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A Bimonthly Email Newsletter from the International Mathematical Union
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1. EDITORIAL

Mathematics, Local and Global Communities We as mathematicians are very proud to belong to a large international community that every four years pays tribute to its most outstanding representatives. These bonds began over a century ago with the call made by Felix Klein, the German delegate at the Congress of Mathematics and Astronomy held in Chicago in 1893, on the occasion of the Columbian
Exposition: "Mathematicians of the world, unite!"

In essence, the international mathematical community was initially a European community (currently embodied in the institution of the EMS, the European Mathematical Society), which was later extended to North America, These ties have survived to the world greatest conflicts.
Throughout recent decades, other mathematical communities in the countries of East Asia have risen strongly, first in Japan, then in China, India and South Korea; all have undergone a spectacular development. Since 2002, two International Congresses of Mathematicians (ICM) have been held in the region; in Beijing in 2002 and Hyderabad in 2010, while a third is due to be held in Seoul in 2014. In addition, this region - which includes countries with a great diversity of cultures - has acquired a structure with supranational organizations such as the South East Asian Mathematical Society (SEAMS) and the celebration of regional congresses.

Furthermore, a new community has emerged on the other side of the Pacific Ocean, in Latin America. The advances in mathematical research in many of these countries have gone hand in hand with an improvement in economic conditions and the establishment of more stable and more democratic regimes.
National societies have agreed to share activities through, for example, the Unión Matemática de América Latina y el Caribe (UMALCA - TheMathematical Union of Latin America and the Caribbean). This year, in August 2013, the Mathematical Congress of the Americas will be held in Guanajuato, a unique event that for the first time will bring together

mathematicians from the length and breadth of the American continent, from Canada to Argentina and Chile.

The African mathematical community is also showing healthy signs of growth, with the consolidation of the African Mathematical Union (AMU). Despite the many political and socio-economic problems facing African countries, there are nevertheless reasons to feel optimistic. The data on publications in JCR journals over the last 10 years are testimony to the significant growth in these large regional blocks, as well as to their increasing impact.

These geographical groups, which to some extent are those which the International Council for Science (ICSU) wishes to strengthen and which belong to the new socio-economic blocks in the world, must interact mutually.
However, it is up to institutions such as the IMU, in the field of mathematical research, and its ICMI commission, in the field of education, to ensure that this integration is achieved.

The good news is that mathematics is flourishing like never before in the world, while international coordination is stronger than ever, pointing the way forward in a direction that our politicians might do well to follow. The IMU is vital for the success of the international mathematical community in the 21st century; it is also our guarantee and our greatest wealth.

Manuel de Leon
Member of IMU EC

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2. IMU ON THE WEB

The International Digital Publishing Forum (IDF) [1], a consortium which includes many publishing and software firms as institutional members and which promotes standards for electronic publishing, published its EPub 3.0 standard [2] in late 2011. This new standard provides many advantages for mathematics publication, from journals to textbooks. Focusing on journals, the current de facto standard for delivering math articles from journals electronically uses PDF files
-- but in particular for mobile devices such as tablets, PDF files make for an uncomfortable reading experience. The rigid pagination and magnification of PDF content frequently requires readers to zoom and scroll pages excessively. By contrast, EPub3 relies on web standards and technologies (for example, the primary content documents in an EPub3 publication are written in XHTML5, the strict XML syntax variant of the current HTML5 web content standard [3]). This allows text and pagination to reflow based on the demands of the window or screen size, making the reader's experience more natural. Moreover, the XHTML5 content documents also support MathML [5] for including mathematical expressions and Scalable Vector Graphics (SVG) [5] for high-quality rescalable graphics content. The EPub3 specification also allows reader software to

optionally support JavaScript scripting, which allows for interactive embedded graphics and other uses which can be both engaging and mathematically meaningful for readers.

For journal (or textbook) publishers, the EPub3 standard offers many other advantages. Consider, for example, if a reader wants to download just a few articles, but more than one, from a journal issue.
 The EPub3 package manifest, metadata, and "spine" (which provides a linear ordering of the XHTML content documents to guide reader software through page turns between content documents) are all specified in a straightforward XML syntax which can be easily merged in an automated process on the journal's server, allowing the server to dynamically repackage the selected articles into a single EPub3 package for download and delivery. For editorial management, articles can then be submitted as EPub3 packages, which are entirely self-contained even if some of the content includes scripted interactive material, thus avoiding the broken links and software plug-in issues common when taking submissions in plain HTML form.

