

**Report of the 18<sup>th</sup> General Assembly\*  
of the International Mathematical Union (IMU)**

**São Paulo, Brazil  
July 29, 2018. (09:00 – 18:15 hrs)  
July 30, 2018. (09:30 – 17:00 hrs)**

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## 1. Opening of the 18th General Assembly

### 1.1. Welcome

The IMU President Shigefumi Mori opened the 18<sup>th</sup> General Assembly (GA) of the IMU and cordially welcomed the participants of the meeting. He warmly thanked the organizers of this meeting including the many volunteers for their dedicated work for the smooth functioning of the GA meeting. The Chair of the Local Organizing Committee of ICM 2018 Marcelo Viana as well as the Chair of the Local Organizing Committee of the 2018 IMU GA Paolo Piccione expressed cordial salutations to the attendants of the GA meeting and wished them a pleasant stay and excellent work during the two-day meeting.

### 1.2. Approval of agenda and guide through the GA documents

IMU Secretary Helge Holden explained the abbreviations used in the agenda and the GA documents. He gave a short survey on how the GA documents were composed and how to use them and alerted that the meeting is audiotaped and videotaped. All tapes are destroyed once the GA report has been completed.

The GA agenda was approved without any changes or modifications.

**The General Assembly approved the agenda without any changes or modifications.**

*VOTE (by show of hands): IN FAVOR = Unanimous*

Helge Holden mentioned that the order of consideration of any agenda item may be changed at the President's discretion.

### 1.3. Countries in arrears: Decision on voting rights

IMU Treasurer Alexander Mielke reported on the current state of countries in arrears with their dues payments, and he quoted the applicable article of the Statutes:

*“32. Any Adhering Organization which is in arrears with its contributions for two years shall be warned and shall be deprived of its voting rights.*

*Any Adhering Organization which is in arrears for four years shall cease to be an adherent of the Union.*

*In any case, before taking action, the Executive Committee shall submit the question to the Members of the Union by postal ballot or at a meeting of the General Assembly who under special circumstances may waive these provisions by a two-thirds majority of the total number of votes assigned to the Members.”*

Helge Holden accounted on how he kept contact with those countries informing them about their status of membership dues settlement.

On June 25, 2018, 10 countries were in arrears with their contributions (up to and including year 2017), of which

- 7 countries for more than two years:

Cuba, Iran, Kazakhstan, Montenegro, Peru, Ukraine, and Venezuela.

- 2 countries for four or more years:

Montenegro and Venezuela.

**Motion (regarding loss of voting rights): With reference to Article 32 in the IMU Statutes, Cuba, Iran, Kazakhstan, Montenegro, Peru, Ukraine, Venezuela are deprived of their voting rights at the 18th General Assembly of the IMU.**

**The General Assembly decided, with reference to Article 32 in the IMU Statutes, that Cuba, Iran, Kazakhstan, Montenegro, Peru, Ukraine, and Venezuela are deprived of their voting rights at the 18th General Assembly of the IMU (Iran, Kazakhstan were represented at this GA).**

*VOTE (by show of hands): IN FAVOR = Majority*

**Resolution (regarding loss of membership): With reference to Article 32 in the IMU Statutes, Montenegro and Venezuela will cease to be members of the IMU by 31 December 2018.**

*The loss of membership issue was discussed and voted on in Item 20.5.*

## 2. Appointment of the following Subcommittees

### 2.1. Credentials Committee

Alicia Dickenstein explained the duties of the Credentials Committee and presented the proposed committee to the General Assembly.

Duties of the Credentials Committee:

- *Review the list of delegates that have registered at the General Assembly and verify each delegation is correctly constituted and present the list to the President of IMU*
- *Ensure that voting procedures are understood*

The General Assembly approved the Credentials Committee for the GA 2018 as follows:

Chair: Ragni Piene (Norway)  
Aubín Arroyo (Mexico)  
Guillermo Villavicencio (Australia)

*VOTE (by show of hands): IN FAVOR = 148, OPPOSED = 1, ABSTENTIONS = 1*

### 2.2. Finance and Dues Committee

Christiane Rousseau explained the duties of the Finance and Dues Committee and presented the proposed committee to the General Assembly.

Duties of the Finance and Dues Committee:

- *Review the proposed 2019-2022 budget*
- *Make recommendations to the General Assembly concerning dues unit increase*
- *Make recommendation to the General Assembly concerning action to be taken regarding dues in arrears*

The General Assembly approved the Finance and Dues Committee for the GA 2018 as follows:

Chair: Freddy Dumortier (Belgium)  
Chen Dayue (China)  
Étienne Desquith (Ivory Coast)  
Nouri Fatma (Algeria)  
Riddhi Shah (India)  
María de la Luz de Teresa (Mexico)  
Günter M. Ziegler (Germany)  
Ex officio: Alexander Mielke, Helge Holden, Sylwia Markwardt

*VOTE (by show of hands): IN FAVOR = Unanimous*

### 2.3. Election Committee

Martin Grötschel explained the duties of the Election Committee and presented the proposed committee.

*Item 5. of the Procedures for Election:*

- a. *On the first day of the GA meeting, an **Election Committee is formed which consists of all members of the Nominating Committee and all Past IMU Presidents present at the GA and, if necessary, further GA delegates elected to reach a membership of at least five.** The election shall be from names either proposed by the President or proposed and seconded from the floor by show of hands, unless the meeting decides otherwise. The Election Committee is chaired by the Chair of the Nominating Committee, or if unavailable, by the IMU President. The Election Committee is responsible for handling the election process and deciding on all issues related to it that may arise.*
- b. *The Chair of the Election Committee presents the EC, CDC, and ICHM slates to the General Assembly*

**(Just for information)** *IMU Nominating Committee 2018: Martin Grötschel, Germany (chair); Shigefumi Mori, Japan (IMU President, ex officio); Martin Kalina, Slovakia; Niky Kamran, Canada; Ursula Molter, Argentina; Cheryl Praeger, Australia; Daya Reddy, South Africa.*

Duties of the Election Committee:

- *Settle all issues coming up during the election process in particular*
  - *Oversee the form of the ballot papers*
  - *Clarify all matters coming up when suggestions from the floor are made*

The General Assembly approved the Election Committee for the GA 2018 as follows:

Chair: Martin Grötschel (Germany)  
 Ingrid Daubechies (USA)  
 László Lovász (Hungary)  
 Shigefumi Mori (Japan)  
 Cheryl Praeger (Australia)  
 Daya Reddy (South Africa)

*VOTE (by show of hands): IN FAVOR = Unanimous*

### 2.4. Resolutions Committee

John Toland explained the duties of the Resolutions Committee and presented the proposed committee.

Duties of the Resolutions Committee:

- *Accept resolutions put forth by delegations prior to the close of the first day's sessions of the General Assembly (July 29)*
- *Review and edit resolutions received from the delegations*
- *Formulate resolutions*
- *Present the resolutions to the General Assembly with recommendations*

The General Assembly approved the Resolutions Committee for the GA 2018 as follows:

Chair: Rolf Jeltsch (Switzerland)

John Hunton (UK)  
 David Natroshvili (Georgia)  
 Ken Ribet (USA)  
 Sandra Di Rocco (Sweden)  
 Senjo Shimizu (Japan)

*VOTE (by show of hands): IN FAVOR = 148, OPPOSED = 0, ABSTENTIONS = 2*

## 2.5. Tellers Committee

Vasudevan Srinivas explained the duties of the Tellers Committee and presented the proposed committee.

Duties of the Tellers Committee:

- *Distribute ballots*
- *Collect ballots*
- *Verify ballots and discard invalid ballots*
- *Count the votes*
- *Report the outcome to the President of IMU*

The General Assembly approved the Tellers Committee for the GA 2018 as follows:

Chair: Sun-Yung Alice Chang (USA)  
 Lucia Caporaso (Italy)  
 Mirjana Djoric (Serbia)  
 Hai Phung Ho (Vietnam)  
 Jonghae Keum (Republic of Korea)  
 Nasser Sweilam (Egypt)

*VOTE (by show of hands): IN FAVOR = Unanimous*

The IMU President explained the voting procedure which is stipulated in Articles 20 and 35 of the IMU Statutes with particular reference to simple majority and two-thirds majority description:

The total number of votes assigned to all members of the IMU is 173. According to Article 32, seven members of the IMU are deprived of a total of 12 votes. Thus, the total number of votes for all members of the IMU is 161. A two-thirds majority means at least 108 votes. As of now, 150 votes are present at the General Assembly.

## 3. Review of the activities of the Union

### 3.1. Overview on Union activities (report of the IMU EC)

Presented by Helge Holden, IMU Secretary

#### **EC meetings**

Meetings of the IMU EC during the period 2015–2018:

86th EC meeting, Berlin, 14–15 March 2015

87th EC meeting, Kyoto, 2–3 April 2016

88th EC meeting, London, 1–2 April 2017

89th EC meeting, Montreal, 10–11 March 2018

90th EC meeting, São Paulo, 28 July 2018

The IMU expresses its gratitude to the host institutions for these EC meetings for their hospitality and support.

The IMU EC has appointed Alexander Mielke as the IMU Treasurer. The IMU EC has appointed a number of persons to represent the IMU in various bodies.

A full list appears in the papers for the 2018 General Assembly.

### **Membership of the IMU**

The IMU has been able to increase its membership.

New members of the IMU (all in Group I): Malaysia, Kenya, Luxembourg, Morocco, Senegal, Thailand, and Oman.

New Associate Members of the IMU for a four-year term: Paraguay, Bangladesh, and Uzbekistan.

A second four-year term as an Associate Member of the IMU: Madagascar, Gabon, and Papua New Guinea.

Turkey has been upgraded to Group II, and Brazil to Group V.

The Mathematical Council of the Americas has been admitted as a new Affiliate member of the IMU.

Currently, the IMU has 87 regular and Associate Members and five Affiliate Members.

BUT:

116 countries participated in the International Mathematical Olympiad in 2018

193 countries are members of the UN

206 countries participated in the Rio Olympic Games in 2016

211 countries are recognized by FIFA

215 countries are members of the IAAF



### **Permanent IMU Secretariat**

Since January 2011, the Secretariat of the IMU has been based in Berlin, Germany, generously supported by a grant from the Federal Republic of Germany and the State of Berlin and hosted by Weierstrass Institute for Applied Analysis and Stochastics (WIAS). The financial support from Germany exceeds the total membership dues.

As of April 2018, the IMU premises are in Hausvogteiplatz 11A in the center of Berlin. The venue consists of four offices, the IMU Archive, a lounge, a meeting room, as well as a small kitchen, wardrobe, and bathrooms.

The IMU Secretariat provides full administrative support for:

the IMU Executive Committee,

the Commission for Developing Countries (CDC),

the International Commission on Mathematical Instruction (ICMI),

all financial transactions of the IMU.

The IMU Archive, containing the historical material from the early days of the IMU up to today, is physically located in the IMU premises.

The IMU Secretariat is responsible for maintaining the IMU website as well as the mail servers.

The stable IMU Secretariat has resulted in a considerable increase in the total volume of activities of the IMU. Without the IMU Secretariat and the generous financial support from Germany, the level of activity would have to be drastically reduced.

It has also increased the expectations of what the IMU Secretariat can do. Thus, the IMU Secretariat is currently at its maximum capacity with the present staff. This implies that if the IMU Secretariat is to take on a new project, already existing projects will have to be reduced equally.

During the last term the IMU has launched two major grant programs, the Graduate Research Assistantships in Developing Countries (GRAID) and Breakout Graduate Fellowships in strong collaboration with the Commission for Developing Countries (CDC), where the administration has been outsourced, and requires limited administrative support from the IMU Secretariat. These arrangements will be evaluated by the 2019–2022 IMU EC.

⇒ See Item 9 in the GA Agenda.

### **Commissions and Committees**

After the GA 2014, the EC decided to create the **Committee for Women in Mathematics (CWM)** and Terms of Reference were decided. The CWM was initially allocated the same budget as the Committee for Electronic Information and Communication (CEIC). The CWM has been exceptionally active. In collaboration with several organizations, the CWM initiated and leads a grant of 100,000 EUR per year for three years, from 2016 to 2019, from the International Science Council (ISC).

The IMU offers a wide range of measures to assist and support mathematicians in developing countries through its **Commission for Developing Countries (CDC)**. There is a need for an operative and transparent definition of what constitutes a developing country. The CDC proposed, and the EC approved, a definition based on the Gross Domestic Product (GDP) per capita, as collected in US dollars (USD) by the UN for a certain date. A country with a GDP per capita of less than 11,000 USD is considered a developing country. Countries with lower GDP per capita are given higher priority. Countries with a GDP per capita close to 11,000 USD are handled at the discretion of the committee. This definition applies to all IMU activities, and it has simplified the handling of applications and made decisions more transparent and predictable. The experience that the IMU has gained during this term will be evaluated by the 2019–2022 CDC and EC.

### **ICM 2018**

The IMU EC has selected members of the Program Committee (chaired by János Kollár), as well as all prize committees in accordance with the IMU guidelines.

The IMU EC has been in regular contact with Marcelo Viana, the Chair of the Local Organizing Committee during this term to discuss various issues. The IMU has offered financial support to the organizers of the ICM, with additional funds offered to supplement the Open Arms program to support participations from developing countries.

⇒ See also Items 6 and 18 in the GA Agenda.

### **GA 2018**

The IMU Secretary and Manager have been in regular contact with Paolo Piccione, the Chair of the Local Organizing Committee for the GA. The General Assembly is the governing body of the IMU, and it is instrumental for legitimacy of the decisions made by the General Assembly that most of the IMU Adhering Organizations are present. The IMU EC made the unprecedented decision to offer full support of all local expenses for all Delegates and Representatives during the General Assembly meeting. In addition, a travel grant is offered for one person from each country to attend the General Assembly meeting.

**New IMU website** [www.mathunion.org](http://www.mathunion.org)!



The IMU has completely redesigned its website and those of its Commissions and Committees. For the first time the IMU and all its bodies appear in a uniform manner on the web.

The development was partially supported by WIAS and followed EU regulations regarding acquisitions.

The new website was launched in December 2017.

### Advice for the Adhering Organizations

We want to stay in touch with you! Please:

1. Create *generic addresses* like “president@mathsociety.country”, which will remain unchanged.
2. Emails sent from the IMU should be received by at least *two different recipients*.
3. Give us at least *two different email addresses*, preferably using different mail servers.
4. Please try to *maintain the email addresses* you give us – send us emails updating the data.
5. Please *create a stable URL* for your Adhering Organization.

#### 3.1.1. Report on actions from resolutions from GA 2014

Presented by Helge Holden, IMU Secretary (actions on main resolutions)

#### Resolution 6

The General Assembly requests that the Executive Committee review the instructions given to the ICM Program Committees concerning the following goals:

- 1) to achieve gender and geographical balance among plenary and sectional speakers;
- 2) to ensure that the structure of the program reflects the current state and development of all mathematical areas.

The GA asks that each ICM Program Committee present an interim report to the EC about issue 2) at the time it has a proposal for the structure of the program and for the division into “sections”, and that the final report of the Program Committee to the EC about their work specifically address both issues 1) and 2).

*Action:* The Program Committee presented its interim report to the EC in an email in Oct 2015. In March 2016 the Program Committee communicated the section descriptions to the EC with the target number of lectures in each section. In Circular Letter 1/2016 the sections were communicated to the AOs together with an invitation to nominate plenary and sectional speakers. The final report of the Program Committee was submitted to the EC on Jan 27, 2018

⇒ See Items 6.1 and 18 in the GA agenda.

#### Resolution 9

The General Assembly permits the IMU Executive Committee to develop Terms of Reference for the International Commission on the History of Mathematics.

*Action:* Terms of Reference posted on the IMU website, see <https://www.mathunion.org/ichm/about-us/about-us>.

⇒ See Item 15.3 in the GA agenda.

#### Resolution 11

The 2015–2018 EC should establish, in 2015, an ad-hoc committee that will consider possible adjustments of the rules governing the IMU prizes and medals. This committee, appointed by the EC and consisting of past chairs of IMU award committees (Fields, Gauss, Nevanlinna, etc.), could, in particular, formulate recommendations about

- 1) announcing the prize winners before the opening ceremony of the ICM,
- 2) the possibility of single awards being shared by several collaborators, and
- 3) changing or relaxing the currently specified age limits.

The committee should report on its work, including recommendations it wishes to make, to the EC prior to the 2016 EC meeting. Recommendations approved by the EC will be sent to the AOs in 2016, for their consideration, in preparation for voting by the AOs.

*Action:* ⇒ See Item 4.1 in the GA agenda.

### **Resolution 12**

An IMU member will automatically lose its membership by the end of 2015 if at present (August 11, 2014) it is four or more years in arrears, and if the EC finds that two or more years of dues remain unpaid by December 31, 2015.

*Action:* All countries affected by this resolution paid their dues in time.  
⇒ See Item 20.5: Termination of membership in case of unpaid dues (this GA)

### **Resolution 13**

The General Assembly requests that the IMU Executive Committee study the feasibility of introducing a new category of “IMU Regional Member”.

*Explanation:* [abbreviated]

Eligibility requirements would include

- 1) that the group of countries shall be contiguous or closely related, geographically,
- 2) that no country in the regional group be an IMU member country,
- 3) that each individual country in the group shall already have status as an associate member in good standing of the IMU,
- 4) that the cumulative mathematical level in the regional group, taken together, meets IMU standards,
- 5) that there is a regional organization that can collectively represent the countries in the region according to the norms IMU requires of its current adhering bodies.

*Action:* ⇒ See Item 20.6 in the GA agenda.

#### 3.1.2. Change of title for IMU Secretary to IMU Secretary General Revised IMU Statutes to include changed title

The IMU President noted that after re-establishment of the IMU after WW II it was decided to call the position IMU Secretary.

He presented arguments for change as follows:

- Secretary General is the common title worldwide for positions of this type. See, e.g., member societies of ICSU. Furthermore, our own commission ICMI uses the title Secretary General.
- Secretary General was used by the IMU before World War II.

- Secretary is often misunderstood. When the IMU is contacted, it happens repeatedly that emails are sent to the Head of the Secretariat, the Manager of the Secretariat, in fact, all persons in the IMU Secretariat except for the IMU Secretary.

**Resolution: That the IMU Secretary be denoted Secretary General. The IMU Statutes be changed correspondingly.**

**The General Assembly approved that the IMU Secretary be denoted Secretary General and the IMU Statutes be changed correspondingly.**

*VOTE (by show of hands): IN FAVOR = 149, OPPOSED = 0, ABSTENTIONS = 1*

### 3.2. Portfolio of guidelines

Presented by Helge Holden, IMU Secretary

The IMU has developed several guidelines for different parts of its activities. The guidelines codify the activities of the IMU, make actions and procedures more transparent and predictable, and provide to-do-lists and reminders for everyone involved in the diverse IMU activities.

Guidelines include (submit proposals for changes to <secretary@mathunion.org>):

- Conflicts of Interest Guidelines
- PC/OC Guidelines
- GA Guidelines
- IMU Archiving Guidelines
- ICM Bidding Guidelines

#### **Motion:**

- 1. The IMU EC has the authority to make smaller changes in the IMU guidelines.**
- 2. Important changes have to be approved by the AOs.**
- 3. Current versions will be presented at each General Assembly.**

**The General Assembly approved that**

- 1. The IMU EC has the authority to make smaller changes in the IMU guidelines.**
- 2. Important changes have to be approved by the AOs.**
- 3. Current versions will be presented at each General Assembly.**

*VOTE (by show of hands): IN FAVOR = 148, OPPOSED = 0, ABSTENTIONS = 2*

## 4. IMU Awards

### 4.1. Res. 11 of GA 2014, possible adjustments of the rules governing the IMU awards

Helge Holden read the resolution 11 passed by the IMU GA 2014.

