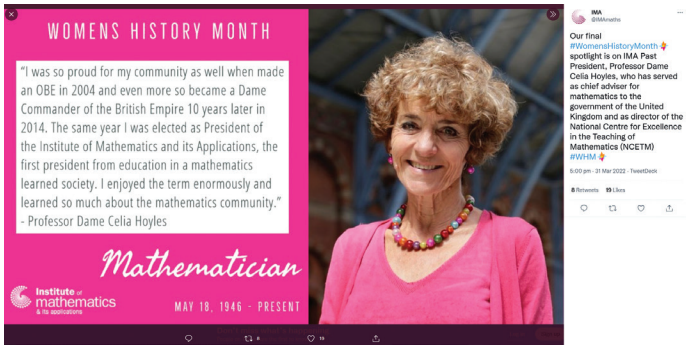
The UK has a vibrant and active community around the communication of mathematics with schools and the general public. This area of work goes under various names. Universities have historically called it 'outreach', which has an unfortunate connotation of 'us' (in our ivory tower?) reaching out to the masses, rather than being a collegial and collaborative activity done *with*, rather than *to*, its participants. Terms like 'maths communication' and 'public engagement' might be too broad for this specific work. This community is served by a conference and network called simply Talking Maths in Public (TalkingMathsinPublic.uk) – inspired by, but separate from, the IMA's 2010 conference *How To Talk Maths In Public*.

IMAmaths YouTube video encouraging people to join the Institute



Part of a series of posts celebrating Women's History Month

Katie Steckles and I have been collecting case studies over the past few years of successful practice in this area under the heading 'maths engagement' (katiesteckles.co.uk/casestudies). We are aiming to represent a diverse range of practice, from events and competitions run by universities and museums to mass communication via books and YouTube channels. We tried to categorise our case studies and found this an interesting challenge. There are various audiences within formal education including at school and university, family events and those aimed specifically at adults. We felt it useful as well to classify the case studies by potential audience engagement level. There are communications aimed at expert or engaged audiences, those that address an audience that is receptive but not active, and those that try to reach people who see maths as 'not for them'.

I believe that the mathematics engagement community has a lot to offer the IMA and our charitable aim to promote mathematics for the benefit of society. The IMA can play its part to support this community.

The IMA has a long history of making high-quality resources that can be used to communicate mathematics, including through the More Maths Grads project and the National HE STEM Programme. Many of these resources are on the MathsCareers.org.uk website and we are thinking about how to make more effective use of them.

We are also thinking about how to support events where mathematicians provide workshops or drop-in stalls. I worked with Communications Committee member Katie Steckles to launch our Maths Communication Resources Grant Scheme. The idea is to provide small grants to maths communicators who then produce a pack of materials for some activity that we will make freely available for anyone to use in their work promoting mathematics. We awarded three grants and the materials are under development.

As I move into the second half of my term as Vice President, I find myself proud of the long-established work the IMA has done on communications and simultaneously excited to see what else we can do.

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