

Present: Peter Olver (Chair), James Davenport (notes), Birgit Seeliger, Gerhard Telschow, Tim Cole, Ravi Vakil, Ingrid Daubechies (President IMU), Thierry Bouche, Laszlo Lovasz, Carol Hutchins, Bill Barton (ICMI, item 5).

Welcome New and returning members, Ingrid, Gerhard (IMU Technician), Birgit (IMU Archivist).

1 Minutes of 2012

It was noted that Weierstrass should be spelled as such in English, but as Weierstraß in German.

Website This minute predates the major redesign of CEIC etc. webpages, which is done and accepted. A re-design of the whole IMU-webpage (not the responsibility of this Committee) would take a lot of effort because it seems to be a good idea

to create a new server with much less overhead (none of the old and unneeded content ...).

Activity Report 2012 This had been published.

2 Terms of References

EC in March 2014 will propose new terms of reference, to be adopted by the GA at ICM 2014.

CH noted “Publicising relevant developments to the wider community via IMU on the Web and other methods”. “IMU on the Web” was meant to be the section on IMUNet, but this wasn’t clear. It was proposed to shorten the sentence to “Publicising relevant developments to the wider community.”

EC

PO proposed to add “instruction” after “publication” in the same bullet point, which would

cover MOOCs etc. This was agreed. **EC**

Third point Currently “issues related to publication and communication”, and this should have the same list as above, i.e. “information, communication, publication, instruction and archiving”. This was agreed. **EC**

Also change “endorse standards (‘best practice recommendations’)” to “endorse standards and articulate best practice recommendations”. This was agreed, as was the deletion of “the use of”. **EC**

Last point Currently “Advising the EC about potential opportunities to foster the growth of electronic infrastructure, and selectively creating tools for this purpose.” It was noted that Committees are poor at creating tools, and very poor at maintaining them. Proposed to make this “Advising the EC about potential

opportunities to foster the growth and development of electronic infrastructure.”
This was agreed. EC

3 World Digital Mathematics Library

May 2012 PO drew attention to the Sloan-funded, CEIC-organised workshop: see the Wiki at http://ada00.math.uni-bielefeld.de/mediawiki-1.18.1/index.php/Main_Page.

Also Sloan has funded a NAS Committee, which will report in October 2013. Ingrid is a co-chair: see <http://www8.nationalacademies.org/cp/projectview.aspx?key=49489>. Sloan view this as similar to Sloan’s funding of the Sky Digital Survey, where Sloan kick-started a major activity. One question is “how will this facilitate research” —

intelligent search is often mentioned: see Wolfram Alpha as an example.

Continued Fractions Sloan has given some funding to Wolfram Alpha to break down articles on “continued fractions”. TC reported that there was machine analysis followed by human labelling: at the current level of automation it would not scale. There were questions about the utility of this — could people please look at this?¹

JHD Noted that OEIS [Slo03, Slo07] was a major existing resource. This has been quoted in Committee debates.

Websites It was noted that the IMU owns [http://www.wdml.org/.](http://www.wdml.org/), but this

¹TC suggests <http://alpha.wolfram.com> and searching “stern-stolz theorem”, “hamburger convergence theorem”. “Euler-Minding formulas” or “zaremba conjecture”. Feel free to use the ‘Give us your feedback’ text box at the bottom of each page or email directly Michael Trott (mtrott@wolfram.com) at Wolfram (one the PIs on the Sloan project).

was currently empty. We should create a sub-page of CEIC, and make <http://www.wdml.org/> point to that until WDML becomes a separate organisation.

GT

TC, CH, PO, and LL would work on the content after mid-July. LL noted that http://www.renyi.hu/~p_erdos/ was relevant.

all

4 Social Media etc.

IMUNet We have just had issue 59b — a special one about the ICM resources for developing countries². GT had some data on circulation, but these were patchy, as it largely a mailing-list of some thousand subscribers. IMUNet was largely sent to

²JHD observed that the two people he had passed this on to had already seen the news elsewhere. But this news is not on the IMU pages!

subscribing bodies, and it was, in principle, their responsibility to disseminate. We have some analytic data from the Weierstrass server (the Piwik tool), but cannot disseminate this for political reasons³. The key point is that the usage is very low.

Facebook There was an IMU facebook page (set up by a student for ICM2010), but this only had 300 ‘friends’. There is more news here than on the mathunion.org/general/news, which seems a pity. One view is that mathunion.org/general/news is “official”, whereas Facebook is not. The news on the Facebook page is largely from the IMU Secretariat.