#### **Resolution 11**

The 2015–2018 EC should establish, in 2015, an ad-hoc committee that will consider possible adjustments of the rules governing the IMU prizes and medals. This committee, appointed by the EC and consisting of past chairs of IMU award committees (Fields, Gauss, Nevanlinna, etc.), could, in particular, formulate recommendations about

- 1) announcing the prize winners before the opening ceremony of the ICM,
- 2) the possibility of single awards being shared by several collaborators, and
- 3) changing or relaxing the currently specified age limits.

The committee should report on its work, including recommendations it wishes to make, to the EC prior to the 2016 EC meeting. Recommendations approved by the EC will be sent to the AOs in 2016, for their consideration, in preparation for voting by the AOs.

The action taken was as follows:

The EC established an ad-hoc committee composed of John Ball (chair), Robert Bryant, Maria J. Esteban, Vaughan Jones, László Lovász, Ragni Piene, Alfio Quarteroni, and Avi Wigderson.

The committee provided a detailed report on its work to the EC and concluded as follows

*The overall advice of the committee is that there should be no change to the current stated position of IMU on any of the above three questions.*

The EC unanimously decided to endorse the ad-hoc committee's recommendation.

The ad-hoc committee's report and EC's endorsement were sent in Circular Letter 3/2016 to the AOs with the request to send possible proposals. No proposals were received by 1 Jan 2018.

No further actions regarding possible adjustments of the rules governing the IMU prizes and medals will be taken.

#### 4.2. Adjustment of the Nevanlinna Prize

Presented by Shigefumi Mori, IMU President

The IMU President read the following statement.

*It was decided at the 88th meeting of the IMU Executive Committee (EC) in March 2018 in Montreal that 2018 would be the last year at which a Rolf Nevanlinna Prize be awarded by the IMU. The unanimous vote of the EC on the matter was made after consulting with and under the agreement of IMU's Adhering Organization in Finland which was and will be responsible for funding the prize until the ICM 2018.*

***Background and rationale for the decision:***

*The history of the prize is that in 1981 the Executive Committee of the IMU decided to establish a prize in information sciences and in 1982 accepted an offer from the University of Helsinki to finance it. Consequently, it was named after a former President of the IMU, Rolf Nevanlinna (1895–1980), who had been Rector of the University of Helsinki and who had taken various initiatives to organize computer science in Finnish universities. Since its inception the prize laureates have all been individuals of outstanding ability who have made ground-breaking contributions to theoretical computer science and the IMU is extremely grateful to the Finnish community for its generous sponsorship of this initiative.*

*However, the IMU has been approached over a long period and by several individuals regarding the naming of this Prize. These individuals found it unacceptable that the IMU should award a prize that carries the name of Rolf Nevanlinna, due to allegations regarding his behavior during World War II. While the IMU is in no position to pass judgement in this matter, the IMU EC decided that the matter could not be ignored as it could tarnish the reputation of the IMU and the Nevanlinna prize recipients.*

*The Executive Committee asks the General Assembly to consider the question on the type of future involvement of the IMU in a prize in this area.*

**Background for the question:**

*After careful consideration, and in view of the need to emphasize the unity of mathematics that it stands for, the IMU EC felt that it is no longer appropriate for IMU to single out for recognition and encouragement this particular and important area of mathematics only, in the same way as the Nevanlinna Prize had been set up to do. The EC felt that this prize has successfully served its purpose, to foster and encourage research in this direction, that has now become a core part of contemporary mathematics and that extraordinary work in this field can naturally be recognized by a Fields medal.*

*The current rules for instance mean that a Nevanlinna Prize winner (say at the age of 35) becomes ineligible for a Fields Medal four years later, but there is no procedure in place to handle the case where the Fields and Nevanlinna committees choose the same name. Furthermore, the Nevanlinna Prize identifies two areas within Mathematical Aspects of Information Sciences, namely “mathematical computer science” and “computational mathematics”. To date the Nevanlinna Prize has only been awarded in the first area.*

*On the other hand, the Nevanlinna Prize is an established important prize for the theoretical computer science community, and it would be natural that some new prize in this area should be set up. IMU bears a responsibility for this important prize and to its past Nevanlinna prize laureates.*

*In any case, setting up such a new prize is a delicate issue. Name, choice of funding and institutional partners, role of IMU and all the implications of these choices would need to be carefully thought through. The IMU is involved with some prizes that are not IMU prizes per se, but carry the IMU approval, e.g., the Ramanujan prize for young mathematicians from developing countries, which is awarded jointly by the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy, the Department of Science and Technology of the Government of India (DST), and the IMU.*

*The IMU EC therefore asks the Adhering Organizations of the IMU to decide between the following three alternatives:*

**Alternative 1:**

The IMU takes no further action. A possible successor of the Nevanlinna Prize would be without formal IMU involvement.

**Alternative 2:**

The 2019–2022 IMU EC is asked to participate in the creation of a new prize in collaboration with another institutional partner. The scope of this prize and the IMU involvement would mean that this prize might be recognized as a natural successor of the Nevanlinna Prize. The statutes for this new prize would avoid the unwanted risk that work on Nevanlinna Prize themes might de facto be excluded from consideration for Fields Medals.

**Alternative 3:**

The 2019–2022 IMU EC is asked, after it has given careful consideration to all the issues involved, to set up a prize with a new name and funding yet to be determined, with the same purpose and scope as the Nevanlinna Prize. The only difference would be the name and funding.

The side effect that work on Nevanlinna Prize themes might de facto be excluded from consideration for Fields Medals, would persist.

In case Alternative 2 or 3 is selected, the statutes of the new prize will be sent to the Adhering Organizations for approval by a postal ballot.

After discussion of the issue a vote was made in order to choose the favored Alternative to be put to vote afterwards.

*VOTE (by show of hands) in order to select between Alternative 1, 2, or 3:*

*IN FAVOR of Alternative 1 = 10*  
*IN FAVOR of Alternative 2 = 4*  
*IN FAVOR of Alternative 3 = Majority*

The GA proceeded to vote on Alternative 3:

**The General Assembly approved that the 2019–2022 IMU EC is asked, after it has given careful consideration to all the issues involved, to set up a prize with a new name and funding yet to be determined, with the same purpose and scope as the Nevanlinna Prize. The only difference would be the name and funding. The side effect that work on Nevanlinna Prize themes might de facto be excluded from consideration for Fields Medals, would persist.**

*VOTE (by show of hands): IN FAVOR = 140, OPPOSED = 2, ABSTENTIONS = 8*

#### 4.3. Statutes for the IMU prizes and awards

Presented by Helge Holden, IMU Secretary

Since the IMU had no formal statutes for any of the IMU awards the EC has decided to collect the material presented on various IMU webpages and in contracts with founding bodies and formalize the material into statutes presented to the GA for information. However, during the term 2015–2018, the IMU EC had to consider some global modifications of the statutes for IMU prizes to be discussed by the GA. The EC is proposing the following changes to the statutes.

Resolution 1:

Any person can receive no more than one IMU award (Fields, Nevanlinna, Chern, Gauss, and Leelavati).

Resolution 2:

An ICM Emmy Noether Lecturer cannot have been a Plenary Speaker at an earlier ICM and can give the lecture only once.

Resolution 3:

No person can receive an IMU Award or be an ICM Emmy Noether Lecturer while serving on the IMU Executive Committee.

Considering the discussion by the GA, Resolution 1 was reformulated as follows:

Resolution 1:

Any person can receive no more than one IMU award (Fields, Nevanlinna, Chern, Gauss).

**The General Assembly approved changes to the Statutes for IMU prizes as follows:**

- 1. Any person can receive no more than one IMU award (Fields, Nevanlinna, Chern, Gauss).**
- 2. An ICM Emmy Noether Lecturer cannot have been a Plenary Speaker at an earlier ICM and can give the lecture only once.**
- 3. No person can receive an IMU Award or be an ICM Emmy Noether Lecturer while serving on the IMU Executive Committee.**

*VOTE (by show of hands): IN FAVOR = Majority*

*Note that the wording of the Resolution was modified by the Resolutions Committee, and the final text appears in Resolution 8 (p. 61).*

## 5. International Day of Mathematics

Presented by Christiane Rousseau, IMU EC Member

**An International Day of Mathematics (IDM)**, A project prepared by IMU

The *IDM* has the support of

- AMU: African Mathematical Union
- CWM: Committee for Women in Mathematics of the International Mathematical Union
- EMS: European Mathematical Society
- ICIAM: International Council of Industrial and Applied Mathematics
- ICMI: International Commission on Mathematical Instruction
- MCA: Mathematical Council of the Americas
- UMALCA: Unión Matemática de América Latina y el Caribe
- SAMSA: Southern Africa Mathematical Sciences Association
- SEAMS: Southeast Asian Mathematical Society

The *IDM* has the support of many associations of women around the world that are eager to join forces and celebrate and CWM will help coordinating the activities.

The *IDM* on March 14                    **March 14: 3/14**

Pi Day is already celebrated around the world, at least in:

France, Germany, Iceland, Nigeria, Rwanda, Sudan, Sweden, Tanzania, Uganda, UK, USA

Countries having expressed their wish to celebrate *IDM* comprise:

Algeria, Argentina, Australia, Austria, Bangladesh, Benin, Botswana, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Chile, China, Cuba, Egypt, Ethiopia, Finland, France, Gabon, Germany, Ghana, Iceland, India, Indonesia, Iran, Italy, Ivory Coast, Japan, Kenya, Malawi, Malaysia, Mexico, Morocco, Nepal, Netherlands, New Zealand, Niger, Nigeria, Norway, Papua New Guinea, Philippines, Portugal, Russia, Rwanda, Senegal, South Africa, Spain, Sudan, Sweden, Switzerland, Tanzania, Tunisia, Turkey, Uruguay, Vietnam, Zimbabwe.

The date is convenient for all countries around the world!

The celebration of the *IDM*

- A theme every year
- Open Source material proposed on the web related to the theme, including material for students with special needs
- A website posting all activities around the world
- Enrichment activities in the classroom
- Mathematical activities for the whole family
- Activities for the public
- Activities for girls
- Local communities inventing how to celebrate IDM

Some examples of themes for the *IDM*

- Mathematics is everywhere
- Mathematics, a living discipline within science and technology
- Mathematics, a tool for development
- Mathematics of Planet Earth

- Mathematics for understanding nature
  - What is mathematics?
  - Mathematics and arts
  - Discovering the world through mathematical eyes
- ⇒ You will be consulted for the theme!

The functioning of the *IDM*

- An international committee in charge of
  - consulting for the choice of the theme
  - managing the *IDM* website
  - overseeing centralized activities at UNESCO and elsewhere
- A website under the responsibility of the committee of the *IDM*
  - posting all activities around the world
  - posting Open Source activities and curriculum enrichment material
  - broadcasting live some activities of the *IDM*
- Activities in the different countries organized by the mathematical societies, the schools, etc., and posted on the website of the *IDM*
  - Mathematical exhibitions or shows
  - Public lectures
  - Special activities inside the schools for children, for girls, for students with special needs, for gifted students
- Centralized activities
  - *IDM* celebrations at UNESCO
  - Videos of events, possibly broadcasted live
  - Open source material: enrichment curriculum material, exhibitions (collaboration with IMAGINARY and its Open Source platform)
  - Centralized celebrations of *IDM* elsewhere in the world: in Africa?

The next steps

1. The permanent delegations of Ivory Coast and Zambia at UNESCO, supported by other delegations, have jointly proposed the proclamation by UNESCO of March 14 as the International Day of Mathematics as an item for the meeting of the Executive Board of UNESCO in the fall of 2018.
2. If approved, it will be discussed at the next General Conference of UNESCO in the fall of 2019.
3. Hence, we hope for the official launch of the *IDM* at UNESCO on March 14 2020.
4. A competition for the logo of the *IDM* is coming.
5. The website will be built in 2019.
6. We are building a network of organizations that will collaborate in celebrating the *IDM*.

If your organization wishes to celebrate the *IDM*, please contact Christiane Rousseau at <idm@mathunion.org>.

## 6. ICM 2018

### 6.1. Report of the ICM 2018 Program Committee

Presented by János Kollár, PC 2018 Chair

**Program Committee** (chosen by the EC)

Ngô Bảo Châu (U. Chicago)  
 Irit Dinur (Weizmann Inst.)  
 János Kollár (Princeton U.)  
 Jianshu Li (Univ. Sci. Tech. HK)  
 Hiraku Nakajima (Kyoto U.)  
 Sorin Popa (UCLA)  
 Enrique Pujals (IMPA)

Laure Saint-Raymond (ENS Lyon)  
 Stanislav Smirnov (U. Geneva)  
 Eitan Tadmor (U. Maryland)  
 Ulrike Tillmann (U. Oxford)  
 Aad Van der Vaart (Leiden U.)

**Panel Chairs** (chosen by the PC)

Jonathan Pila (Oxford)  
 Guillermo Cortiñas (Buenos Aires)  
 Richard Taylor (IAS)  
 Robert Lazarsfeld (Stony Brook)  
 F. Codá Marques (Princeton)  
 Peter Teichner (MPI Bonn)  
 Colette Moeglin (Paris VI)  
 Kari Astala (U. Helsinki)  
 Amie Wilkinson (U. Chicago)  
 Felix Otto (MPI Leipzig)  
 Antti Kupiainen (U. Helsinki)  
 Greg Lawler (U. Chicago)  
 Noga Alon (Tel Aviv U.)  
 Avi Wigderson (IAS)  
 Björn Engquist (U. Texas)  
 Gunther Uhlmann (U. Washington)  
 Ronald DeVore (Texas AM)  
 June Barrow-Green (Open U.)  
 Cheryl Praeger (U. W. Australia)

**Problem of balance**

Unexpectedly, 5 of the original proposed 19 chairs declined.  
 Excellent replacements but balance not optimal.

**Sections**

After long discussions, especially about applied mathematics, operator algebras, probability and statistics, the PC decided to follow the structure of the Sections of the 2014 ICM, but increase the flexibility to ensure coverage of “the current state and development of all mathematical areas.”

**Comments**

The PC suggested to the chairs to be especially attentive to interdisciplinary work. The PC also decided to keep several slots open for work that does not naturally fit into any of the sections. The PC also felt that the choice of Sections is a major task that could be best handled by a separate committee that could gather information over a longer period.

**Speakers**

There were many excellent candidates. The PC had a list of ~ 50 strong candidates for plenary speakers and ~ 500 strong candidates for sectional speakers. The PC was very impressed by the widening spread of high level of research. There are speakers from 37 countries (compared to 28 in 2014).

**Problem at the end**

9 speakers declined and the list was getting known very quickly, so fast action was needed. There were many excellent candidates, but balance considerations were difficult at this stage, especially for sections with many persons declining.

**Overall impression**

Members of the PC and the Chairs were all very dedicated, working hard for finding solutions that are best for our field and for our colleagues.

We have reached very high level of consensus. I believe that all PC members are very satisfied with the selections and all but 1 of the Chairs were also very positive about the process and the outcome. Ronald DeVore (Math. in Sci. and Techn.) strongly objected to the number of changes made by the PC.



- On-line registration closed July 13.
- On-site registration: from July 29.

It is still possible to:

- Buy tickets for the social dinner.
- Donate to the ICM Outreach Fund.

#### *Information & Communication*

- Conference mobile app available to all the participants, with all the program plus practical information.
- Internal information systems (CCTV) broadcasting the program, daily news, interviews, and additional information and footage.
- Paper printing of the daily program, on demand

#### *Media*

- IMPA's press office much expanded, to handle all the communication issues, including daily news.
- Intense contacts with TV channels, newspapers and magazines, to enhance the media coverage of ICM.
- Two media teams covering the congress, including WebsEdge (ICM TV) plus photographers.
- Live streaming of opening & closing ceremony, and the public lectures
- Contact: [press@icm2018.org](mailto:press@icm2018.org)

#### *Exhibition Hall*

- Also the venue for several outreach activities.
- Don't forget to make a donation to the ICM Outreach Fund!

#### *Outreach*

- Public lectures at Riocentro, aimed at a local audience of school children and teachers (simultaneous translation to Portuguese).
- Confirmed public lecturers: Ingrid Daubechies, Étienne Ghys, Rogério Martins, Tadashi Tokieda, Cédric Villani.
- Local schools invited for visits to the ICM venue, including exhibits and popularization activities (Imaginary, Masters of Abstraction, Holo-Math, Maryam Mirzakhani memorial, etc.) in addition to the public lectures.

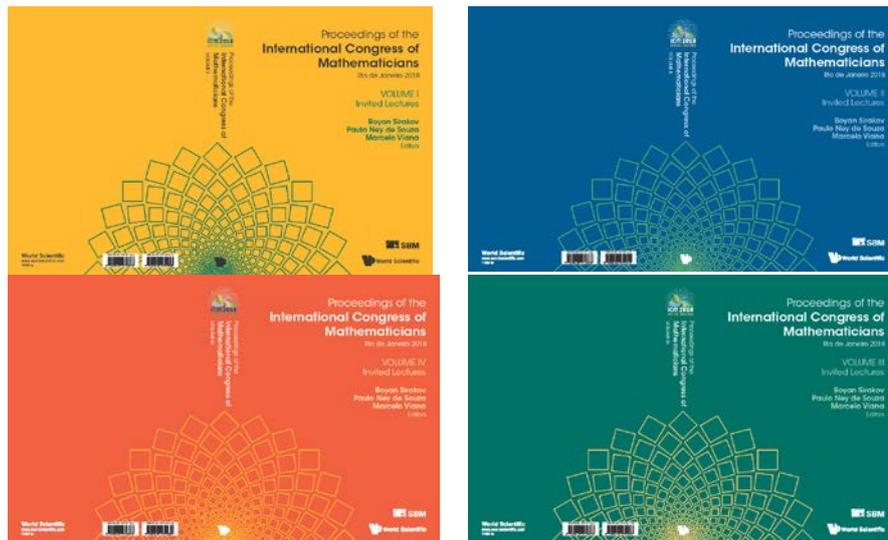
#### *Satellite events*

Brazil	39
Bahia (Salvador)	2
Brasília	1
Ceará (Fortaleza)	1
Goiás (Goiânia)	1
Paraná (Foz do Iguaçu)	4
Rio de Janeiro	14
Rio Grande do Sul (Porto Alegre)	1
Santa Catarina (Florianópolis)	1
São Paulo	13
Argentina (Buenos Aires)	2
Mexico (Guanajuato)	1
Peru (Lima)	1
Uruguay (Montevideo)	1
USA (Miami)	1
TOTAL 45 satellite meetings approved	

#### *Proceedings*

- Produced by the Brazilian Mathematical Society and printed and distributed by World Scientific.
- Contributions received from all the plenary speakers and all but 6 invited speakers. Prize winners, laudators and Abel & Noether lecturers invited to contribute to volume 1.
- Volumes 2 – 4 in press, to be presented at the Congress. Volume 1 to be finalized by September.
- All the participants to receive the complete set of contributions by plenary and invited speakers (electronic files).