Software for reading EPub3 publications is becoming increasingly common, with choices available for both Android and iOS platforms (for iOS, Apple's iBook reader does nicely with EPub3, including support for scripting; for Android, the Helicon and IDEAL apps both support EPub3 with varying degrees of success), although the available choices will surely improve in the near future. Interestingly, the software currently available for reading EPub3 on mobile devices all use WebKit technologies (as found in Chrome and Safari browsers) for rendering, and most (especially on Android) use MathJax [6] to implement MathML support. Authoring software is currently more scarce, but BlueGriffon [7] is an interesting (if somewhat expensive) commercial authoring product which supports EPub3, and again, others are sure to come soon.

[1] International Digital Publishing Forum (IDPF):http://idpf.org/ [2] EPub 3.0 materials at IDPF:http://idpf.org/epub/30 [3] W3C HTML5 draft specification:http://www.w3.org/TR/2012/CR-html5-20121217/
 [4] W3C MathML Working Group Home:http://www.w3.org/Math/ [5] W3C Scalable Vector Graphics (SVG) Working Group Home:http://www.w3.org/Graphics/SVG/
 [6] MathJax home:http://www.mathjax.org/ [7] BlueGriffon EPub Edition:http://bluegriffon.org/post/2011/07/05/BlueGriffon-EPUB-Edition

Based on presentation: "Emerging Standards in Electronic Math Publication" At 2013 AMS-MAA Joint Mathematics Meetings Thomas E. Leathrum, Jacksonville State University
email: leathrum (at) jsu.edu

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3. ICM 2014

The next International Congress of Mathematicians will take place in Seoul, Korea, from Wednesday August 13, through Thursday August 21, 2014. We welcome our colleagues from around the world to the congress, and very much hope that you will also be able to attend ICM2014 and savor some of the fine attractions that our country offers. Korea, with a five-millennia-long history, is an attractive place to visit, and Seoul, the capital of Korea for over 600 years, is a city where the traditional and cutting-edge coexist side-by-side in perfect harmony.

Family-friendly ICM
Seoul is filled with great family-friendly activities. For the participants who are accompanying family members, we introduces a course that connects some of Seoul□s best destinations for the traveling family.

NANUM 2014
To make the congress a true world-wide gathering, the Organizing Committee places special emphasis on attracting mathematicians from developing countries. Members of the Korean Mathematical Society fully acknowledge the gracious support received from IMU and the international mathematical community in the 70□s and 80□s, and hope more countries can share the benefits. This has motivated the theme of
- Solidarity in Mathematics -, and the 1,000 mathematicians from developing countries to be invited to Korea during ICM 2014, many of whom would not have been able to visit an ICM otherwise. The Seoul ICM Travel Fellowship Fund was set up for this purpose, and the fund is expected to receive over US$2 million by 2014 mainly from global corporations and individual donors. With the cooperation from IMU/CDC, draft guidelines for this travel assistance program, called "NANUM 2014," have been developed. The Organizing Committee only considers applications for support for research visits made by individual mathematicians with a Ph.D. or equivalent.

About NANUM 2014 in detail
The financial support will be granted in three categories:
45% senior mathematicians
45% junior mathematicians
10% advanced graduate students
The financial support will be granted in five regions:
Africa
East and Southeast Asia including China and North Korea South and West Asia including Indian subcontinent Eastern Europe including North Asia Central and South America The tentative timeline of the application and selection procedure has set Jan. 2013 : Selection of international ambassadors Mar. 2013 : Selection of regional reviewers Jun. 2013 - Aug. 2013 : Call for applications Sep. 2013 - Dec. 2013 : Review applications Jan. 2014 : Notification of acceptance

The pre-registration process for the ICM 2014 is underway. If you have not yet pre-registered, please do so by following the simple instructions at the homepage: http://www.icm2014.org/. The ICM e-News is being circulated to the people who pre-registered for the congress.

Hyungju Park
Chairman, ICM 2014 Organizing Committee

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4. CAPACITY AND NETWORKING PROJECT (CANP)

The Capacity & Networking Project is a successful development project of ICMI supported by IMU, UNESCO and ICSU as well as regional governments and institutions.

The main goal of CANP is to reinforce the mathematics and didactic competences of those responsible for the ongoing professional development of mathematics teachers in developing countries, and to create sustained and effective regional networks of teachers, mathematics educators and mathematicians.

Primarily aimed at mathematics teachers educators, each program also includes mathematicians, researchers, policy-makers, and teachers.

The project consists of an ongoing series of programs in a different developing region each year. Each program includes a two-week workshop of forty participants, half from the host country and half from the region.