Misc Ingrid pointed out that there are special logos for elected committees (ICMI, CDC), but not for CEIC. PO noted that the ICMI page did not have a link back to IMU. **GT**

³ID has been in e-mail contact with them, and it is possible to disable the “UserCountryMap” plugin.

News Ravi proposed that every Facebook news item (Lena) should also be posted onto the IMU News blog (Silwia). It was agreed that this would be good, and Ravi should discuss the details with Silwia and Lena in the IMU Office.

RV

Wikipedia This had been significantly updated by LeKoBe (we didn't *know* who this is, but it is presumably Lena Koch, Berlin) in October, and was substantially better than it had been. Lena was commended for this. It was noted that watching this page was a CEIC responsibility. James has added it to his "watch list"⁴.

5 MOOCs etc.

Bill Barton presented a report by himself, Ferdinando Arzarello and John Toland. The word

⁴And added a link to CEIC web pages.

was coined in 2008, and evolution is very rapid. He expects a 5–10 year period of massive evolution. MOOCs tend to come out of consortia: the big ones (at least in the USA) being Coursera, edX and Udacity. Huge enrolment is happening, but completion rates are generally low (< 10%, but 10% of a very large number is still large). Apparently 80% of the people who enrol in MOOCs already have a degree. He felt that MOOC could, broadly, be divided into broadcast and connectivist.

5.1 Avowed Advantages

Revenue Course fees *or* advertising. No evidence of massive earnings.

Branding of institutions or lecturers. also branding of conglomerates.

Supplementary learning opportunities for students. PO — or indeed supplementary to existing courses.

Outreach and access —no evidence so far.

Providing free open learning — see Keith Devlin's MOOC blog.

5.2 Disadvantages

Exploitation of students who get poor pedagogy.

Low completion rates.

Resource costs are greater than expected — but which practitioner is actually surprised?

5.3 Transformative

New modes — certainly different, possibly better.

New pedagogies — we know more about learning than we did even ten years ago.

New attitudes to learning. Raised by Keith Devlin. This separates the learning from

the certification. PO noted that the actuaries, for example, separate certification from teaching. JHD noted that the current university-level fusion between the two is fairly recent.

New institutionalisation.

5.4 Discussion

RV Noted that Stanford was on the front-line, mainly in CS. He was not worried by the drop-out rate. He noted that textbooks had not killed universities.

LL Does such a MOOC teach the same as a small class — probably not.

JHD felt that there was a continuum:

1.0 Class of 15 face-to-face.

1.2 Class of 100 with 2–3 TAs.

1.5 Class of 300+ with 20 TAs, 2 senior TAs etc.

1.7 The UK's Open University.

2.0 Current MOOCs.

PO added

0.7 The professor 1–1 with research student.

0.8 Oxbridge 2:1 tutorial (which also separates teaching from assessment).

CH Had been at a meeting and encountered MAA⁵, who had observed that many people taking MOOCs were older. MAA might try to tap into this market.

LL Noted that mathematics research is funded, not by teaching mathematicians, but by teaching others. JHD noted that this was very country-specific.

OC spoke to Helsinki's work, including peer assessment. They have run on-line courses in calculus for five+ years. Their experience certainly show that good pedagogy

⁵Mathematical Association of America — www.maa.org.

is possible. Matti Pauna's logic course has had better results in the traditional proctored examination than the face-to-face course.

JHD and others noted that there is a great variety — talking about “the MOOC” is as helpful as talking about “the textbook”.

So what should CEIC/IMU do about this? CH noted that ACM has a white paper on MOOCs: (http://www.acm.org/education/online_learning_white_paper.pdf). RV circulated the following ideas for an IMU statement (as edited by CEIC).

1. Recent technological advancements, such as as Massive Open Online Courses (MOOCs), provide many opportunities.
2. We emphasize that such resources are not the same as, or a replacement for, in-person

interaction, where the central part of mathematical education takes place.

3. The IMU encourages all mathematicians to think about how such advances can improve education.
4. The IMU expects and hopes that the provision of freely available courses have the, as yet unrealised, potential for a large impact in bringing more mathematical resources to developing countries.
5. The IMU encourages experimentation of all sorts in this area, and hopes to see significant evaluation of the impact of these initiatives.

It was felt that this would prove a useful “Executive Summary” for an extended version of the Barton *et al.* report. CEIC recommends that the

Barton *et al.* report be expanded on these lines. **BB+**

6 MG's mail and ICM 2014

ID reported that there will be round tables at the session on Mathematical Education. Any MOOC activity of ours should be linked to this.

PO reported that MG had noted that the EC was worried about two issues for ICM 2014:

- cost of knowledge and
- world digital mathematics library (WDML).