- Special prices negotiated with WS: USD 230 for participants registered by July 13; USD 280 for orders made at the Congress.
- All the papers to be openly accessible on the ICM 2018 and IMU websites from 6 months after publication.



### Communications & Posters

- Submitted: about 1,290 proposals.
- Evaluated by 19 panels, one for each section.
- Accepted: 564 communications and 480 posters.

### ICM 2018 OpenArms

- 630 international travel grants: 500 from IMPA & SBM plus 130 from IMU
- 250 domestic travel grants from IMPA for Brazilian mathematicians

	Applications	Travel Grants
Asia and Pacific	903 (284 women)	200 (60 women)
Africa	280 (94 women)	130 (44 women)
Eastern Europe	138 (70 women)	100 (49 women)
Latin America	245 (76 women)	200 (76 women)
Brazil	450 (110 women)	250 (60 women)
Total	2016 (634 women, 31%)	880 (289 women, 33%)

### Child Care

- Set by the Organizing Committee in partnership with a reputed local school (MOPI), with more than 45 years' experience.
- Will receive children from 2 to 10 years old, for experiences that stimulate creativity, senses and abilities.
- Very few vacancies left!

## 7. ICM 2022

### 7.1. Summary of bids received, procedure

Hyungju Park, chair of the Site Selection Committee for ICM 2022 introduced the presenters of the bid from France, François Loeser and Maria J. Esteban, and the presenters of the bid from Russia, Arkady Dvorkovich and Stanislav Smirnov. He explained the voting procedure (written ballot) for selecting the successful bid and gave a brief summary of the process to date regarding the decision of the ICM 2022 host.

The call for bids to host the ICM in 2022 was announced to the AOs in the Circular Letter 10/2015 (17 July 2015) with deadline for submitting proposals on 30 Nov 2016.

The IMU received two bids:

- France, with venues Paris (ICM) and Strasbourg (GA)
- Russia, with venue St. Petersburg (ICM and GA)

The AOs were informed about the bids received in Circular Letter 14/2016 (14 Dec 2016).

The Site Visiting Committee made site visits in March 2017. After the site visit the applicants could make changes in their bids.

The IMU Site Selection Committee (comprised of the IMU EC as well as the Chair of the LOC of ICM 2014) made its recommendation to the IMU General Assembly.

## 7.2. Report of the Site Selection Committee, IMU EC recommendation

Presentation by Hyungju Park

### Report of the ICM 2022 Site Selection Committee

Two bids

Paris, France & St. Petersburg, Russia

Site Visiting Committee visited the cities in March 2017.

- Hyungju Park (Chair)
- Helge Holden
- Christiane Rousseau

Paris bid

- total budget: 3.4 million EUR
- average registration fee: 300 EUR
- General Assembly: Strasbourg (two hours away by fast train from Paris)

Paris bid: Pros

- Conveniently located venue within central Paris on Metro line 1.
- Wide range of hotels (1 to 5 stars) in the vicinity of the venue.
- Many summer schools before the congress, to which 400 students are to be invited from developing countries with full expense support (to attend the summer schools and then ICM afterwards).
- 200 mathematicians from developing countries are to receive partial financial support to attend the ICM.
- Raising public awareness (RPA) is a strong part of the bid. Organizers will centralize various RPA contents in several languages on a website.
- The organizers are proposing an industrial component inside the ICM: new frontiers Mathematics/Industry with showcase of success stories.

Paris bid: Cons

- Unprecedented 4th ICM in France (3 ICMs in 1900, 1920, 1970 in France).
- The proposed budget is quite tight. The financial support for the congress from the public sector seems small except for the support from some public institutions like CNRS and INRIA.
- It includes a partial support for 200 mathematicians and full support of 400 students from developing countries. It is not clear if this adequately addresses the goal of helping developing country mathematicians to participate in the mathematical activities of the congress.
- There is no room big enough to hold the opening ceremony at the venue (three possible off-venue solutions were proposed).

### St. Petersburg bid

- total budget: 9 million USD
- average registration fee: 450 USD
- General Assembly: St. Petersburg (Moscow, if IMU prefers a different city)

### St. Petersburg bid: Pros

- 1,000 mathematicians from developing countries are to receive full financial support covering travel and living expenses (and free registrations).
- 1,300 students (most of whom are to be selected from remote parts of Russia and former Soviet republics) are to receive full financial support covering travel and living expenses.
- The budget (USD 9 million) is generous, and the support from the government is exceptional, both on the financial side and on the use of governmental facilities (museums, theaters, etc.).
- Visa-free entry to the ICM participants, i.e., an ICM registration will serve as a visa waiver.
- Cost of living in St. Petersburg looks reasonable. The local government promises to freeze hotel rates to low season rates for the congress.
- An ICM is likely to be beneficial to the mathematics in the country: Mathematics in Russia had a difficult period during the perestroika. The situation has improved and some Russian mathematicians working abroad are coming back. A Russian ICM may highlight the revival of Russian mathematics.

### St. Petersburg bid: Cons

- Organizational details including the issue of how to split the workload should be worked out.
- Some technical details (e.g. how to produce proceedings, how to organize short communication sessions and poster sessions) need careful attention.

The Site Selection Committee\* unanimously recommends Russian bid:

\* 2 members of the committee abstained to avoid possible conflicts of interest

- This would be a 2nd ICM in Russia, if St. Petersburg is selected.
- The Russian bid has a sufficient budget with a room for unexpected surprises.
- The complete support for 1,000 mathematicians from developing countries and 1,300 students from former Soviet republics is likely to increase the impact of the congress.
- The visa-free entry makes it easy to come to St. Petersburg and reduces the travel costs.
- The support of the country's officials is both exceptional and guaranteed, and the presence of the highest official(s) at the opening ceremony seems likely.
- The support of the Russian mathematical community is very high and the congress is likely to be very beneficial to the mathematics in the country.

## 7.3. Presentations of bidders

*Presentation of the bid from France, François Loeser and Maria J. Esteban*

See Appendix 7.3.-1

*Presentation of the bid from Russia, Arkady Dvorkovich and Stanislav Smirnov*

See Appendix 7.3.-2

## 7.4. Questions from the GA Delegates

François Loeser and Maria J. Esteban as well as Arkady Dvorkovich and Stanislav Smirnov answered the questions asked by delegates in the audience.

## 7.5. Location of ICM 2022 balloting

Helge Holden explained the voting slip for the written ballot.

## 7.6. Result of balloting, venue of ICM 2022

IMU President Shigefumi Mori received the report from the Chair of the Tellers Committee, Sun-Yung Alice Chang. The President read out the results of the vote.

**The General Assembly voted to hold the ICM 2022 in St. Petersburg, Russia, with the General Assembly to be held in St. Petersburg prior to the ICM.**

*VOTE (written ballot): IN FAVOR of France = 63, IN FAVOR of Russia = 83,  
ABSTENTIONS = 4*

## 7.7. Venue of the 19th IMU General Assembly meeting in 2022

The representatives of the Russian organizers invited the IMU AOs to come to the General Assembly in St. Petersburg in 2022.

## 8. Nominating Committee

### 8.1. Introduction of the Nominating Committee, explanation of the nominating process

Presentation by Martin Grötschel, Chair of the Nominating Committee

Martin Grötschel presented the members of the IMU Nominating Committee (NC).

- Martin Grötschel (Germany; NC Chair, appointed by the IMU President)
- Martin Kalina (Slovakia; randomly chosen from Group I and II)
- Niky Kamran (Canada; randomly chosen from Group V)
- Ursula Molter (Argentina; randomly chosen from Group III and IV)
- Shigefumi Mori (Japan; IMU President, ex officio member)
- Cheryl Praeger (Australia; appointed by the IMU President and the NC Chair)
- Daya Reddy (South Africa; appointed by the IMU President and the NC Chair)

Martin Grötschel explained the process of the NC nomination and the work of the NC to put forward the slates.

### 8.2. Presentation of slates proposed by the Nominating Committee

8.2.1. IMU President

8.2.2. IMU Secretary

8.2.3. IMU Vice Presidents and IMU EC Members-at-Large

IMU Executive Committee (EC) slate

*Persons nominated and selected by the Nominating Committee (NC)*

Person nominated	Position	Country	Nominator(s)
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<i>Persons selected by the Nominating Committee (NC)</i>			
Carlos E. KENIG	IMU President	US	NC, supported by AO Argentina
Helge HOLDEN	IMU Secretary	Norway	Incumbent, AO Norway
Nalini JOSHI	IMU Vice President	Australia	AO, Australia
Loyiso G. NONGXA	IMU Vice President	South Africa	AO, South Africa
Luigi AMBROSIO	EC Member-at-Large	Italy	AO, Italy
Andrei OKOUNKOV	EC Member-at-Large	Russia	AO, Russia
Paolo PICCIONE	EC Member-at-Large	Brazil	AO, Brazil
Jonathan PILA	EC Member-at-Large	UK	AO, UK
Ramakrishnan Trivandrum			
RAMADAS	EC Member-at-Large	India	AO, India
Mercedes SILES MOLINA	EC Member-at-Large	Spain	AO, Spain
Betül TANBAY	EC Member-at-Large	Turkey	AO, Turkey
Gang TIAN	EC Member-at-Large	China	AO, China
<b>6 Members-at-Large to be elected</b>			

#### 8.2.4. President, Secretaries and Members-at-Large of CDC

##### Commission for Developing Countries (CDC) slate

##### *Persons nominated and selected by the Nominating Committee (NC)*

<b>Person nominated</b>	<b>Position</b>	<b>Country</b>	<b>Nominator(s)</b>
<i>Persons selected by the Nominating Committee (NC)</i>			
Dipendra PRASAD	CDC President	India	AO, India
Olga GIL-MEDRANO	CDC Secr. Policy	Spain	AO, Spain
Sadayoshi KOJIMA	CDC Secr. Grants	Japan	AO, Japan
Mama FOUPOUAGNIGNI	CDC, African Member	Cameroon	Incumbent, NC
Mahouton Norbert HOUNKONNOU	CDC, African Member	Benin	AO, Côte d'Ivoire
Jose Maria P. BALMACEDA	CDC, Asian Member	Philippines	AO, Philippines
Zahra GOOYA	CDC, Asian Member	Iran	AO, Iran
Alf ONSHUUS	CDC, Latin Am. Member	Colombia	AO, Colombia
Andrea SOLOTAR	CDC, Latin Am. Member	Argentina	AO, Argentina
<b>1 Asian, 1 African and 1 Latin American Member to be elected</b>			

#### 8.2.5. IMU Representatives to ICHM

##### International Commission for the History of Mathematics (ICHM) slate

##### *Persons nominated and selected by the Nominating Committee (NC)*

<b>Person nominated</b>	<b>Position</b>	<b>Country</b>	<b>Nominator(s)</b>
<i>Persons selected by the Nominating Committee (NC)</i>			
Guillermo P. CURBERA	ICHM	Spain	AO, Spain
Isobel FALCONER	ICHM	UK	AO, UK
Catherine GOLDSTEIN	ICHM	France	AO, France
Karen Virginia Hunger PARSHALL	ICHM	USA	AO, USA
<b>2 ICHM Representatives to be elected</b>			

##### Persons nominated but not selected

<b>Person nominated</b>	<b>Position</b>	<b>Country</b>	<b>Nominator(s)</b>
Gaven MARTIN	IMU Vice President & EC Member-at-Large	New Zealand	AO, New Zealand
Vasudevan SRINIVAS	IMU Vice President	India	AO, India
Günter M. ZIEGLER	IMU Vice President	Germany	AO, Germany
Ramachandran BALASUBRAMANIAN	EC Member-at-Large	India	AO, India

Benjamin BURTON	EC Member-at-Large	Australia	AO, Australia
Alicia DICKENSTEIN	EC Member-at-Large	Argentina	AO, Argentina, Colombia
Pekka KOSKELA	EC Member-at-Large	Finland	AO, Finland
Jaroslav NEŠETRIL	EC Member-at-Large	Czech Republic	AO, Czech Republic
Wandera OGANA	EC Member-at-Large	Kenya	AO, Kenya
Freydoon SHAHIDI	EC Member-at-Large	Iran	AO, Iran
Arup BOSE	CDC Member	India	AO, India
Xiao Shan GAO	CDC Member	China	AO, China
Dongsu KIM	CDC Member	Rep. of Korea	AO, Rep. of Korea
Angel PINEDA	CDC Member	USA	AO, USA
Mythily RAMASWAMY	CDC Member	India	AO, India
Mark ROBERTS	CDC Member	UK	AO, UK
Shrikrishna Gopalrao DANI	ICHM	India	AO, India

### 8.2.6. Very brief presentations of the nominated persons present at the GA

The following candidates present at the meeting briefly introduced themselves to the GA.

#### **IMU Executive Committee**

Carlos E. KENIG  
 Helge HOLDEN  
 Nalini JOSHI  
 Loyiso G. NONGXA  
 Andrei OKOUNKOV  
 Paolo PICCIONE  
 Jonathan PILA  
 Ramakrishnan Trivandrum RAMADAS  
 Mercedes SILES MOLINA  
 Betül TANBAY  
 Gang TIAN

#### **CDC**

Dipendra PRASAD  
 Olga GIL-MEDRANO  
 Sadayoshi KOJIMA  
 Mama FOUPOUAGNIGNI  
 Mahouton Norbert HOUNKONNOU  
 Jose Maria P. BALMACEDA  
 Zahra GOOYA  
 Alf ONSHUUS  
 Andrea SOLOTAR

#### **ICHM**

Guillermo P. CURBERA  
 Isobel FALCONER

### 8.3. Nominations from the floor

Martin Grötschel explained to the GA the procedure of nomination from the floor.

Martin Grötschel announced that there was one change of candidacy.

- Alf Onshuus, nominated and selected by the Nominating Committee for Latin American Member of the CDC has given up this candidacy. He was nominated from the floor for the position of Secretary for Grants of the CDC.

**The General Assembly approved Alf Onshuus's change of candidacy from Latin American Member of the CDC to nomination as Secretary for Grants on the Commission for Developing Countries slate.**

*VOTE (by show of hands): IN FAVOR = Majority*

Martin Grötschel announced another nomination from the floor.

- Günter M. Ziegler was nominated from the floor for the position of Member-at-Large of the IMU EC.

**The General Assembly approved to add Günter M. Ziegler's nomination as a Member-at-Large to the IMU Executive Committee slate.**

*VOTE (by show of hands): IN FAVOR = Majority*

Günter M. Ziegler briefly introduced himself to the GA.

## 9. Res. 10 of GA 2010, establishment of a stable office for the IMU

### 9.1. Office Committee report, EC recommendation, and discussion

Presentation by John Toland

#### **The IMU Secretariat in Berlin**

*The IMU GA in Bangalore 2010 endorsed the establishment of a Stable Office for IMU.*

Weierstraß-Institut für Angewandte Analysis und Stochastik (WIAS) which is part of Leibniz Institut im Forschungsverbund Berlin e.V. (FVB), with financial support from Federal Republic of Germany and the Land Berlin, successfully bid to host the stable secretariat of IMU in Berlin. Subsequently a Memorandum of Understanding and a Cooperation Agreement specifying the relationship between IMU and WIAS were signed and an IMU Office Committee was appointed by the IMU EC to monitor the work of the Berlin Office of IMU.

*The arrangement to be reviewed by the IMU General Assembly in 2018.*

#### *IMU Office Committee 2012-2018*

- Bernard Hodgson (Canada)  
Secretary General (2003-9) of International Commission on Mathematical Instruction (ICMI)
- Ragni Piene (Norway)  
Commission for Developing Countries (CDC), IMU EC 2003-2010, Permanent Office Selection Committee
- John Toland (UK)  
IMU EC Member 2010-2018, ex-Director: Isaac Newton Institute, Cambridge UK

- Wendelin Werner (Switzerland)  
Fields Medal 2008; IMU EC Member 2010-2018

### *Memorandum of Understanding*

“The Secretariat will facilitate the activities of the IMU and support its committees and officers by providing it with a stable legal, administrative and financial structure. ...”

- Promote international cooperation in mathematics.
- ICM and other international scientific events.
- Contribute to the development of mathematical science in any of its aspects, pure, applied, or educational.

All activities coordinated by the Head of the IMU Secretariat and the IMU Secretary.

### *IMU Secretariat under German law*

The Berlin Office of IMU began work in February 2011 in elegant offices, in the Gendarmenmarkt quarter of Berlin 10017. Legally the IMU Secretariat is part of the WIAS administration operating under its accounting system under German law and participating in executive meetings of WIAS.

But there are two distinct organizations and managements:

- IMU with its own policies, priorities, and budgets.
- IMU Secretariat and its budget as part of WIAS.

### *IMU Secretariat Berlin 2018*

- Alexander Mielke, Head of Secretariat
- Sylwia Markwardt, IMU Manager
- Lena Koch, CDC & ICMI Administrator
- Theresa Loske & Ramona Fischer, Project Assistants
- Frank Klöppel, IT and Web Technician
- Birgit Seeliger, IMU Archivist
- Anita Orłowsky, IMU Accountant

### *IMU Secretariat Supports*

- IMU Executive Committee and Officers
- IMU General Assembly
- Communication with Adhering Organizations and membership countries
- International Congress of Mathematicians (ICM)
- IMU website, bulletins, newsletter
- IMU finance, managing financial and legal aspects
- International Commission on Mathematical Instruction (ICMI)
- Commission for Developing Countries (CDC)
- Committee on Electronic Information and Communication (CEIC)
- International Commission on the History of Mathematics (ICHM)
- Committee for Women in Mathematics (CWM)

### *Head of IMU Secretariat, Alexander Mielke*

- Always a mathematician at WIAS – the interface between IMU and WIAS
- Senior academic selected with mutual agreement by the IMU and WIAS
- Regular reports to Office Committee, Executive Committee, GA
  - Organizes IMU Secretariat according to IMU needs

- Currently IMU Treasurer (which is quite convenient)
- Heading IMU Secretariat as sub-unit of WIAS
- Official supervisor of members of IMU Secretariat
- Responsible for WIAS-IMU budget

#### *IMU Manager (Sylwia Markwardt)*

- Support of IMU Executive Committee
- Personal Assistant to IMU Secretary and IMU President, preparation of materials and of travel documents
- Administrative support of Executive Committee, preparation of annual EC meetings
- Preparation of General Assembly of IMU (members, delegates, agenda, ballots, etc.)
- Support for the organization of the ICM and other IMU conferences
- Production of IMU Bulletins and annual reports
- Examination of annual reports and budgets of IMU commissions and committees
- Monitoring of compliance with IMU deadline in 4-year cycle, maintaining the membership data and mailing lists
- Preparation of IMU texts such as guidelines, statutes, etc
- Managing and monitoring the IMU website
  - Management and coordination of IMU Secretariat
- Supervision of work for the archive and IT
- Supervision for IMU-WIAS finances and preparation of budget
- Representation of IMU Secretariat's interest in WIAS management
- Usage, furnishing, maintenance, and interior design of the rooms

#### *IMU Finance and Accounting*

- Budget monitoring and financial management of IMU funds (contributions from member countries)
  - Banking and cash management for IMU, CDC, and ICMI
  - Issuing invoices/reimbursements
  - Liaising with auditor
- Accounting for all official travel of IMU Secretariat, employees and guest
- Implementation of budget monitoring and financial management of the IMU-WIAS budget funds (joint Grant of Federal Government of Germany and State of Berlin)
  - Financial accounting
  - Budget and medium-term financial planning
  - Implementation of monthly and year-end reporting
- Implementation of controlling
  - Editing master data of cost and management
- Purchase of furniture, IT, office supplies and services for the IMU Secretariat

#### *Commission for Developing Countries (CDC)*

- Administration, liaising, and support of all activities
  - Communication, meetings and follow up with the Commission
  - CDC Grant Programs
  - Volunteer Lecturer Program (VLP)
  - CDC Library Assistant Scheme
- CDC budget and finance
- Networking: Liaising with cooperation partners and affiliated members (e.g., CIMPA, AMS)
- Communication and PR
  - Editing of the CDC website and CDC circulars
  - New CDC printed materials
- Projects

- Development of a new CDC website and online database

#### *International Commission on Mathematical Instruction (ICMI)*

- Administration and support of all activities of the ICMI
  - Executive Committee
  - ICMI meetings (EC, ICMI GA, Regional Conferences)
- Budgets and Finances - Administration and management
- Communication and PR
  - ICMI Facebook page and the ICMI website
  - Press releases (e.g., ICMI Studies, ICME -14 2020 Shanghai, CANP, etc.)
  - Development of ICMI publications and printed material
- ICMI Representatives: Regular communication and distribution of information
- Fundraising and Development:
  - Successful application for ICSU Grant for CANP
  - Project Support, CANP/ICMI Studies launches / Pipeline and Database Project / Klein Project
- Networking:
- Liaising with cooperating partners and affiliated members

#### *IMU Archive*

Reflect the history of the IMU in all its facets: organization, business, activities, and appearance

- Transfer of the IMU Archive from Helsinki to Berlin
- Archive hardware and software equipment
- IMU Archive opening – a workshop
- ECM Krakow – IMU booth
- Archiving materials, accession, and recording
- Drafting archive guidelines
- Digitization of paper archive documents
- Hybrid picture archive
- Discussion on e-mail archiving and database solution
- Digital long-term storage
- Legal aspects of digital photo archiving

#### *IMU IT Services*

- Basic services (e.g., nameservices, fileservices)
- Internet, mail, blog, analytics, www (typo3)
- Security (fire-walling, virus-scanner, spam-filter, back-up)
- Client support (about 200 clients, Linux, Windows, MacOS, ThinClients)
- Computer services (cluster, sms, GPU server)
- Databases (db)
- Video Conference System
- Website development
- Archiving electronic documents of IMU and its commissions and committees

#### *IMU Media*

- IMU, ICMI, and CDC Materials
- Websites and Databases
- Social Media: ICMI and IMU on Facebook

#### *IMU Secretariat: Functionality*

The Berlin office has worked efficiently for seven years.