The different CANP Programs:
CANP 2011: West Africa.
As a follow-up, CANP-EDiMaths 3 will take place in Burkina Faso in 2015.

CANP 2012: Central America and the Caribbean.
The most important result of CANP Costa Rica 2012 was the establishment of the Mathematics Education Network of Central America and the Caribbean.
http://www.redumate.org/
Some videos on CANP 2012 can be seen here:
http://www.youtube.com/user/redumatematicacyc

CANP 2013: South East Asia.
The third CANP program will be organized at the National Institute for Education in Phnom Penh, Cambodia from 14th to 25th October in 2013.

CANP 2014: East Africa.
A fourth program is planned for 2014 in Tanzania.

Further information about the CANP can be found here:
http://www.mathunion.org/icmi/other-activities/outreach-to-developing-countries/canp-project/

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5. WORKSHOP OF MATHEMATICS OF CLIMATE CHANGE, RELATED NATURAL HAZARDS AND RISKS

Applications are invited of a 5-day workshop that is organized as a satellite activity of the 2013 Mathematical Congress of the Americas at CIMAT in Guanajuato (Mexico) during July 29 -- August 2 2013. The workshop will bring together about 40 young researchers, mainly from Latin America and the Caribbean and a dozen distinguished scientists, each of which will give several lectures on a chosen topic.

The workshop is part of the world initiative "Mathematics of Planet Earth 2013" which is endorsed by IMU (www.mpe2013.org). It is jointly organized by IMU together with the International Union of Geodesy and Geophysics (IUGG) and the International Union of Theoretical and Applied Mechanics (IUTAM). It is sponsored by the International Council of Industrial and Applied Mathematics (ICIAM), and supported by ICSU Regional Office for Latin America and the Caribbean, by two interdisciplinary bodies of ICSU, namely IRDR (Integrated Research on Disaster Risk) and WCRP, by the US National Academy of Sciences, by the Academia Mexicana de Ciencias, and by CIMAT (Centro de Investigación en Matemáticas) in Mexico. Hopefully the workshop will be funded by ICSU. The members of the Scientific Committee are Susan Friedlander (IMU), Ilya Zaliapin (IUGG) and Paul F. Linden (IUTAM).

More details and application form at: http://cams.usc.edu/mathgeo

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6. PASSING AWAY OF PROFESSOR LARS HORMANDER

Professor Lars Hörmander passed away on 25 November 2012.
After having held positions as professor in Stockholm, at Stanford and at the Institute for Advanced Study in Princeton, Lars Hörmander was appointed professor in Lund, where he remained until his retirement.
In 1962 he received the Fields medal for his pioneering work on linear partial differential equations. His further work on partial differential equations, including studies of pseudo-differential operators and the introduction of Fourier integral operators, has been most influential, as has his contribution to the theory of multidimensional complex analysis.
http://www.nytimes.com/2012/12/07/world/europe/lars-v-hormander-mathematician-dies-at-81.html?emc=eta1&_r=0

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7. MATHEMATICS OF PLANET EARTH 2013 (MPE2013)

IMU will host an MPE Day at UNESCO in Paris on March 5 2013 (www.mpe2013.org/mpe-day-at-UNESCO). This day will coincide with the European launch of MPE2013 and with the launch of the International MPE Exhibition. The winners of the MPE competition will receive their prize on this occasion.

MPE2013 is now endorsed by the International Council of Science (ICSU).

The number of partners of MPE2013 is over 125 and continues to increase. Several of the new partners are academic partners, and decide to organize local activities in their region.

The Simons Foundation confirmed its support for a whole series of nine MPE Public Lectures to take place around the world. High quality videos of the lectures will be produced and placed on the website on the Simons Foundation. The first MPE Simons Public Lecture was given by Simon Levin in Melbourne (Australia) on January 29 2013 as part of the Australian launch of MPE2013.

There are now two daily blogs, one in English at wwww.mpe2013.org/blog/ one in French at http://mpt2013.fr.
Both blogs are looking for bloggers! If you want to blog in English, send a message at blog@mpe2013.org, and if you want to blog in French, then send a message to 1jour1breve@mpt2013.fr.

Many countries have held national launches of MPE2013 (Canada, Malaysia, UK, USA, Australia). Some countries are planning to organize their national launch on March 5 2013 at the same time as the MPE Day at UNESCO. Holding a national MPE launch raises a lot of enthusiasm in the country: it alerts many members of the community including the public and the schools, who did not know about it. It is also an occasion for the researchers to learn some of the beautiful mathematical problems behind the planetary issues.

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8. SUBSCRIBING TO IMU-NET

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