TC cautioned against conflating “cost of journals” and “WDML”. Instead of “cost of knowledge” we would rather see “Publishers”. Would it make sense to invite Elsevier? Probably more so than Springer. OC noted Elsevier's people: <http://www.elsevier.com/physical-sciences/mathematics>, and TB suggested <http://www.elsevier.com/about/experts/stm-publishing/>

alicia-wise. We want some-one who can talk about what value publishers *will be* adding to their journal, and how that justifies the cost.

This gave us three activities.

MOOCs Round table joint with Education, which has already been approved by the PC of ICM 2014. One suggestion was Matti Pauna (Helsinki). It would be good to have a presentation on MOOCs adjacent to the “How can we teach better” panel/round table. The first step is to check with Park for the schedule. **ID/PO**

Future of Mathematical Publishing Panel — this would be organised by CEIC with EC’s approval. We need to choose a moderator. TB reported that Jean-Pierre Bourguignon had just been such a moderator recently, and a great success. Gowers should probably be asked, and Robion Kirby. Possibly also Demailly from Epijournals. The first step is to check with

Park for the schedule.

ID/PO

WDML Presentation. Again, the first step is to check with Park for the schedule.

ID/PO

The last GA asked EC to explore ways to improve the infrastructure for developing countries. This led to project MENAO — Mathematics in Emerging Nations: Achievements and Opportunities. See <http://www.icm2014.org/en/events/menao>. There will be a 1½-day event in Seoul immediately before the ICM.

7 Journals

CH had noted the following post to LibLicence.

In light of this conversation about criticism of various publishing practices and what should count as evidence, I wonder how list members feel about the suggestion made in

this blog post that a forum should be created for academic authors to recount both their positive and negative experiences with specific journals: <http://bit.ly/YP9X3y>

7.1 Journal blog

The previous one had been closed. Typo3 had not proved a good vehicle, but WordPress was now the blogging vehicle at IMU. There was some support for a new blog, or family of blogs. There was concern about legal liability etc. JHD quoted a recent case⁶ in the U.K., where Google had been sued over comments on a blog, and it had been held that Google had taken the offending comments down in a reasonable time, so were *not* liable.

It was noticed that the old blog *had* been useful, and attached people who do not nor-

⁶Tamiz v. Google: see <http://www.bailii.org/ew/cases/EWCA/Civ/2013/68.html> and <http://www.scl.org/site.aspx?i=ed31376>.

mally post to the IMU. TC felt that there was currently a gap in the debate over math-specific Open Access debates. PO listed two options:

1. Start a new blog;
2. Have a “noted links” section, with a mechanism for contributions.

ID noted that the IMU tries to support things rather than own them. PO proposed an article in IMUNet with a set of links, and then converting that to a ‘live’ page on the CEIC site. CH reminded us that IMUNet articles should be short. JHD suggested an article pointing to the set of links, and asking for feedback, to a suitable collective e-mail (e.g. publishing@mathunion.org), which should also be archived). RV thought that this could be done via SourceForge, but not everyone would be willing to go via SourceForge.

PO/GT

TC thought that authors without a “support infrastructure” needed advice on where to publish sensibly. The question of reviving the blog was explicitly left open.

7.2 ICSU

PO quoted a mail from John Ball to ID about ICSU's position on Open Access and metrics, which asked three questions.

1. What requirements do funders of research in your country or subject area currently make, or plan to make, as regards open access publication, including open access to data? (Please give links to relevant documents.) What advantages and disadvantages do you see in such open access requirements, whether in your country/subject area or elsewhere?
2. To what extent are metrics being used to evaluate universities, departments and individuals in your country or subject area, what metrics are used, and how are these influencing publication trends and incentives for researchers?
3. What useful role, if any, do you think ICSU can play in these matters?

It was noted that mathematicians, unlike, say, biologists, frequently could not pay for open-access charges. This was a point which IMU could sensibly make. PO will lead a discussion with an aim to get a draft to EC by 1 August. **PO/all**

7.3 OpenAIRE

OC mentioned about OpenAIRE, which is an EU-supported portal that is the gateway to all user-level services offered by the e-Infrastructure established [in the EU].

7.4 World Data System

IMU is now a member. OC had attended the 2012 session, and presented an (open-access⁷) poster, and had written an article for IMUNet.

⁷<http://www.slideshare.net/olga.caprotti/ceic-presentation-of-the-imu-at-codata-2012>.

8 Copyright

8.1 Photographs

ID raised the question of copyright etc. and photographs. In many countries, the person taking the photograph has the copyright. She therefore proposed CC-licences for photographs. TC had noted that Flickr allows⁸ the poster to assert such a licence when uploading. BS noted that the situation for photographs on the IMU website was unclear, also for the (analog) photographs inherited from Helsinki. She noted that Wikimedia (which has an office in Berlin) was an alternative to Flickr. CH noted the Oberwolfach collection, which says “for most photographs ...”. TC and JHD noted that “reasonable diligence” was a good defence, and almost certainly applied to IMU *using* the analog collection. It would be helpful to the secretariat have a statement.