The first years the IMU President was based in the US with the IMU Secretary in Berlin, and for the last four years, the IMU President was based in Japan with the IMU Secretary based 8,000 kms away in Norway. This worked successfully using video links across time zones including preparation for GAs & ICMs 2014 in Korea & 2018 in Brazil, in addition to the normal high level of activity generated by Commissions and Committees, managing the status of Adhering Organizations, development of the new web site etc.

#### *Office Committee Findings*

- The Berlin Office is a resource without which IMU activity would be greatly diminished.
- The distinction between IMU and WIAS is clear and works well.
- IMU Secretariat and WIAS administration are independent units that are in constant touch and mutually supportive.
- The relation of IMU Secretariat staff to WIAS has many positive aspects (Salaries and payroll is done by WIAS; Large IT structure is available for advice or in emergencies; Training facilities, such as English lessons).
- The workload is high, but efficiently and conscientiously done. IMU staff are very highly motivated, professional and well led, working in a positive atmosphere with strong team-spirit. However, IMU EC must continue to work with WIAS to manage expectations of committees and commissions.

#### *Benefits to IMU of a Stable Office*

- The IMU Office in Berlin is a highly professional secretariat which is managed efficiently in accordance with strict wishes of the IMU General Assemblies at Bangalore and Gyeongju.
- The benefits of this modern efficient office facilities and highly committed professional staff in Berlin, costing EUR 500,000 per annum, at no cost to IMU, have transformed the work worldwide of IMU, its Executive Committee, Commissions and Committees.
- The impact of this generous support from the Germany and its mathematical community on IMU activity cannot be exaggerated.
- *The Executive Committee therefore recommends that this arrangement becomes permanent.*

### 9.2. Proposal and resolution for continued hosting of the stable office

The IMU Secretary informed that the IMU Executive Committee decided at its meeting in Montreal in March 2018 to propose the following resolution to the General Assembly:

#### **Resolution:**

- 1. The General Assembly of the IMU expresses its deep gratitude to Germany, and in particular to the Weierstrass Institute for Applied Analysis and Stochastics (WIAS) for their generous support of the IMU Secretariat.**
- 2. The General Assembly of the IMU endorses that the current Stable Office for the International Mathematical Union, established as a cooperation between WIAS and the IMU be made permanent.**
- 3. The General Assembly charges the IMU President and IMU Secretary to sign an agreement with WIAS.**
- 4. The IMU Executive Committee establishes an Office Committee that reports bi-annually to the IMU Executive Committee, and the IMU Executive Committee reports about the findings to the General Assembly.**

**The General Assembly approved the following Resolution:**

- 1. The General Assembly of the IMU expresses its deep gratitude to Germany, and in particular to the Weierstrass Institute for Applied Analysis and Stochastics (WIAS) for their generous support of the IMU Secretariat.**
- 2. The General Assembly of the IMU endorses that the current Stable Office for the International Mathematical Union, established as a cooperation between WIAS and the IMU be made permanent.**
- 3. The General Assembly charges the IMU President and IMU Secretary to sign an agreement with WIAS.**
- 4. The IMU Executive Committee establishes an Office Committee that reports bi-annually to the IMU Executive Committee, and the IMU Executive Committee reports about the findings to the General Assembly.**

*VOTE (by show of hands): IN FAVOR = 147, OPPOSED = 0, ABSTENTIONS = 3*

## 10. Presentation of the Election Committee's proposals and Elections

The Chair of the Election Committee Martin Grötschel presented the Election Committee's proposals for election.

### 10.1. Executive Committee (EC) of IMU

#### IMU Executive Committee (EC) slate

IMU President	Carlos E. KENIG	USA
IMU Secretary	Helge HOLDEN	Norway
IMU Vice President	Nalini JOSHI	Australia
IMU Vice President	Loyiso G. NONGXA	South Africa
EC Member-at-Large	Luigi AMBROSIO	Italy
EC Member-at-Large	Andrei OKOUNKOV	Russia
EC Member-at-Large	Paolo PICCIONE	Brazil
EC Member-at-Large	Jonathan PILA	UK
EC Member-at-Large	Ramakrishnan Trivandrum RAMADAS	India
EC Member-at-Large	Mercedes SILES MOLINA	Spain
EC Member-at-Large	Betül TANBAY	Turkey
EC Member-at-Large	Gang TIAN	China
EC Member-at-Large	Günter M. ZIEGLER	Germany

6 Members-at-Large to be elected

### 10.2. Commission for Developing Countries (CDC)

#### Commission for Developing Countries (CDC) slate

CDC President	Dipendra PRASAD	India
CDC Secr. Policy	Olga GIL-MEDRANO	Spain
CDC Secr. Grants	Sadayoshi KOJIMA	Japan

CDC Secr. Grants	Alf ONSHUUS	Colombia
CDC, African Member	Mama FOUPOUAGNIGNI	Cameroon
CDC, African Member	Mahouton Norbert HOUNKONNOU	Benin
CDC, Asian Member	Jose Maria P. BALMACEDA	Philippines
CDC, Asian Member	Zahra GOOYA	Iran
CDC, Latin Am. Member	Andrea SOLOTAR	Argentina

1 Asian, 1 African and 1 Latin American Member to be elected

### 10.3. International Commission on the History of Mathematics (ICHM)

International Commission for the History of Mathematics (ICHM) slate

ICHM	Guillermo P. CURBERA	Spain
ICHM	Isobel FALCONER	UK
ICHM	Catherine GOLDSTEIN	France
ICHM	Karen Virginia Hunger PARSHALL	USA

2 ICHM Representatives to be elected

### 10.4. Election of the 2019–2022 EC, CDC, and ICHM officers

The Chair of the Election Committee Martin Grötschel explained the voting procedure and the voting slip.

Numerical results of the balloting for the different IMU committees and commissions to be provided at the GA meeting when the election results are announced, but not published on the Web.

## 11. IMU finances, budget and dues

Presentation by Alexander Mielke

IMU finances

The following GA papers are available:

- 11. IMU finances, budget and dues
  - 11.0.a Approved budget 2015–2018
  - 11.0.b Approved membership dues 2015–2018
  - 11.0.c Audit report 2017
  - 11.0.d Income and Expenditure 2014–2017
  - 11.0.e Development of Finances
  - 11.1 Presentation of the proposal on reserves, on dues
    - 11.1.a Planned dues for 2019–2022
    - 11.1.b Budget plan 2019-2022
    - 11.1.c Resolution on Finances
  - 11.2 Resolution on Grant of Discharge for IMU EC

IMU budget rules

**General income** = all membership fees (approx. 400,000 EUR/year)

**Special income** = grants, donations, interest rates, etc.

**Budget rules** distribute general income according to percentages per year but are spent unequally over the 4-years cycle

	averaged yearly spendings	2014 – 2017	budget plan	spending gen.income	spending spec.income
1.	Commissions&Committees	45%	174	188	120
2.	ICM	22%	85	54	0
3.	Administr.&GA	20%	77	39	0
4.	Outreach	6%	23	22	0
5.	Overhead	7%	27	26	10
	sum	100%	386	328	130

(figures in 1000 EUR)

### 11.0.e General development of IMU finances

All figures are in 1000 EUR						
year	2013	2014	2015	2016	2017	2018
Balance start/yr	1.155	1.370	1.369	1,523	1,839	1,960
<b>Total income</b>	<b>495</b>	<b>504</b>	<b>585</b>	<b>496</b>	<b>499</b>	<b>500</b>
special+general	117+378	115+390	193+392	102+394	102+397	100+400
<b>Expenditure</b>	<b>-322</b>	<b>-555</b>	<b>-474</b>	<b>-302</b>	<b>-457</b>	<b>-950</b>
Gains/losses	173	-51	112	193	42	-450
Balance end/yr	1,328	1,318	1,481	1,716	1,881	1,510
Dues in arrears	122	115	115	118	78	60
<b>Total balance</b>	<b>1,440</b>	<b>1,433</b>	<b>1,597</b>	<b>1,833</b>	<b>1,959</b>	<b>1,570</b>
<b>Reserves</b> (included in the above figures)						2018 = estimated
bound(ICM,CDC,...)	769	719	820	1,013	1,171	800
free	273	273	294	330	214	100

Savings of ICM 2014 in Seoul are used for support of GA and for ICM:

	budget	Special	total
GA	4x1%= 15	185	200 kEUR
ICM	4x17%= 266	74	340 kEUR

Detailed yearly averages (red color = changes) All figures are in 1000 EUR

11.0.d actual 2014–2017		2014 – 2017			2019 – 2022	
11.1.b plan 2019–2022		percentage	plan	actual	percentage	plan
1.	<b>Comm.</b>	<b>45%</b>	<b>174</b>	<b>188</b>	<b>45%</b>	<b>188</b>
1.1	CDC	20%	77	82	20%	84
1.2	CEIC	5%	19	2	<b>4%</b>	17
1.3	ICMI	15%	58	70	15%	63
1.4	CWM		within ad hoc comm.		<b>5%</b>	21
1.5	ad hoc comm.	5%	19	35	<b>1%</b>	4
2.	<b>ICM</b>	<b>22%</b>	<b>85</b>	<b>54</b>	<b>22%</b>	<b>92</b>
2.1	Site Comm.	1%	4	1	1%	4
2.2	Programm C.	2%	8	11	2%	8
2.3	Prize Comm.	2%	8	7	2%	8
2.4	ICM Support	5%	19	18	5%	21
2.5	Travel Grants	7%	27	0	7%	29
2.6	ICM adm.	5%	19	15	5%	21
3.	<b>Union Administr.</b>	<b>20%</b>	<b>77</b>	<b>39</b>	<b>20%</b>	<b>84</b>
3.1	General Assembly	1%	4	4	1%	4
3.2	Presid. &Secret.	12%	46	21	12%	50
3.3	Executive Comm.	6%	23	13	6%	25
3.4	Other	1%	4	2	1%	4
4.	<b>Outreach</b>	<b>6%</b>	<b>23</b>	<b>22</b>	<b>6%</b>	<b>25</b>

4.1	ICSU	2%	8	7	2%	8
4.2	Awards	1%	4	0	1%	4
4.3	Web, Media	2%	8	15	2%	8
4.4	Other	1%	4	0	1%	4
5.	<b>Overhead</b>	<b>7%</b>	<b>27</b>	<b>26</b>	<b>7%</b>	<b>29</b>
5.1	Office	1%	4	0	1%	4
5.2	Bank Charges	1%	4	1	1%	0
5.3	Leg.adv.& Audits	2%	8	8	2%	8
5.4	Other	3%	12	17	3%	13
	<b>total general income</b>	<b>100%</b>	<b>386</b>	<b>328</b>	<b>100%</b>	<b>418</b>

### 11.1.a Planned membership dues 2019–2022

- Change CHF→EUR for IMU's reference currency 2014→2015
- Constant unit contribution of 1395 EUR for the years 2015 to 2018
- **New suggested unit contribution: 1430 EUR fixed for the years 2019 to 2022**

Increase of 2.5% compensates inflational increases

Development of dues in CHF since 2011

Year	2011	2012	2013	2014	2015–2018	2019–2022
CHF	1637	1670	1703	1737	—	1648 <small>(25.6.2018)</small>
EUR*	1284	1390	1389	1424	<b>1395 EUR</b>	<b>1430 EUR</b>

### New IMU membership dues for 2019–2022

according to membership groups

based on the new unit contribution of 1430 EUR:

(number of members as of June 2018)

Group	I	II	III	IV	V	assoc.	sum
# of members	40	10	7	9	11	9	86
# of unit contr.	1	2	4	8	12	–	
annual dues	1,430	2,860	5,720	11,440	17,160	–	
# of unit contr.	40	20	28	72	132	0	292

The expected general income will be

292 unit contributions of 1430 EUR sum up to **417,560 EUR** per year.

### Summary of IMU annual budgets for 2019 to 2022

General income (from membership dues) 417,560 EUR

Special income (estimated) 100,000 EUR

IMU Secretariat (special grant at WIAS) 550,000 EUR

## 11.1. Presentation of the proposal on reserves, on dues

Presented by Alexander Mielke

### Resolution on Unit contribution:

The IMU General Assembly approves that the unit contribution for the years 2019–2022 be EUR 1,430.00.

New (old) annual membership dues:

Group I: EUR 1,430.00 (1,395.00)

Group II: EUR 2,860.00 (2,790.00)

Group III: EUR 5,720.00 (5,580.00)  
 Group IV: EUR 11,440.00 (11,160.00)  
 Group V: EUR 17,160.00 (16,740.00)

(Associate and Affiliate Members pay no dues)

For vote see Item 13.

### **Resolution on Finances:**

The IMU General Assembly approves the Annual Financial Reports for the years 2014 to 2017. Moreover, it approves the building up of financial reserves from any annual surplus as reported in the income and expenditure statements.

Explanation:

- The Berlin Tax Office needs an explicit statement that the IMU General Assembly (as the governing body of the IMU) approves the handling of the finances by the IMU Executive Committee, the IMU Secretariat, and the IMU Treasurer.
- The annual audits of the finances of the IMU are done by the independent company Mazars GmbH & Co. KG, Berlin, which checks the compatibility with German laws. This resolution is needed to prove the compatibility with the wishes of the Members of the IMU.

**The IMU General Assembly approved the Annual Financial Reports for the years 2014 to 2017. Moreover, it approved the building up of financial reserves from any annual surplus as reported in the income and expenditure statements.**

*VOTE (by show of hands): IN FAVOR = Unanimous*

### 11.2. Resolution on grant of discharge to IMU EC and IMU Treasurer

Presented by Alexander Mielke

### **Resolution on grant of discharge:**

The IMU General Assembly grants discharge to the IMU Executive Committee and to the IMU Treasurer for their activities during the period from 2014 to 2017.

Explanation:

- If the governing body of a German association (here: the GA of the IMU) installs a committee to perform some activities, it should regularly approve the committee's actions of the previous year(s).
- Granting a discharge means to "formally approve the previous actions" and, thus, to "relieve the individual actors from their responsibilities" and to move all liabilities back to the association as a whole.
- Granting discharge does not apply in case of deception or concealment.

**The IMU General Assembly approved to grant discharge to the IMU Executive Committee and to the IMU Treasurer for their activities during the period 2014 to 2017.**

*VOTE (by show of hands): IN FAVOR = Unanimous*

## 12. Finance and Dues Committee

Presentation by Freddy Dumortier

### *Finance and Dues Committee*

Freddy Dumortier (chair; Belgium), Chen Dayue (China), Étienne Desquith (Ivory Coast), Nouri Fatma (Algeria), Riddhi Shah (India), María de la Luz de Teresa (Mexico), Günter M. Ziegler (Germany). Ex officio: Alexander Mielke, Helge Holden, and Sylwia Markwardt.

### *Responsibilities:*

- Review the proposed 2019–2022 budget
- Make recommendations to the General Assembly concerning dues unit increase
- Make recommendation to the General Assembly concerning action to be taken regarding dues in arrears

### *From the IMU Statutes:*

- Article 32: “...Any Adhering Organization which is in arrears for four years shall cease to be an adherent of the Union. In any case, before taking action, the Executive Committee shall submit the question to the Members of the Union by postal ballot or at a meeting of the General Assembly who under special circumstances may waive these provisions by a two-thirds majority of the total number of votes assigned to the Members.”
- Article 10: “A country that has previously been a Member of the Union is not eligible to apply for Associate Membership.”
- Article 6: “When an application is made for membership in the Union, the Executive Committee shall examine the application and shall make a recommendation thereon to the Members of the Union...”

### *Members in Arrears:*

- Alternatives explored: (i) downgrading membership; (ii) suspending membership status, and waiting for two more years; (iii) individual treatment for special cases.
- Re (i): Imposing a downgrade of membership requires a change of statutes, and is not effective for uncommunicative members. Re (ii): After two years, the country loses voting rights but is still required to pay full membership dues. Re (iii): Individual treatment makes it very difficult to treat all members in a fair and impartial manner.
- After a loss of membership, a country can reapply for full membership. This gives the opportunity to negotiate the debt and provides a “fresh start”.

### **Recommendations:**

1. We recommend the 2019–2022 budget as proposed by the Treasurer to the General Assembly.
2. We endorse the proposed increase in the unit contribution to EUR 1,430.00
3. We recommend that the General Assembly follow the IMU Statutes and terminate the membership of countries that are in arrears for more than four years.

The recommendations of the Finance and Dues Committee were discussed by the General Assembly, it was decided that Recommendations 1 and 2 to be voted on by paper ballot, see Item 13.

Recommendation 3 to be voted on under Item 20.5.

### 13. Balloting on Items 10, 11, and 12

The GA delegates proceeded to voting regarding Item 10 (election of 2019–2022 IMU EC, CDC, and ICHM officers), Item 11.1 (unit contribution) and Item 12 (2019–2022 budget).

For balloting results see Item 17.

### 14. Affiliate IMU Members and IMU related Organizations

14.1. ISC (formerly ICSU)

14.2. ISC (formerly ICSU)–IMU relations (e.g., ROLAC, ROAP, ROA)

Presentation by Daya Reddy, President International Science Council

#### **The International Science Council:**

<https://council.science/>

The ICSU-ISSC agreement to merge

ICSU: 97.6%; SSC: 90%

Joint ICSU-ISSC Meeting. Taipei, 25-26 October 2017

Founding General Assembly and Inauguration of the International Science Council

Paris, France, 3 - 5 July 2018

A global voice of science

- 40 international scientific unions and associations, and 140 national and regional scientific organizations
- 3 Regional Offices and Social Science Councils in Africa, Asia, Latin America and the Arab World
- 16 co-sponsored international scientific programmes, networks and committees
- Partnerships with other major international scientific organizations and formal relations with the UN

A time of urgent demand for actionable knowledge to help solve global problems and of powerful opportunities for science to have impact

- A new intellectual infrastructure provided by the tools of the digital revolution
- New pathways to policy

A time of profound challenges to the value of scientific enquiry and interpretation

- A consequence of ubiquitous global connectivity, spreading misinformation and its growing use in public policy making and activism
- The backlash of populism, a reduced trust in institutions and growing accusations of elitism

The need for a global voice to articulate and demonstrate the value of science and to advance science as a global public good.

Mobilizing science for policy and public action on issues of global public concern

- Issues arising from scientific understanding with major, unrecognized implications for society
- Stimulate and support international scientific collaboration on major issues of global public concern
- Communicating scientific knowledge on such issues in the policy and public domain



- The AMU defined as its mission to coordinate and to promote the quality of teaching, research and outreach activities in all areas of mathematical sciences throughout Africa. Advancing mathematical research and education includes efforts and contributions towards the economic, social and cultural development of the continent.
- Moreover, the AMU aims at stimulating active cooperation among African mathematicians and, more broadly, with African scientists and engineers. The AMU is eager to collaborate with other scientific organizations inside and outside Africa pursuing similar goals.

AMU members include all mathematical scientists residing within Africa, interested members and organisations outside Africa are also welcome.

- Ordinary members: African Mathematicians or Mathematicians working in Africa; National or sub-regional Mathematical Associations in Africa; Higher Educational institutions in Africa, having a Department of Mathematics and Scientific organizations in Africa, approved by the AMU Executive Committee;
  - Associate members: Mathematicians who are not Africans, and who do not work in Africa; Mathematical Associations of high educational institutions having a department of mathematics, and Scientific organizations from outside Africa
- In 1978, the AMU Executive Committee created the AMU Journal: Afrika Matematika, initially with the aim to make mathematical research originating within Africa more widely known. Afrika Matematika has been published by Springer since 2011. The improved status of the journal is evidenced by the fact that it has been listed by Scopus since 2013. The submission rate has been growing since 2011 and it has truly increased in the last couple of years.
  - In 1986, four AMU Commissions were established:
    1. For Mathematics Education in Africa (AMUCMEA)
    2. For Pan African Mathematics Olympiads (AMUCPAMO)
    3. For History of Mathematics in Africa (AMUCHMA)
    4. For African Women in Mathematics (AMUCAWM)
  - In 2009, the AMU Commission for Research & Innovation in Mathematical Sciences was added (AMUCRIMS)
  - Till now, 9 editions of the Pan African Congress of Mathematicians (PACOM) took place in various African countries, the last one was hosted by the Mohammed V University in Rabat in July 2017, and the AMU-GA elected the following new Executive Committee for 2017-2021:
    - Nouzha El Yacoubi, President (Morocco)
    - Leonard Todjhoude, Secretary General (Benin)
    - El Hassan Zerouali, Treasurer (Morocco)
    - Vice- Presidents: Basile Bossoto, (Central Africa) Congo; James Katende (East Africa) Kenya ; Rachid Bebbouchi, (North Africa) Algeria ; Mmoloki Lekhutlile (Southern Africa) Botswana; Adama Coulibaly (West Africa), Côte d'Ivoire.
    - Other members: Salimata Gueye-Diagne (Sénégal); Kinvi Kangni (Togo); Raouf Thabet (Tunisia); Zamurat Adegboye (Nigeria).
- Otherwise, the AMU Commissions being the indispensable and absolutely necessary bodies for the AMU goals, achievement criteria were set up for the nomination of their members.

### *AMU CURRENT STRATEGY*

- Aware of the importance of Science, Technology and Innovation (STI) for the socio-economic development of African nation, the new strategy of AMU consists of the

development of mathematics that can impact critical sectors of the economy, such as agriculture, energy, environment, health, infrastructure development, mining, security and water.

- So, a first initiative was to conduct an awareness and motivation campaign around the essential role of mathematics in addressing challenges in STI in Africa, particularly for girls and women in mathematics whom remain under-represented in many sectors of industry and business. Workshops untitled STIMATH have been just launched and the first edition will be held in BIUST, Botswana, 22-23 November 2018.
- Our determination is to develop fruitful exchanges between AMU and the African National or Regional Mathematical Associations on one side, and between AMU and international mathematical unions, associations, organizations on the other side.
- Our conviction, remains that African Mathematical Union should be the main structure to contribute efficiently in the development of Mathematics in Africa at all levels in connection with research, learning, mathematics education, Technology, Innovation etc.
- Our willing is to federate all the national and regional mathematical associations or societies in Africa by collaborating closely with them and motivating them to join AMU and adhere.
- Our wish is to innovate:
  - by developing fruitful collaboration with the Business and Industry world, where African mathematicians with relevant expertise could be truly helpful and efficient.
  - by organizing relevant joint mathematical events in Africa or outside Africa in collaboration with other mathematical unions, societies, associations and international organizations like:
    - AMU-IMU conference
    - AMU-UMALCA Conference
    - AMU-CIMPA conference
    - AMU-European Mathematical Society Conference
    - AMU-LMS Conference
    - AMU-Spanish Mathematical Societies (Royal and Applied Mathematic)
    - AMU-Turkish Mathematical Society Conference
    - AMU-Chinese Mathematical Society, etc.
- An agenda and tentative planning for the AMU activities to be undertaken during the mandate 2017-2021 has been set up and a brief overview will be given during the CDC panel to be held in 7th August in RIO.
- You are all cordially invited to express your interest to co-organize some of the already set up events or enrich the tentative planning by other suggestions.

#### 14.4. EMS

Presentation by Pavel Exner, President European Mathematical Society

#### **The European Mathematical Society**

<https://euro-math-soc.eu/>

*Who are we?*

Representing mathematics at the continent, which was its breeding ground for many generations, the European Mathematical Society presently comprises of

- 53 national societies (some countries have two or three)
- 46 institutional members, mostly research institutes and centers
- two associate societies

- and about 3000 individual members

together representing some 50-60 thousand mathematicians of Europe.  
Let me briefly recall our main activities.

Our congresses are quadrennial, interlaced with the ICM's.

The next, 8th ECM will convene in two years from now, on July 5-11, 2020, in Portorož, Slovenia, about 40 km from Trieste, easy to reach from major European hubs.

We expect around 1500 participants and all of you are sincerely welcome! For more information visit <https://www.8ecm.si/>.

### *The EMS prizes*

At the congress we award ten EMS Prizes to young mathematicians, not older than 35 years.

So far, every sixth of our laureates won a Fields Medal later and we hope that this tradition will continue.

In addition, we have Felix Klein prize for outstanding mathematical results that found applications in industry and Otto Neugebauer Prize for excellent work about the history of mathematics.

### *Our other activities*

Since time is short, let me just list our topical committees:

- Applied Mathematics
- Developing Countries
- Education
- ERCOM, or European Research Centers in Mathematics (28 of them, no other continent has such a dense network)
- Ethics
- European Solidarity helping mathematicians in less developed regions
- Meetings
- Publications and Electronic Dissemination
- Raising Public Awareness
- Women in Mathematics

and mention that we support summer schools, conferences, distinguished speakers, and a lot more, see <http://euro-math-soc.eu/>.

### *Our publications*

The EMS Publishing House was founded in 2001. Presently its portfolio includes

- Journal of the European Mathematical Society (JEMS)
- Commentarii Mathematici Helvetici
- Journal of Spectral Theory
- Publications of the RIMS
- and 17 other journal titles
- about 10-15 books every year

For more information see <http://www.ems-ph.org/>.

We also publish the EMS Newsletter which offers a lot of interesting reading, <http://euro-math-soc.eu/newsletter>.

*Our collaborations*

We have reciprocity and cooperation agreements with a number of societies, specifically

- American Mathematical Society
- Australian Mathematical Society
- Canadian Mathematical Society
- Chinese Mathematical Society
- Mathematical Society of Japan
- UMALCA
- Bernoulli Society
- International Association of Mathematical Physics

with which we exchange information and run common projects.

*To conclude*

The world on mathematics is a connected set and we are happy to share common passion with our colleagues from other continents.

Now we eagerly expect the ICM which starts in two days and we are glad that the next one will return after long sixteen years to the continent where the ICM was born.

#### 14.5. MCofA

Presentation by Susan Friedlander, Executive Committee MCofA

#### **Mathematical Council of the Americas**

<http://www.mcofamericas.org/>

The Mathematical Council of the Americas is a network of professional mathematics societies and research institutes based in the Americas, dedicated to promoting the development of mathematics in all its aspects throughout the continent.

We are delighted that this year the MCofA became an affiliate member of the IMU.

The choice of 2013 for our quadrennial new Congress seemed natural because it was the open year in the round of the existing major quadrennial congresses, namely the ICM, the ICIAM Congresses and the ECM. We had to work hard and fast to ensure that MCA 2013 was successful.

With the dedicated help of many mathematicians in the Americas and generous financial support from various sources the first MCA took place in beautiful Guanajuato, Mexico on August 5-9, 2013. It was attended by close to 1000 mathematicians of all ages and from institutions throughout the Americas.

After the success of MCA2013 it was clear that we needed to develop a more formal structure to ensure the future continuity of the MCA. We took as our model the IMU and the ICM and the steering committee morphed into the Mathematical Council of the Americas. Details of the MCofA can be seen at the website [www.mcofamericas.org](http://www.mcofamericas.org)

This structure was in place for the organization of MCA2017 last year in Montreal which once again had over 1000 registrants and showcased excellent mathematics.

The MCofA also co-sponsors workshops involving at least two institutes that belong to the MCofA and it provides limited support to educational activities such as EMALCAs.

Work is currently in progress to organize MCA2021 which will be in Buenos Aires, Argentina on July 19-23, 2021. Please visit the website [www.mca2021.org](http://www.mca2021.org) and consider adding this Congress to your calendar.

## 14.6. SEAMS

Presentation by José Maria P. Balmaceda, President SEAMS

### **Southeast Asian Mathematical Society**

<http://www.seams-math.org/>

- SEAMS is a regional society whose members are national mathematical societies in Southeast Asia
- Founded in 1972, it seeks to promote the advancement of mathematics and facilitate collaboration among mathematicians in the region
- It is governed by the SEAMS Council – comprised by the Presidents and representatives of the member-national societies

Member-Societies (foundation dates)

- Singapore Mathematical Society (founded 1952)
- Vietnam Mathematical Society (1966)
- Malaysian Mathematical Sciences Society (1970)
- Mathematical Society of the Philippines (1973)
- Indonesian Mathematical Society (1976)
- Mathematical Association of Thailand (1978)
- Hong Kong Mathematical Society (1979)
- Cambodian Mathematical Society (2005)
- Mathematical Society of Myanmar (2013)
- Nepal Mathematical Society (affiliate member since 2010)

Major Activities

- The Asian Mathematical Conference (AMC) is a focal activity, held every 4 to 5 years. AMC 2020 will be in Vietnam.
- The forerunner of the ICMI-EARCOME conferences was the Southeast Asian Conference on Mathematics Education (SEACME), organized by SEAMS from 1978 to 1999.
- SEAMS became an affiliate member of the IMU in 2010.

The Society runs the SEAMS School Programme – intensive study/research schools for advanced undergraduates and master's students, patterned after EMALCA, with financial support from CIMPA.

Partnerships

- SEAMS has a reciprocity agreement with the London Mathematical Society
- We recently partnered with the Mathematical Society of Japan to implement the Tosio Kato Research Fellowship – to be awarded to an outstanding young researcher from Southeast Asia

- We look forward to welcoming the mathematical societies of Laos and Brunei soon to SEAMS

SEAMS publishes the bimonthly journal, Southeast Asian Bulletin of Mathematics. We invite you to submit articles. Visit: [www.seams-bull-math.ynu.edu.cn](http://www.seams-bull-math.ynu.edu.cn).

#### THE SEAMS COUNCIL

##### PAST PRESIDENTS

- Ling San (2016-2017)
- Edy Baskoro (2014-2015)
- Le Tuan Hoa (2012-2013)
- Fidel Nemenzo (2010-2011)
- Rosihan Ali (2008-2009)
- Wanida Hemakul (2006-2007)
- Tan Eng Chye (2004-2005)

The Founding President was WONG YUNG CHOW (Univ of Hong Kong, 1973-1974)

Please visit our website: [www.seams-math.org](http://www.seams-math.org)

## 14.7. UMALCA

Presentation by Guillermo Cortiñas, President UMALCA

### **Unión Matemática de América Latina y el Caribe**

[www.umalca.org](http://www.umalca.org)

#### UMALCA - MATH UNION - LATIN AMERICA & THE CARIBBEAN

##### Programs

- EMALCAS
- Travel Grants
- CLAM, UMALCA prize

##### *EMALCAS*

Description: Schools, mostly directed to students having little opportunity for contact with math researchers. Taught by prestigious research mathematicians.

Aim: Reach out to students, put them in contact with research math

Sponsors: CIMPA (Regular sponsor), IMU's CDC, MCA.

Schools 2018: Guatemala, El Salvador, Argentina, Venezuela, Cuba, Mexico.

##### *Travel grants*

Description: travel support grants for research visits and for attending conferences within the region, taking place at a country other than that of the awardee.

##### *CLAM, UMALCA prize*

Description: Region-wide meeting, modelled on ICM, taking place every 4 years

Past meetings: 2000: Rio de Janeiro, Brasil; 2004: Cancún, Mexico; 2009: Santiago de Chile, Chile; 2012: Córdoba, Argentina; 2016: Barranquilla, Colombia

Next meeting: 2020: Uruguay

UMALCA Prize Awardees 2016: Henrique Bursztyn, Robert Morris (Brazil); Andrés Navas (Chile); Pablo Shmerkin (Argentina)

#### 14.8. Friends of the IMU (FIMU)

Presentation by Don McClure, Treasurer of FIMU

##### **Friends of the International Mathematical Union**

<http://friends-imu.org/>

U.S.-based charitable organization, incorporated in 2008 (US 501 (c)(3) non-profit corporation)

##### *Mission*

- Raise Funds to support IMU programs that foster mathematics research and scholarship in developing countries
- Provide administrative support for the Chern Medal

##### *Fundraising*

- 900 donors in 2017
  - USD 116,200 donated to FIMU in 2017, a typical non-ICM year
  - USD 68,700 in Grants made to the IMU in 2017
  - USD 82,000 in Grants to the IMU budgeted in 2018, plus Chern Medal Awards
- Grants support CDC Developing Country Fund, Graduate Fellowships, Volunteer Lecturer Fund, Committee for Women in Mathematics, Capacity & Network Project

##### *Operations*

- A lean operation managed by Board of Directors and Officers
- Five-member Board includes IMU President, IMU Secretary, three members appointed by the IMU (David Eisenbud, Olga Gil-Medrano, Ronald Stern)
- Officers include President & Secretary (ex officio) and Treasurer (elected by the Board)
- No permanent staff
- Administrative Services provided by the AMS
- Basic services provided by outside professionals: law firm, accounting firm, website design & maintenance

#### 14.9. ICIAM

Presentation by José A. Cuminato, Treasurer of ICIAM

##### **The International Council for Industrial and Applied Mathematics**

<http://iciam.org/>

ICIAM is a worldwide organization for professional applied mathematics societies, and for other societies with a significant interest in industrial or applied mathematics.

The Council works to advance the applications of mathematics in all parts of the world.

ICIAM has no individual members. Societies can be members in two categories:

- Full members are societies dedicated primarily into applied and/or industrial mathematics

- Associated members may also have other interests but still significant activity in applied and/or industrial mathematics

Currently there are:

- 21 full members
- 29 associate members

Most recent ones:

- Vietnam Math. Society
- South African SAMSA

All together probably having more than 150 individual members

ICIAM congresses

Since 1987 ICIAM organizes a large congress every 4 years.

About 3000-3500 participants in the last ones.

Some past venues: Zurich (2007), Vancouver (2011), Beijing (2015)

Future venues: Valencia, Spain (2019), Tokyo (2023).

Call for mini-symposia for ICIAM 2019 open until November 18, 2018!

Prizes and recognitions

Five prizes are awarded at every ICIAM congress:

- The Collatz Prize, the Lagrange Prize, The Maxwell Prize, the Pioneer Prize and the Su Buchin Prize
- Each Prize has different scope.

The 2019 prizes will be announced on September 17, 2018.

- The Olga Taussky-Todd honorary Lecture, given by a woman mathematician at every congress since 2007
- The 2019 OTT lecturer will be Françoise Tisseur (Univ. Manchester)

Support to the applications of mathematics in developing countries

Funding the participation of young participants to scientific events all over the world. Three events per year.

Recent funded events:

- 2016: Morocco, Mauritania, Philippines, South Africa
- 2017: Argentina, Colombia, Morocco
- 2018: India, India, Vietnam

Collaboration with IMU

Currently

- Participation in the ICSU Gender Gap project.

In the past

- Educational interfaces between mathematics and industry, (ICMI-ICIAM), 2003.
- Quantitative assessment of research (QAR), ICIAM-IMS-IMU, 2007.

ICIAM Dianoia

Editor-in-Chief: Barbara Keyfitz

Managing Editor: Sean Bohun

- Is a quarterly electronic newsletter, around 15-20 pages in each issue, with articles, news, presentations of the member societies, etc.

- Editors in: Austria, Czech Republic, France, Germany, India, Italy, South Korea, Spain, UK, USA
- You can all subscribe online at the webpage: <http://iciam.org/dianoia>

15. Review of the activities of the Union (cont'd.)

15.1. ICMI overview

Presentation by Jill Adler, President of ICMI

**International Commission on Mathematical Instruction (ICMI)**

*ICMI Activities 2014-2017*



*ICMI Members and Representatives*

- In 2017, ICMI had 94 member countries, 87 are also members of the IMU.
- With the help of IMU Secretary, a main effort was devoted to renew the appointments of representatives of most of the 94 ICMI members countries and/or appoint new ones.

*Collaboration with IMU*

1. Representation:

- a) one IMU EC member served as IMU liaison member in the ICMI EC (2014-2016 Cheryl Praeger, 2017 Alicia Dickenstein), plus ex officio members (IMU President and IMU Secretary)
- b) ICMI leadership participated in IMU GA 2014
- c) Consultation with ICMI regarding the Mathematics Education and Popularization Section of the ICMS (Section 18)
- d) Collaboration with the CDC and CWM: ICMI appoints one member to the CDC (2011-2018 A. Ruiz, incoming L. Radford). Collaboration in the Gender Gap project.