TC/CH

⁸<http://www.flickr.com/commons#faq>.

RV commented that the first item seems to mean that the IMU should be able to get in.

8.2 2001 Copyright Statement

This was an action left over from last year. JHD had been unable to contact Wilf Hodges (the 2001 author), so we were essentially on our own. It was suggested the Henry Cohn (Microsoft)⁹ would be a useful person to contact, and possibly ask him to redraft this.

RV

This document should be written by and for practitioners, but “sanity checked” by the IMUs lawyers and a U.S. one (?AMS).

8.3 ICM Kyoto 1990

IMU had placed these on the web, and had been queried by the paper publisher (Japanese Mathematical Society). TC commented that it was

⁹See his contributions to http://publishing.mathforge.org/discussion/162/wanted-copyright-agreement-heavy-on-authors-rights-ag\#Item_0.

unlikely that a clause written in 1990 included electronic media. IMU needs to clarify this with the Japanese.

SM

TC suggested http://www.hathitrust.org/take_down_policy as a model take-down policy.

We also need to tighten the disclaimer on past ICMs in general.

TC

OC noted that these articles did not show up in Google Scholar: probably because the proceedings were published as monolithic PDFs. This would need to be researched and hopefully implemented.

TB/UR

TC asked whether we should have DOIs for each article.

It was noted (yet again) that the contract for ICMs should include on-line rights for the IMU. We should also add to this a clause to ensure that author metadata is properly collected, with DOIs for each article.

MG

9 Archiving

9.1 Videos

JHD reminded the Committee of section 8.1 of its Berlin 2012 minutes on the copyright of videos at ICM etc., and ID agreed to draw that to ICM 2014's attention. **ID**

9.2 State of play

BS presented the state of play, based on the OAIS workflow model <http://publicccsds.org/publications/archive/650x0m2.pdf>¹⁰. MG hopes to publish the guidelines for archiving based on the CEIC recommendations soon. Producers are MU, ICMI, CEIC but also individuals.

IMU is using a German archiving software Faust 7 (note that this doesn't provide object storage), with storage provided by LTFS. The

¹⁰See also [Bal06, figure 2].

“digital storeroom” is a tape system, shared with Weierstrass (hence physically at two locations). There is a fire-proof safe in the archive at the IMU. Some CDs etc. are still being stored physically, but should be moved to LTFS.

In response to a question from LL, the archiving process is not yet classified in terms of confidentiality requirements. There are some papers in bad physical condition. BS digitises these since she cannot know whether they are valuable. BS is in contact with the NESTOR group in Germany which is her main source of advice.

OC asked what is missing? It depends on the IMU president etc. BS is about to send out letters to past presidents, secretaries and chairs of committees.

9.3 Webpage

The IMU Web Pages are being archived (differences) every week, to allow weekly reconstructions. This is itself part of the tape backup.

10 Other Business

1. Tidy up some links to various versions of the 2001 document (done).
2. Add MathJAX to the software list. **GT**

References

- [Bal06] A. Ball. Briefing Paper: the OAI Reference Model. <http://www.ukoln.ac.uk/projects/grand-challenge/papers/oaisBriefing.pdf>, 2006.
- [Slo03] N.J.A. Sloane. The Online Encyclopedia of Integer Sequences. *Notices A.M.S.*, 50:912–915, 2003.
- [Slo07] N.J.A. Sloane. The Online Encyclopedia of Integer Sequences. <http://www.research.att.com/~njas/sequences>, 2007.

A TC on Book permissions etc.

As I mentioned, HathiTrust currently allows book authors to make available the full-text of their work via the HathiTrust, if they own the rights to a particular book.

See: http://www.hathitrust.org/permissions_agreement and the associated form: http://www.hathitrust.org/documents/permissions_agreement.pdf
note the option to select a Creative Commons license. For more about the various levels of copyright recognized by the HathiTrust, see: http://www.hathitrust.org/access_use.

I will follow-up with John Wilkin (current exec director of HathiTrust) about possibilities for a project that might streamline this process for mathematicians in such a way that the IMU could do a large-scale request through member organizations asking authors to give their permission to make some or all of their works public-viewable.

References

- [Bal06] A. Ball. Briefing Paper: the OAIS Reference Model. <http://www.ukoln.ac.uk/projects/grand-challenge/papers/oaisBriefing.pdf>, 2006.
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