2. Elections: The 2017-2020 ICMI EC is the 3rd Executive elected by the ICMI General Assembly. The IMU President was a member of the ICMI EC nominating committee.

*Core Activities of ICMI 2014-2017*

The ICMI pursues both mathematics for all and mathematics for mathematically related careers to ensure that talented students are nurtured and continue to feed into the community of mathematicians.

- ICME Conferences and ICMI General Assembly (GA)
- ICMI Studies and other publications
- Development Activities (CANP, ICME Solidarity Funds, Collaboration with UNESCO)

- ICMI Regional Conferences
- Awards
- Klein Project
- Collaboration with ICMI affiliated organizations and study groups

### *International Congresses on Mathematical Education (ICMEs) and ICMI GA*

2016: ICMI GA held July 23, 2016

- 87 participants
- Election of ICMI EC

ICME-13: Hamburg, Germany 24-31 July 2016

- 3,500 participants from 105 countries
- 10% of its registration fees were dedicated to the ICME Solidarity Fund
- 230 scholars received partial or full financial support (travel, accommodation and registration fee)
- Special teacher activities: 250 teachers attended
- Early Career Researcher Day: 450 participated
- Proceedings published (open access) 2017

ICME-14: Shanghai, China July 2020

- 2017 first IPC meeting, Alicia Dickenstein represented IMU

### *ICMI Studies 2014-2017*

- Study 21 Mathematics Education and Language Diversity (2016)
- Study 22 Task Design in Mathematics Education (2015)
- Study 23 Building the Foundation: Whole Numbers in the Primary Grades (published open source 2018; 120,000 downloads)
- Study 24 Curriculum reform in mathematics education (launched 2017)

### *Capacity and Network Project (launched 2011)*

#### *Capacity and Network Project (2014-2017)*

- CANP 2:
  - publication of Regional Reports (Mathematics Teacher Education in Central America and the Caribbean, 2016)
  - General Assembly of Regional Network and II Congress of Mathematics Education for Central America and the Caribbean) was held in Colombia 2017.
- CANP 3 South East Asia: Follow up meeting during EARCOME 2015 Philippines
- CANP 4 East Africa: workshop (2014 in Tanzania), Follow up ( follow up 2016 in Rwanda), publication of Regional Reports (Mathematics Education in East Africa, 2016)
- CANP 5 Andean Region and Paraguay: Workshop 2016 in Peru, follow up in Ecuador 2017)



### *ICMI AWARDS*

Launched in 2003: awarded every two years and presented at ICMEs

From 2020 every four years, aligning with the ICME conference

- Felix Klein Award: For lifetime achievement
  - 2015 Prof Alan Bishop (UK, Australia)
  - 2017 Prof Deborah Ball (USA)
- Hans Freudenthal Award: For a major program of research in mathematics education during the past decade
  - 2015 Prof Jill Adler (South Africa)

- 2017 Prof Terezinha Nunes (UK)
- In 2014 the ICMI EC launched The ICMI Emma Castelnuovo Award: for Excellence in the Practice of Mathematics Education
  - 2016 first award: Hugh Burkhardt, Malcolm Swan (UK) (deceased)

#### *Klein Project 2014-2017*

- Aim: producing mathematics resources for secondary teachers on contemporary mathematics
- Klein meetings and workshops have been held in Portugal, Spain, UK, Brazil, USA, Germany, Sweden.
- Created considerable interest and excellent discussions between mathematicians, mathematics educators, and teachers.
- Klein blog published 23 vignettes available in several languages: contributions sought from mathematicians. Blog: <http://kleinproject.org>

#### *Finances: Sources of Income 2014-2017*

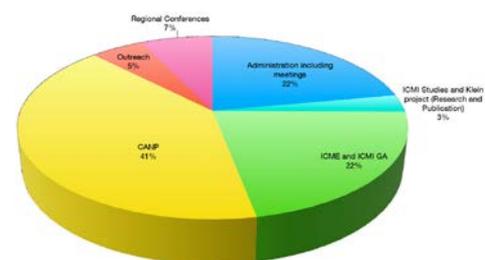
- IMU annual grant  
2014-2017 EUR 58,000 per year  
Special grants in 2015 (for ICME-13 EUR 8,000), and in 2017 (EUR 8,867)
- Project grants  
e.g., from ICSU, UNESCO and other institutions for specific projects and activities (for CANPs, ICMI Studies, etc.)
- Individuals and institutions contribute ( $\geq 50\%$ ) pro bono effort and financial support to ICMI activities

#### *Finances: Spending 2014-2017 and a glimpse into 2018-2021*

##### Planned Expenses 2018-2020

- ICME14 and ICMI GA 2020
- CANP Activities 2018-2021 (workshop 2018 and regional activities in all 5 CANP regions)
- Open Access of ICMI Studies
- Shipment Cost for ICMI and ICME publications
- Regional conferences

##### Spending 2014-2017



#### *In conclusion*

- The ICMI EC would like to thank IMU, ICSU, UNESCO, the IMU Commission for Developing Countries (IMUCDC), the IMU Secretariat and its host institution WIAS Berlin and all individuals who are actively involved in ICMI activities for all the support and collaboration 2014-2017.
- The ICMI EC would also like to highlight the work of all individuals who are actively involved in ICMI activities and without whom ICMI activities and outreach would not be possible.

In this and all the work presented, we look forward to our ongoing collaboration with the IMU.

## 15.2. CDC presentation

Presentation by Wandera Ogana, President of CDC

## Commission for Developing Countries (CDC)

### Activity Report 2014-2017

#### Members 2014-2017

	<b>CDC 2011-2014</b>	<b>CDC 2015-2018</b>
CDC President	José-Antonio de la Peña (Mexico)	Wandera Ogana (Kenya)
CDC Secretary for Policy	C. Herbert Clemens (USA)	Olga Gil Medrano (Spain) since 1.1.2016 C. Herbert Clemens (USA) 1.1.2015-31.10.2015
CDC Secretary for Grant Selection	Srinivasan Kesavan (India)	Srinivasan Kesavan (India)
African Member	Wandera Ogana (Kenya)	Mama Foupouagnigni (Cameroon)
Asian Member	Hoang Xuan Phu (Vietnam)	Polly Sy (Philippines)
Latin American Member	Carlos Cabrelli (Argentina)	Alf Onshuus (Colombia)
CDC member appointed by the IMU EC	Ragni Piene (Norway)	Budi Nurani Ruchjana (Indonesia)
CDC member appointed by the IMU EC	Polly W. Sy (Philippines) -	Angel Pineda (USA/Honduras)
CDC member appointed by the ICMI EC	Angel Ruiz (Costa Rica)	Angel Ruiz (Costa Rica)
IMU President and Ex-officio CDC Member	Ingrid Daubechies (USA)	Shigefumi Mori (Japan)

#### *IMU Definition of Developing Countries*

In 2015 EC decided (after a proposal by CDC) to raise the limit of the gross national income (GNI) of a country to USD 11,000 (from previously USD 7.500) in order to define Developing Countries.

It was also agreed that this limit should be redefined every 4 years within the cycles of the ICMs, since some ICM decisions hinge on the definition of Developing countries. Consequently, the 2015-2018 Definition for Developing Countries reads:

*IMU classifies Developing Countries as those with Gross National Income (GNI) per capita in USD, not exceeding USD 11.000, in accordance with the United Nations data (December 2015).*

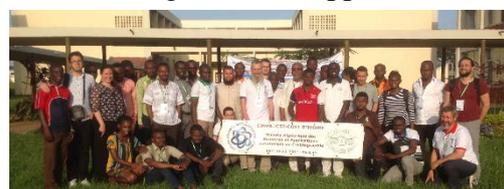
#### *CDC Activities during 2014-2017*

During 2014 -2017 the Commission for Developing Countries (CDC) has continued to use the funds it receives from the International Mathematical Union (IMU) and various donors to support mathematics research and advanced mathematical teaching in developing countries and allocated its funds in 2014-2017 for the following purposes:

#### *Conference Support*

The Conference Support Program gives partial support to conferences organized in developing and economically disadvantaged countries. The Program also supports a few major international conferences occurring in developed countries. The maximum amount is EUR 3,500.

The support is intended solely for the participation of mathematicians from developing countries.



**During the interval 1st January 2014– 31st December 2017 a total of 159 conferences have been supported. The total amount awarded was EUR 229,685.**

### *Project Support*

This program supports capacity building projects and activities in mathematics and mathematics education, be they international, regional or local initiatives in developing countries.

**During 2014-2018 the total amount of EUR 194,187 was distributed to projects.**

The following kind of projects were supported:

- Support programs for Graduate Students (AMMSI and other projects)
- Lecturing and Mentoring (MARM Project with LMS)
- Teacher Training and Mathematics Education including Math Olympiads
- Workshop Support
- Support for IT and Resources



### *Lecturing and Mentoring*

CDC runs two lecturing and mentoring programs:

- a) Volunteer Lecturer Program (VLP)
- b) African Diaspora Mathematicians Program (ADMP)

**The Volunteer Lecturer Program (VLP)** is offering universities in the developing world lecturers for intensive 3-4 week courses in mathematics at the advanced undergraduate or master's level. Funding for the Volunteer is provided by CDC. The program receives support by the American Mathematical Society (AMS).

**During 2014-2017 a total of 34 courses in 16 countries were supported (EUR 72,327)**

### **African Diaspora Mathematicians Program (ADMP)**

Offering partnerships between African Diaspora mathematicians and Mathematics academic units at any university in Africa. Initially, the Program is running as a pilot program in Africa for two years (May 2017 - June 2019) and involves a total of three partnerships (Ethiopia, Cameroon, Zimbabwe).



### *Individual Research Visits*

Between 2014 and 2017 ran three programs supporting research visits which are designed for postdoctoral mathematicians.

- a) **Abel Visiting Scholar Program (since 2013)**

The Niels Henrik Abel Board gives an annual grant of USD 15,000 to support mathematicians professionally based in developing countries to visit an international research collaborator for a period of one month.

**Thirteen (13) fellowships were granted in the period 2014 - 2017.**

- b) **IMU-Simons African Fellowship Program (2016-2021)**

The program supports research sabbaticals for mathematicians from African developing countries employed in Africa to travel to an internationally known mathematical centre of excellence (worldwide) for collaborative research. The program receives 50.000 USD per year from the Simons Foundation, NY (USA).

**During the interval 1<sup>st</sup> September 2016– 31st December 2017, 18 mathematicians were selected.**

- c) **IMU-Simons Travel Fellowship Program (2014-2017)**

The program supported travel costs for research visits (minimum stay is four weeks) by mathematicians based in developing and economically disadvantaged countries to an international centre of excellence.

**During the interval 09/2013- 05/2017 the total amount of EUR 49,562 was granted to 32 scholars.**

#### *Graduate Support Program*

The CDC offers two scholarship schemes to support graduate studies, in a developing country, leading to an Master or PhD degree in the mathematical sciences.

- a) **IMU Breakout Graduate Fellowship Program** (since 2016) funded by the generous donations of the winners of the Breakthrough Prizes in Mathematics –and supports postgraduate students. The program is developed with the assistance of the Friends of IMU (FIMU) and The World Academy of Sciences (TWAS). In 2016 three students (from Botswana, Colombia and Vietnam) were awarded with a fellowship.
- b) **Graduate Research Assistantships in Developing Countries Program (GRAID)** (since 2017)

Research assistantships for graduate – PhD and Master – students of emerging research groups working in a developing country listed in Priority 1 or 2 of the IMU CDC Definition of Developing Countries. The GRAID Program is funded by voluntary donations from mathematicians or mathematical institutions worldwide. The funds are transferred by the American Mathematical Society to the grantees.

In 2017, two research groups were selected for support, one in Cameroon and the other in Morocco.

#### *Other activities and programs 2014-2017*

##### **Library Assistance Scheme**

CDC offers limited financial support for shipment costs for individual scientists or institutions wishing to donate books in the mathematical sciences to libraries in developing countries.



##### **Special Activities during ICMs:**

##### **MENAO (2014) and CDC Panel and Poster Session 2018**

In 2014, the IMU CDC organized a day-long symposium prior to the opening of the ICM2014 in Seoul, Korea entitled *Mathematics in Emerging Nations: Achievements and Opportunities* (MENAO).

During the ICM CDC also organized three NANUM Networking with NANUM grantees.

In 2017 CDC started to organize a panel discussion and poster session on Strengthening Mathematics in the Developing World to be held on August 7, 2018 in Rio.

##### **Reports on mathematics research and graduate education in emerging nations**

CDC members and regional partners prepared in 2013 and 2014 three reports about the current state of mathematics in Africa, Asia and Latin America and on opportunities for new initiatives to support mathematical development. The reports were made available in August 2014 at the MENAO Symposium.

##### **Meetings and Policy Issues**

CDC met in 2015 and in 2017 to discuss various issues.

##### **CDC Website**

In the 2017 a new CDC website was launched (together with the new IMU website) and new online forms and databases were developed. The new website replaced the CDC website which was launched in 2012. The CDC website is hosted by WIAS Berlin.

CDC's principal source of 'core' income is an annual grant from the International Mathematical Union (IMU). IMU in turn receives its financial support from IMU member countries.

Additionally, CDC received 2014-2017 financial support from

- Niels Henrik Abel Board
- Simons Foundation NY
- Breakthrough Winners in Mathematics
- American Mathematical Society (AMS)
- USNC/Math
- Japanese Mathematical Society
- Swiss Mathematical Society
- FIMU
- Individual mathematicians donating to various programs

The Commission for Developing Countries would like to express its profound thanks to all institutions and individuals supporting CDC and its activities.

Furthermore, CDC would like to extend its thankfulness to all volunteers.

We are truly appreciative of those individuals who dedicate their time to support all CDC activities: as members of evaluation committees, as Volunteer Lecturers, as donors of mathematical materials and as organizers of CDC activities and who help current and future generations both at home and within the mathematical community abroad.

CDC is looking forward to future collaboration with all its supporters, cooperation partners and volunteers.

More information about CDC and its activities can be found on the website: [www.mathunion.org/CDC](http://www.mathunion.org/CDC)

### 15.3. ICHM presentation Endorsement of Terms of Reference for ICHM

Presentation by June Barrow-Green, Chair of the ICHM EC

#### International Commission on the History of Mathematics (ICHM)

##### EXECUTIVE COMMITTEE

**Chair:** June Barrow-Green (UK),

**Vice-chair:** Niccolò Guicciardini (Italy),

**Secretary:** Sloan Despeaux (USA),

**Treasurer:** Henrik Kragh Sørensen (Denmark)

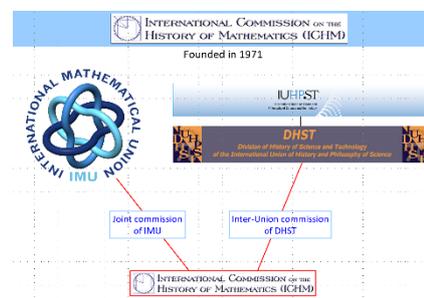
**Members-at-Large:** Thomas Archibald (Canada), Abdelmalek Bouzari (Algeria), Michela Malpangotto (France), Volker Remmert (Germany), Clara H. Sánchez (Colombia), Galina Sinkevich (Russia), GUO Shirong (China)

**IMU Representatives:** Ciro Ciliberto (Italy), Shrikrishna G. Dani (India),

**Ex-Officio:** Craig Fraser (Canada) (immediate past chair), Reinhard Siegmund-Schultze (Norway) (editor *Historia Mathematica*), Nathan Sidoli (Japan) (editor *Historia Mathematica*)

##### MEMBERS

Algeria, Australia, Austria, Belgium, Belorussia, Brazil, Canada, China, Costa Rica, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Guatemala, Iceland,



Iran, Israel, Italy, Japan, Kazakhstan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Russia, Saudi Arabia, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Syria, Taiwan, Tunisia, Turkey, Ukraine, United Kingdom, USA.

#### RECENT EXAMPLES of CO-SPONSORSHIP

- **History of Mathematical Sciences: Portugal and East Asia V**  
*Visual and Textual representations in exchanges between Europe and East Asia*  
2014 Taipei, Taiwan
- **Reading Mathematics in the Early Modern World**  
2014 Oxford, England
- **The Mathematical Sciences and the 20<sup>th</sup> Century Dictatorships**  
2015 Lisbon, Portugal
- **Novembertagung**  
The Novembertagung on the History of Mathematics is an annual international conference aimed at PhD and postdoctoral students in the history of mathematics and neighbouring fields.  
2015 – Turin, Italy  
2016 – Sandbjerg, Denmark  
2017 – Brussels, Belgium  
2018 – Seville, Spain
- **Mathematical Biography – A Mactutor Celebration**  
2017 St Andrews, Scotland
- **Symposia on the History of Mathematics at the ICHST**
  - *The Resurgence of Applied Mathematics 1850-1950*
  - *Mathematical Methods at Work in Ancient China*
  - *Global Mathematics*
2017 Rio de Janeiro, Brazil

#### HISTORIA MATHEMATICA

- *Founded by Kenneth O May in 1974*

- Original research in the history of mathematics from all times and cultures

- 4 issues, c.520 pages, p.a.

- Articles and book reviews

**Editors:** Reinhard Siegmund-Schultze (Norway), Nathan Sidoli (Japan)

#### MEDAL AND PRIZE

- **May Medal**

The Kenneth O. May Prize is awarded every four years to a historian or historians in recognition of distinguished contributions to the history of mathematics. First awarded in 1989.

**2017 Prizewinners**

Eberhard Knobloch (Germany), Roshdi Rashed (France)

- **Montucla Prize**

The Montucla Prize is an honour established in 2009 to recognize research in the history of mathematics. The prize is awarded every four years to the author of the best article published by a young researcher in *Historia Mathematica* in the four years preceding the International Congress of History of Science and Technology.

**2017 Prizewinner**

Jemma Lorenat (USA)

#### Terms of Reference for ICHM

Presented by Vasudevan Srinivas (EC member)

Resolution 9 from the 2014 GA:

The General Assembly permits the IMU Executive Committee to develop Terms of Reference for the International Commission on the History of Mathematics.

The complete Terms of Reference are in the GA papers and can be found on the Web at: <https://www.mathunion.org/ichm/about-us/about-us>.

The Terms of Reference have been endorsed by the IMU EC.

The Terms of Reference have been ratified by the Council of the Division of the History of Science (DHST) of the International Union for the History and Philosophy of Science and Technology (IUHPST) in 2017 and adopted by the IUHPST/DHST General Assembly on 26 July 2017.

**Resolution:**

The General Assembly endorses the Terms of Reference for the International Commission on the History of Mathematics.

**The General Assembly endorsed the Terms of Reference for the International Commission on the History of Mathematics.**

*VOTE (by show of hands): IN FAVOR = 149, OPPOSED = 0, ABSTENTIONS = 1*

#### 15.4. CEIC presentation

Presentation by Ingrid Daubechies, EC liaison for CEIC

#### **Committee on Electronic Information and Communication (CEIC)**

*Remit*

- To advise the IMU on aspects of its operations related to information and communication, including technical, legal and financial implications, and keep it informed of new developments.
- To review the development of electronic information, communication, publication, instruction, and archiving so as to keep the IMU abreast of current and emerging issues.
- To advise the IMU about potential opportunities to endorse standards and articulate best practice recommendations on issues related to the field, as well as potential opportunities to foster the growth and development of electronic infrastructure.

*Membership (current)*

- Thierry Bouche, Université de Grenoble, France
- Tim Cole, University of Illinois, USA
- Ingrid Daubechies, Duke University, USA
- James Davenport, University of Bath, UK (Chair)
- Patrick Ion, Mathematical Reviews (Emeritus), USA
- Alf Onshuus, Universidad de los Andes, Colombia
- Victoria Stodden, University of Illinois, USA
- Masukazu Suzuki, Kyushu University, Japan
- Ravi Vakil, Stanford University, USA

*Activities: GDML (Global Digital Mathematics Library)*

- ICM 2014: Expert Group meets.
- 8-person WG (chair: Patrick Ion) formed
- Fields Institute workshop 2016
- Outreach at several mathematics meetings (ECM, JMM)
- Legal structure established: International Mathematical Knowledge Trust (a Canadian charity), supported by, but legally and financially independent of, IMU. Will establish subsidiaries in other tax jurisdictions (standard format)
- Find out more: Panel at ICM (7 August)

*Activities: IMU operations*

- IMU-Net: articles in most issues
- Archiving of electronic material — now stable but needs continuous watch as technologies change
- ICSU (ISC) World Data System — issues of reproducibility, software citation etc.
- IMU — publishing and Digital Object Identifiers, also recommendations for ICM publishing, etc.

*Activities: keeping abreast*

CEIC has produced various “best practices” documents, which are being updated to track:

- Developments in Open Access and funder requirements, contrasted with developments in commercial publishing
- Access by the visually impaired
- Developments in overlay journals (requirements for indexing etc., “what is an article”?)
- Developments in research assessment and the (mis)use of metrics (a particular challenge for smaller systems)

## 15.5. CWM presentation

Presentation by Caroline Series, Vice chair of CWM

### **Committee for Women in Mathematics (CWM)**

#### *TERMS OF REFERENCE*

- (1) To promote international contacts between national and regional organizations for women in mathematical sciences;
- (2) To maintain the Women in Mathematics pages on the IMU website
- (3) To organize an electronic community of women mathematicians
- (4) To work with groups, committees and commissions of IMU on topics pertaining to women mathematicians and their representation;
- (5) To publicize and suggest, working practices that ensure equal opportunities for women mathematician
- (6) To report annually to the EC and propose actions

#### *COMMITTEE MEMBERS IN THE PERIOD 2015-2018*

- Marie-Françoise Roy, France (Chair, in charge of electronic communication);
- Caroline Series, UK, (Vice Chair, in charge of the CWM website);
- Carolina Araujo, Brazil;
- Bill Barton, New Zealand;
- Ari Laptev, UK and Sweden;
- Kristin Lauter, USA;

- Sunsook Noh, S. Korea;
- Marie-Françoise Ouedraogo, Burkina Faso;
- Sujatha Ramdorai, Canada;
- Betül Tanbay, Turkey.

Non-voting EC Liaison: John Toland, UK.

Associate members

- Neela Nataraj (IIT Mumbai - Coopted for coordinating grant reports)
- Petra Bonfert-Taylor (Dartmouth College, USA - Coopted for website)

### *CWM WEBSITE*

Unique and important function as the only platform coordinating such diverse worldwide activity.

Initiated by Ingrid Daubechies.

Launched before CWM at the Seoul ICM.

Items (events, new women in maths organizations, newsworthy items, resources etc.) added every week.

36 countries listed with some form of organization.

### *CWM AMBASSADORS*

A network of 120 women (and supporters) in 76 countries.

Disseminate information from CWM.

Circulate information about initiatives.

### *ACTIVITIES FUNDED BY CWM: NETWORKS*

Annual call for supporting the networks of female mathematicians on a regional basis in developing or emerging countries.

In 2016-2018: over 150 applications, 29 funded, amounts up to 3 kEUR each.

2017: Brazil, Canada (Mathematical Congress of the Americas), Morocco, Chile, India, Nepal, Tunisia, South Africa, Iran, Vietnam, Mexico, Japan.

1500 participants in total in 2016-2017.

### *ACTIVITIES FUNDED BY CWM: ANOTHER EXAMPLE*

Short film *Faces of Women in Mathematics*

(Eugenie Hunsicker, Chair of the LMS Women in Maths Committee, Irina Linke, filmmaker).

Sequence of film clips of women saying, "I am (name) from (country), and I am a mathematician!" in the language of their choice.

146 clips featured 243 women mathematicians, 36 different countries speaking in 31 different languages. See <https://vimeo.com/259039018>.

### *GENDER GAP IN SCIENCE PROJECT*

Major project: 100,000 EUR per year 2017-19, 11 partners\*.

IMU lead union, funded by International Council of Science.

Aims: to produce sound data to support the choices of interventions that ICS and its member unions can feasibly undertake to reduce the gender gap.

Focus on developing countries.

Survey of Scientists: Open until October 31st 2018, <https://gender-gap-in-science.org/>.

\* IMU, IUPAC, IUPAP, ICIAM, IAU, IUBS, ACM, IUHPST, UNESCO, OWSD,

GenderInSite

### *ACTIVITIES AROUND ICM RIO*

First World Meeting for Women in Mathematics on July 31.

Satellite event of ICM.

350 participants, half from Open Arms.

Latin American focus.

Including a Memorial to Maryam Mirzakhani.

CWM Panel during the ICM, 18:00-19:30 on 2 August

*The gender gap in mathematical and social sciences from an historical perspective.*

### *JOURNEYS OF WOMEN IN MATHEMATICS*

Film created by CWM, filmed and edited by Micro-Documentaries, made possible by a grant from the Simons Foundation.

Neela Nataraj (India), Aminatou Pecha (Cameroon) and Carolina Araujo (Brazil) featured in their home countries and a group of six women from various Latin American countries interviewed at (WM)<sup>2</sup>.

Documents both the successes and barriers for women in mathematics, in the words of the women themselves. First version premiered at (WM)<sup>2</sup>, final version available after the summer.

### *FINANCIAL REPORT*

<b>Income</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>		
From preceding year		5 367,11 €	2 147,41 €		
IMU	19 320,00 €	19 320,00 €	39 320,00 €		
FIMU		5 958,66 €			
<b>Total</b>	<b>19 320,00 €</b>	<b>30 645,77 €</b>	<b>41 467,41 €</b>		
<b>Expenses</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>Total</b>	<b>% total</b>
CWM funded activities	6 600,00 €	22 777,00 €	27 850,00 €	57 227,00 €	75,97%
(WM) <sup>2</sup> Logo, flyer, poster		1 500,00 €	1 434,35 €	2 934,35 €	3,90%
CWM meeting, coordination and participation to events	7 151,86 €	3 587,98 €	2 746,72 €	13 486,56 €	17,90%
Bank costs	201,03 €	633,38 €	841,57 €	1 675,98 €	2,23%
<b>Total</b>	<b>13 952,89 €</b>	<b>28 498,36 €</b>	<b>32 872,64 €</b>	<b>75 323,89 €</b>	<b>100,00%</b>

## 16. Presentation of Resolutions Committee

Rolf Jeltsch, Chair of the Resolutions Committee, presented resolutions drafted by the Resolutions Committee. Each resolution was voted on by show of hands.

### **Resolution 1:**

The General Assembly of the IMU expresses its deep gratitude to the Organizing Committee of the ICM 2018 chaired by *Marcelo Viana* and to the Organizing Committee of the General Assembly chaired by *Paolo Piccione* for their dedicated work and for their excellent organization, their special efforts in helping delegates in obtaining their visas, and their warm welcome to the delegates.

### **Resolution 1 was passed.**

*VOTE (by show of hands): IN FAVOR = Unanimous*

### **Resolution 2**

The General Assembly of the IMU expresses its deep appreciation to the Executive Committee, in particular to the IMU President *Shigefumi Mori* and to the chair of the Program Committee *János Kollár*, for their excellent work during the period 2015–2018. It especially

thanks the IMU Secretary General *Helge Holden* for his dedication and his passionate work for the IMU and its Adhering Organizations as the Secretary of the IMU.

**Resolution 2 was passed.**

*VOTE (by show of hands): IN FAVOR = Unanimous*

**Resolution 3**

The General Assembly of the IMU thanks *Alexander Mielke, Sylwia Markwardt, Lena Koch, Birgit Seeliger, Gerhard Telschow, and Frank Klöppel* for their dedicated work in the IMU Secretariat and for all their multiple contributions to the IMU. Special thanks are due to *Sylwia Markwardt* for her deep commitment to the IMU through a long and distinguished career with the IMU.

**Resolution 3 was passed.**

*VOTE (by show of hands): IN FAVOR = Unanimous*

**Resolution 4**

The General Assembly of the IMU thanks the members of all the IMU Committees and Commissions for their dedication and hard work for the mathematical community and the IMU.

**Resolution 4 was passed.**

*VOTE (by show of hands): IN FAVOR = Unanimous*

**Resolution 5**

The General Assembly of the IMU thanks individuals and organizations that have contributed with funds to the IMU.

**Resolution 5 was passed.**

*VOTE (by show of hands): IN FAVOR = Unanimous*

**Resolution 6**

The IMU Secretary shall henceforth be denoted Secretary General and the IMU Statutes be changed correspondingly.

**Resolution 6 was passed, see Item 3.1.2 of the agenda.**

*VOTE (by show of hands): IN FAVOR = 149, OPPOSED = 0, ABSTENTIONS = 1*

**Resolution 7**

The General Assembly requests the 2019-2022 IMU Executive Committee, giving due consideration to all the issues involved, to determine and set up statutes for a prize continuing and with the same purpose and scope as the Nevanlinna Prize but with a new name and appropriate funding to be secured.

The statutes of the new prize will be sent to the Adhering Organizations for approval by a postal ballot.

**Resolution 7 was passed**, see Item 4.2 of the agenda (wording has changed).

*VOTE (by show of hands): IN FAVOR = 140, OPPOSED = 2, ABSTENTIONS = 8*

### **Resolution 8**

1. No person can receive more than one IMU award. An exception is that an individual can receive the Leelavati Prize in addition to one other IMU award.
2. An ICM Emmy Noether Lecturer cannot have been a Plenary Speaker at an earlier ICM and can give the ICM Emmy Noether lecture only once.
3. No person can receive an IMU Award or be an ICM Emmy Noether Lecturer while serving on the IMU Executive Committee.

**Resolution 8 was passed**, see Item 4.3 of the agenda (wording has changed).

*VOTE (by show of hands): IN FAVOR = Majority*

### **Resolution 9**

The General Assembly of the IMU expresses its deep gratitude to Germany, and in particular to the Weierstrass Institute for Applied Analysis and Stochastics (WIAS) for their generous support of the IMU Secretariat.

The General Assembly of the IMU endorses that the current Stable Office for the International Mathematical Union, established as a cooperation between WIAS and the IMU, be made permanent.

The General Assembly charges the IMU President and IMU Secretary General to sign an agreement with WIAS.

The Executive Committee establishes an Office Committee that reports bi-annually to the IMU Executive Committee, and the IMU Executive Committee reports their findings to the General Assembly.

**Resolution 9 was passed**, see Item 9.2 of the agenda.

*VOTE (by show of hands): IN FAVOR = 147, OPPOSED = 0, ABSTENTIONS = 3*

### **Resolution 10**

The IMU General Assembly approves the Annual Financial Reports for the years 2014 to 2017. Moreover, it approves the building up of financial reserves from any annual surplus as reported in the income and expenditure statements.

**Resolution 10 was passed**, see Item 11.1 of the agenda.

*VOTE (by show of hands): IN FAVOR = Unanimous*

### **Resolution 11**

The IMU General Assembly grants discharge to the IMU Executive Committee and to the IMU Treasurer for their activities during the period 2014 to 2017.

**Resolution 11 was passed**, see Item 11.1 of the agenda.

*VOTE (by show of hands): IN FAVOR = Unanimous*

### **Resolution 12**

The General Assembly endorses the Terms of Reference for the International Commission on the History of Mathematics.

**Resolution 12 was passed**, see Item 15.3 of the agenda.

*VOTE (by show of hands): IN FAVOR = 149, OPPOSED = 0, ABSTENTIONS = 1*

## 17. Ballot results of Elections, Finance and Dues voting

Sun-Yung Alice Chang, Chair of the Tellers Committee, reported the ballot results to the IMU President. The President read out the results of voting. (Numerical results of the balloting were provided, but they are not published on the Minutes.)

Elected were the IMU EC, the CDC, and the ICHM as follows:

### *IMU Executive Committee (EC) 2019-2022*

<i>IMU President</i>	<b>Carlos E. KENIG</b>	USA
<i>IMU Secretary</i>	<b>Helge HOLDEN</b>	Norway
<i>IMU Vice President</i>	<b>Nalini JOSHI</b>	Australia
<i>IMU Vice President</i>	<b>Loyiso G. NONGXA</b>	South Africa
<i>EC Member-at-Large</i>	<b>Luigi AMBROSIO</b>	Italy
<i>EC Member-at-Large</i>	<b>Andrei OKOUNKOV</b>	Russia
<i>EC Member-at-Large</i>	<b>Paolo PICCIONE</b>	Brazil
<i>EC Member-at-Large</i>	<b>Ramakrishnan Trivandrum RAMADAS</b>	India
<i>EC Member-at-Large</i>	<b>Gang TIAN</b>	China
<i>EC Member-at-Large</i>	<b>Günter M. ZIEGLER</b>	Germany

### *Commission for Developing Countries (CDC) 2019-2022*

<i>CDC President</i>	<b>Dipendra PRASAD</b>	India
<i>CDC Secr. Policy</i>	<b>Olga GIL-MEDRANO</b>	Spain
<i>CDC Secr. Grants</i>	<b>Aif ONSHUUS</b>	Colombia
<i>CDC, African Member</i>	<b>Mama FOUPOUAGNIGNI</b>	Cameroon
<i>CDC, Asian Member</i>	<b>Jose Maria P. BALMACEDA</b>	Philippines
<i>CDC, Latin Am. Member</i>	<b>Andrea SOLOTAR</b>	Argentina

### *International Commission for the History of Mathematics (ICHM) 2019-2022*

<i>ICHM</i>	<b>Isobel FALCONER</b>	UK
<i>ICHM</i>	<b>Catherine GOLDSTEIN</b>	France

**The General Assembly approved the Recommendations of the Finance and Dues Committee as follows:**

– **The General Assembly of the IMU approves that the unit contribution for the years 2019–2022 be EUR 1,430.00.**

–**The General Assembly approves the 2019–2022 budget as proposed by the Treasurer to the General Assembly.**

*VOTE (by ballot): IN FAVOR = 141, OPPOSED = 7, ABSTENTIONS = 2*

## 18. Structure of future ICMs

Presentation by Helge Holden, IMU Secretary

### **Current system:**

The Program Committee – PC – (chair appointed by IMU President; 10–12 members appointed by the EC) is responsible for the following tasks:

1. The PC decides the **structure of the ICM**, i.e., the sectioning of contemporary mathematics into subdisciplines;
2. The PC selects for each section the **panel members** that recommend speakers in the section;
3. The PC decides on **all speakers** (plenary and sectional).

**Constraints:** Two physical meetings. Time limit of 2 years. About 200 speakers and about 200 panel members (for about 20 sections). Work in secrecy.

One consequence is that the structure of the ICMs does not change much.

Is the ICM able to reflect changes in contemporary mathematics? Emerging fields?

How do we handle neighboring fields to mathematics?

János Kollár, chair of the PC for the ICM 2018:

“The PC also felt that the choice of Sections is a major task that could be best handled by a separate committee that could gather information over a longer period.”

To consider this issue, the EC formed an ad-hoc committee chaired by former IMU President László Lovász (other members G. Ben Arous, Maria J. Esteban, Masaki Kashiwara, Carlos E. Kenig, Dusa McDuff, Emmanuel Ullmo, M. Raghunathan) that recommended to form a Structure Committee.

The EC decided to recommend to the General Assembly to create a Structure Committee and that a part of the current tasks of the Program Committee is given to the Structure Committee as follows:

### **Structure Committee:**

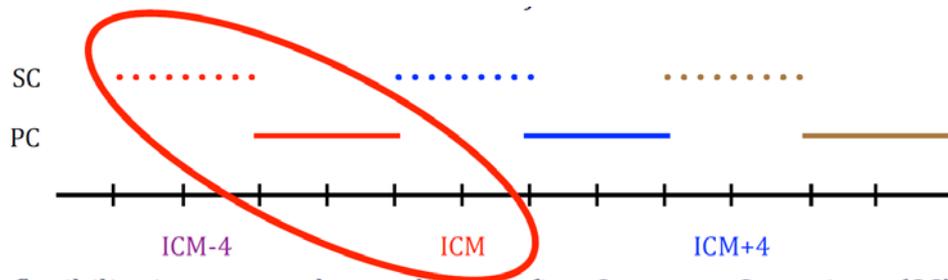
To decide the sections for the ICM with target numbers for each section.

### **Program Committee:**

To decide on panel members and speakers for a given structure.

Currently, the tasks of the Program Committee are described in the Guidelines for the Program Committee and Organizing Committee (“PC/OC Guidelines”).

The EC has edited the Guidelines for the Program Committee and Organizing Committee, and drafted the new Guidelines for the Structure Committee.



Some flexibility is requested regarding the first Structure Committee (SC) in consultations with Chairs of SC and PC and the incoming EC. The SC should serve for two ICMs, and the PC for one ICM.

Pending approval by the General Assembly to create a Structure Committee, László Lovász (former IMU President and chair of the ad-hoc committee) has agreed to be the chair of the first Structure Committee.

## 18.1. Creation of an ICM Structure Committee (ICM SC)

### 18.1.1. ICM SC Terms of Reference, guidelines

Revised PC/OC Guidelines to include the ICM SC

#### Resolution:

1. The GA endorses the creation of the ICM Structure Committee with terms of reference as described in the Guidelines for the ICM Structure Committee.
2. The GA endorses the changes in the Guidelines for the Program Committee and Organizing Committee.
3. The EC is authorized to edit the Guidelines for the ICM Structure Committee and the Guidelines for the Program Committee and Organizing Committee based on the discussion at the GA.

- 1. The General Assembly endorsed the creation of the ICM Structure Committee with terms of reference as described in the Guidelines for the ICM Structure Committee.**
- 2. The General Assembly endorsed the changes in the PC/OC Guidelines.**
- 3. The General Assembly authorized the Executive Committee to edit the Guidelines for the ICM Structure Committee and the PC/OC Guidelines based on the discussion at the General Assembly.**

*VOTE (by show of hands): IN FAVOR = Unanimous*

## 19. Procedure for selecting the site of an ICM post 2022

Presented by Helge Holden, IMU Secretary

#### Current procedure:

**Year ICM-6:** Deadline for submitting bid.

**Year ICM-5:** Site visits by the Site Visiting Committee; slight revisions of bids.

**Year ICM-5:** Site Selection Committee (comprised of the EC and the Chair of the Local Organizing Committee of the previous ICM) makes a recommendation to the GA.

**Year ICM-4 (=GA):** Final decision by the GA.

**Problem:** The time between the recommendation by the Site Selection Committee and the General Assembly is too long, approximately 1.5 year. If there is more than one candidate left after the recommendation by the Site Selection Committee, then there is a long time with considerable uncertainty before the General Assembly.

**Current procedure:**

Alternative A

**Year ICM-6:** Deadline for submitting bid

**Year ICM-5:** Site visits by the Site Visiting Committee; slight revisions of bids

**Year ICM-5:** Site Selection Committee (comprised of the EC and the Chair of the Local Organizing Committee of the previous ICM) makes ~~a recommendation to the GA~~

**Year ICM-4 (=GA):** ~~Final decision by the GA~~ decides the venue.

Is informed about the decision.

Gives the host one more year to prepare, and it is easier to have a good discussion about the alternatives in the EC. Reduces the power of the GA.

**Current procedure:**

Alternative B

**Year ICM-5:**

~~Year ICM-6:~~ Deadline for submitting bid.

**Year ICM-4:**

~~Year ICM-5:~~ Site visits by the Site Visiting Committee; slight revisions of bids

**Year ICM-4:**

~~Year ICM-5:~~ Site Selection Committee (comprised of the EC and the Chair of the Local Organizing Committee of the previous ICM) makes a recommendation to the GA.

**Year ICM-4 (=GA):** Final decision by the GA.

~~**Problem:** The time between the recommendation by the Site Selection Committee and the General Assembly is too long, approximately 1.5 year.~~

0.5 year

**Motion:**

**Alternative A (SSC decides)**

**Year ICM-5:** The Site Visiting Committee makes site visits; bids may be revised.

**Year ICM-5:** The Site Selection Committee makes the final decision, and bidders are informed.

**Year ICM-4 (=GA):** The General Assembly is formally informed about the decision, and the chosen host makes a presentation of the bid.

**Alternative B (SSC & GA decide)**

**Year ICM-4:** The Site Visiting Committee makes site visits; revise bids.

**Year ICM-4:** The Site Selection Committee makes a pre-selection of up to two bidders.

**Year ICM-4 (=GA):** The two chosen contenders make a presentation at the General Assembly, which then makes the final decision.

The General Assembly discussed the issue and concluded.

**The General Assembly approved the procedure for selecting the site of an ICM post 2022 along the lines of proposed Alternative B (Site Selection Committee & GA decide):**  
 – Year ICM-4: The Site Visiting Committee makes site visits; revise bids.  
 – Year ICM-4: The Site Selection Committee makes a pre-selection of up to two bidders.  
 – Year ICM-4 (=GA): The two chosen contenders make a presentation at the General Assembly, which then makes the final decision.

**The EC to revise the current ICM Bidding Guidelines accordingly including the proviso that the Site Selection Committee may, but does not have to, make a recommendation to the General Assembly.**

*VOTE (common consent): IN FAVOR = Majority*

#### 19.1. ICM 2026, announcement of interest to bid

Presented by Helge Holden, IMU Secretary

*IMU AO Circular Letter 8/2018 (24 April 2018):*

The IMU will give countries interested in organizing the ICM in 2026 the possibility to pre-announce at this GA their plans to bid, see Item 19.1 of the agenda. Therefore, we ask countries that are contemplating to do so, to send an email to the IMU Secretary by 1 June. A country can still make a formal bid when the official call is announced without having pre-announced it at this GA.

Helge Holden informed that no notice regarding plans to bid for ICM 2026 has been received. GA participants encouraged the French AO to make for a bid for ICM 2026.

The US delegation to the GA announced very preliminary plans to consider the possibility of hosting an ICM.

## 20. IMU Membership

### 20.1. New Members

Report by Helge Holden, IMU Secretary

*IMU membership development during 2014-2018: new Members*

- Kenya (Group I)
- Luxembourg (Group I)
- Malaysia (Group I)
- Morocco (Group I)
- Senegal (Group I)
- Thailand (Group I)
- Oman (Group I)

*IMU membership development during 2014-2018: new Associate Members*

- Bangladesh
- Paraguay
- Uzbekistan

*IMU membership development during 2014-2018: Associate Membership extended for a 2<sup>nd</sup> four-year term*

- Gabon
- Papua New Guinea

*IMU membership development during 2014-2018: new Affiliate Member*

- Mathematical Council of the Americas

## 20.2. Group changes

*IMU membership development during 2014-2018: Group of adherence changes*

- Turkey (from Group I to Group II)
- Brazil (from Group IV to Group V)

## 20.3. Applications for Membership/Associate Membership

### Presentations of new members

### **Application of Kyrgyzstan for IMU membership in Group I**

Presented by Abubakir Dzhuraev, President of the Kyrgyz Mathematical Society

Letter of the Mathematical Society of Kyrgyzstan, May 17, 2018

Dear Prof. Helge Holden, I request you on behalf of the Mathematical Society of Kyrgyzstan for membership of the International Mathematical Union. Our society is a nongovernmental organization hand has a certificate of the Ministry of Justice of the Kyrgyz Republic, which confirms its status as a republican organization. We hope that being a part of IMU, Kyrgyz mathematicians will have better opportunity to extend their scientific cooperation with the international mathematical community and expand possibilities to contribute for development and promotion of mathematics in an international level.

Kyrgyzstan is located in Central Asia. The population of Kyrgyzstan is about 6 million people with a large ratio of young people.

Currently, there are 10 universities in Kyrgyzstan, where you can find a mathematical department. The most active universities in the field of mathematical research are Kyrgyz National University, Kyrgyz-Russian Slavic University, Osh State University, Kyrgyz State University, Kyrgyz-Turkish Manas University. The National Academy of Sciences regularly organizes scientific events, some mathematicians are permanent members of this academy.

The number of permanent professors in mathematics in public universities is about 250 professors. More than 500 students graduate each year in mathematics. Most permanent professors also conduct research as duties and conduct reasonable research activities.

For graduate students, a limited number of temporary research positions are offered. The number of graduate students is about 100. There is the Mathematical Society of Kyrgyzstan.

Number of papers issued by the mathematical community:

- 2017: 80
- 2016: 77
- 2015: 47
- 2014: 59

It should be emphasized that mathematicians in Kyrgyzstan have established strong joint relations with many international universities. Conferences, seminars and seminars on mathematics are regularly held in Kyrgyzstan, which will update current research and strengthen cooperation.

For example, in Kyrgyzstan, the Fifth World Congress of Mathematicians of the Turkic world (TWMS 2014) was held.

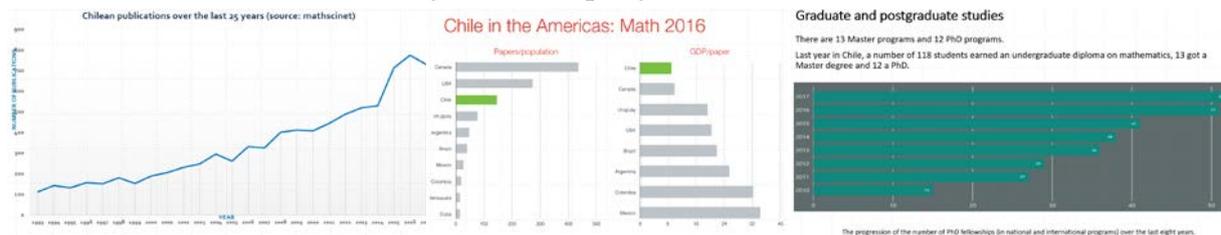
## Application of Chile to change IMU Group of adherence from II to III

Presented by Andrés Navas, President of the Chilean Mathematical Society

### Mathematics in Chile until 1990

People coming mostly from Germany, including Augusto Tafelmacher, Ricardo Poenish, Francisco Proschle and, some decades later, Carlos Grandjot, came to Chile to build the first school of mathematicians.

### Mathematical research in Chile, and graduate and postgraduate studies



Valdivia (April 2018).  
Chiloé, the biggest island of Chile,  
October 2018. October 2018

### Application of Portugal to change IMU Group of adherence from II to III

Presented by Maria Manuel Clementino, President Portuguese National Mathematics Committee

*CNM (Comissão Nacional Matemática) associates*

Research Unit	Institution	Members (2013)
CEAFEL, Centro de Análise Funcional, Estruturas Lineares e Aplic	U Lisboa	23
CAMGSD, Centro de Análise Mat, Geometria e Sistemas Dinâmicos	U Lisboa	73
CEAUL, Centro de Estatística e Aplicações	U Lisboa	38
CIDMA, Centro de Investig e Desenvolvimento em Mat et Aplic	U Aveiro	88
CIMA, Centro de Investigação em Matemática e Aplicações	U Évora	42
CEMAPRE, Centro de Matemática Aplicada à Economia	U Lisboa	34
CEMAT, Centro de Matemática Computacional e Estocástica	U Lisboa	33
CMUC, Centro de Matemática da Univ de Coimbra	U Coimbra	67
CMAT, Centro de Matemática da Univ do Minho	U Minho	51
CMUP, Centro de Matemática da Univ do Porto	U Porto	50
CMA/FCT/UNL, Centro de Matemática e Aplicações	U Nova Lisboa	65
CMA-UBI, Centro de Matemática e Aplic da Univ da Beira Interior	U Beira Interior	23
CMAF-CIO, Centro de Matemática, Aplic Fund e Invest Operacional	U Lisboa	65
GFMUL, Grupo de Física-Matemática da Univ de Lisboa	U Lisboa	15

<i>PhD and postdoc programmes</i>	Institutions
DP, PMI – PhD in the Physics and the Math of Information	CEMAPRE, U Lisboa CMAF-IO, U Lisboa
LisMath – Lisbon Mathematics PhD	CMAF-CIO, U Lisboa GFMUL, U Lisboa CEMAT, U Lisboa CEAFEL, U Lisboa
MAP-PDMA – Doctoral Programme in Applied Mathematics	CIDMA, U Aveiro CMAT, U Minho CMUP, U Porto
UCjUP MATH PhD Program	CMUC, U Coimbra CMUP, U Porto

<i>Publications 2007-2016</i>	
Top 100 MCQ of Mathematical Reviews: 574 First Quartile of the Web of Science: 2941	

In the last decade, the postdoc programme, funded by FCT, through a national call, and by the research units and projects, hosted a large number of young researchers, recruited from a wide variety of institutions (with PhD from more than 75 institutions) and more than 30 countries.

### *Math Olympiads*

- Portuguese Mathematical Olympiad (OPM) had its first edition in 1983.  
**1983:** 151 schools, 6028 students.  
**At present:** \_ 1000 schools, > 75000 students.
- First participation in the International Math Olympiad: 1989.  
**Medals:** 3 gold (2011, 2012 and 2013), 4 silver, 31 bronze.  
**Best collective result:** 2009, 33rd place among 104 countries.

The table below lists the ranking of the Portuguese team in the last years.

2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
52	54	47	52	33	36	37	46	54	33	67	62

Portugal also participates regularly in the

- Ibero-American Math Olympiad,
- Olympiad of the CPLP,

having organized the 1st Olympiad of the CPLP and the XXII Ibero-American Math Olympiad.

In 2018 the XXXIII Ibero-American Math Olympiad is jointly organized by the Portuguese Mathematical Society and the Royal Spanish Mathematical Society.

### *Delfos School*

<http://www.mat.uc.pt/~cmuc/OA/delfos.html>

a project from the Department of Mathematics of the University of Coimbra, has been responsible for the preparation and selection of the teams that have represented Portugal. These stages of preparation have been, over the years, fundamental for the improvement of the country's performance in international competitions.

### *Atractor - Interactive Mathematics*

<http://www.atractor.pt/>

This is a site devoted to Mathematics Popularization, where you can find mathematical contents, with images, several interactive materials and animations.

Collective members:

- Univ. do Porto, Univ. de Coimbra, Univ. de Aveiro
- Portuguese Mathematical Society
- Mathematics Teachers Association

## 20.4. Membership applications balloting

Helge Holden reported that the IMU Executive Committee has reviewed the applications of Kyrgyzstan, Chile, and Portugal and recommended to accept the applications.

### **Motion**

- 1. The General Assembly approves that Kyrgyzstan be admitted as a Member of the IMU in Group I, effective August 2018.**
- 2. The General Assembly approves that Chile's adherence to the IMU be changed from Group II to Group III, effective August 2018.**
- 3. The General Assembly approves that Portugal's adherence to the IMU be changed from Group II to Group III, effective August 2018.**

**The General Assembly approved that**

- Kyrgyzstan be admitted as a Member of the IMU in Group I, effective August 2018**
- Chile adheres to Group III of the IMU, effective August 2018**
- Portugal adheres to Group III of the IMU, effective August 2018**

*VOTE (by show of hands): IN FAVOR = Unanimous*

#### 20.5. Termination of membership in case of unpaid dues

The Secretary General informed that a two-thirds majority (Art. 32) of the total votes of all IMU members with voting rights (i.e., at least 108 votes) is necessary for the decision.

The applicable article of the Statutes reads as follows:

*"32. Any Adhering Organization which is in arrears with its contributions for two years shall be warned and shall be deprived of its voting rights.*

*Any Adhering Organization which is in arrears for four years shall cease to be an adherent of the Union.*

*In any case, before taking action, the Executive Committee shall submit the question to the Members of the Union by postal ballot or at a meeting of the General Assembly who under special circumstances may waive these provisions by a two-thirds majority of the total number of votes assigned to the Members."*

After discussion of the issue, the amended resolution was put to vote:

#### **Resolution**

**An IMU member will automatically lose its membership by the end of 2019 if at present (July 30, 2018) it is four or more years in arrears, and if the EC finds that two or more years of dues remain unpaid by December 31, 2019, and if the EC, after having analyzed thoroughly the case of each particular Adhering Organization, finds it appropriate.**

**The General Assembly decided that an IMU member will lose its membership by the end of 2019 if at present (July 30, 2018) it is four or more years in arrears, and if the Executive Committee finds that two or more years of dues remain unpaid by December 31, 2019, and if the Executive Committee, after having analyzed thoroughly the case of each particular Adhering Organization, finds it appropriate.**

*VOTE (by show of hands): IN FAVOR = 147, OPPOSED = 0, ABSTENTIONS = 3*

## 20.6. Res. 13 GA 2014, introduction of new membership category “Regional Member”

### 20.6.1. Report and recommendation

Presentation by Wendelin Werner, IMU EC member

*Resolution 13 from 2014 GA:*

The General Assembly requests that the IMU Executive Committee study the feasibility of introducing a new category of “IMU Regional Member”.

Explanation: (abbreviated)

Eligibility requirements would include

- 1) that the group of countries shall be contiguous or closely related, geographically,
- 2) that no country in the regional group be an IMU member country,
- 3) that each individual country in the group shall already have status as an associate member in good standing of the IMU,
- 4) that the cumulative mathematical level in the regional group, taken together, meets IMU standards,
- 5) that there is a regional organization that can collectively represent the countries in the region according to the norms IMU requires of its current adhering bodies.

At its meeting in 2016 in Kyoto, the EC created an internal committee to consider this issue. The committee presented its proposal at the 88th IMU EC meeting, April 1-2, 2017 in London.

**Pros:** It may help smaller mathematical communities in becoming active members of IMU through such a regional structure. This regional structure could also be useful in itself to create and improve local networking and activities.

**Cons:** The definition of regional member is rather involved and implementing it could easily end up creating complications or tensions. The administrative overhead can be considerable.

**Amended IMU Statutes:**

#### IV Regional Membership

13. In order to enable mathematical communities to be part of IMU in those exceptional cases where this does not appear to be possible via the other membership options, a regional and geographically coherent group of countries can pool and adhere to the Union as one single Regional Member through a Regional Adhering Organization.
14. A Regional Adhering Organization is a single organization that is created by mathematicians from each of these countries. It is advised that the countries involved do contact the Executive Committee prior to creating such an organization to see if the application for Regional Membership is likely to be accepted. The Regional Adhering Organization shall then form a Committee for Mathematics as described in article 5 and submit an application for Regional Membership. In addition to the usual application documents, the application should contain a justification of the fact that the other membership options are not possible, and it should also provide evidence for the fact that the Regional Adhering Organization indeed represents and has the full support of the national communities from all its participating countries.
15. When an application is made for Regional Membership of the Union, the Executive Committee shall examine the application, and decide whether the application should be

passed on for a vote to the Members of the Union or not. In the former case, the Executive Committee makes a recommendation to the members of the Union, by correspondence, by e-mail or at a meeting of the General Assembly. The Members shall then accept or reject the application either by postal ballot or at a meeting of the General Assembly.

16. A country that has previously been a full (individual) member of the Union is not eligible to apply for Regional Membership as part of Regional group. Exceptions may be granted under very extreme and exceptional circumstances by the Executive Committee. Former associate members that have not been full members are eligible.
17. Regional Membership is for a period of four years from the date of election, renewable for one further period of four years on request to the Secretary of the Union. In the renewal request, the Regional Adhering Organization should again provide evidence for the fact that the Regional Adhering Organization indeed represents and has the full support of the national communities from all the participating countries. The dues, paid by the Regional Adhering Organization, and voting rights of a Regional member are otherwise the same as that of a group I member. The Regional Adhering Organization names one voting delegate to the General Assembly. It is also allowed to send up to two additional observers (with no voting rights) from two further different countries that are part of the regional union and who can attend the General Assembly.
18. If the set of mathematical countries affiliated to a Regional Adhering Organization wishes to change (for instance because a country wishes to join, or because a country wishes to leave), then a new written application has to be made to the IMU, and the procedure described in c is repeated.

#### 20.7. Balloting on Revised IMU Statutes to include Regional Membership

The 18th General Assembly of the IMU was asked to consider the following resolution.

**Resolution:**

1. The GA decides to introduce the new membership category of Regional Members.
2. The IMU statutes are changed as in the attached document.

After discussion of the issue the resolution (Item 1 was amended by the possibility to have Regional Membership extended beyond two terms.) was put to vote.

**The General Assembly disapproved the resolution to introduce the new membership category of Regional Members. Thus, there will no changes in the IMU statutes regarding this issue.**

*VOTE (by show of hands): OPPOSED = 47*

The required two-thirds majority (108 votes) was not obtained (see Item 2.5).

#### 21. Resolutions balloting

Rolf Jeltsch, Chair of the Resolutions Committee, presented resolutions drafted by the Resolutions Committee. Each resolution was voted on by show of hands.

**Resolution 13:**

The IMU General Assembly decides to accept the offer from the Adhering Organization of Russia to host the 2022 International Congress of Mathematicians and the 19th General Assembly of the IMU in St. Petersburg. The IMU General Assembly warmly thanks the Adhering Organization of France for their excellent bid to host the 2022 International Congress of Mathematicians in Paris.

**Resolution 13 was passed**, see Item 7.6 of the agenda.

*VOTE (by ballot): IN FAVOR of France = 63, IN FAVOR of Russia = 83, ABSTENTIONS = 4*

**Resolution 14:**

1. The GA endorses the creation of the ICM Structure Committee with terms of reference as described in the Guidelines for the ICM Structure Committee.
2. The GA endorses the changes in the Guidelines for the Program Committee and Organizing Committee.
3. The EC is authorized to edit the Guidelines for the ICM Structure Committee, and the Guidelines for the Program Committee and Organizing Committee based on the discussion at the GA.

**Resolution 14 was passed**, see Item 18.1 of the agenda.

*VOTE (by show of hands): IN FAVOR = Unanimous*

**Resolution 15**

An IMU member will automatically lose its membership by the end of 2019 if at present (July 30, 2018) it is four or more years in arrears, and if the EC finds that two or more years of dues remain unpaid by December 31, 2019, and if the EC, after having analyzed thoroughly the case of each particular Adhering Organization, finds it appropriate.

**Resolution 15 was passed**, see Item 20.5 of the agenda.

*VOTE (by show of hands): IN FAVOR = 147, OPPOSED = 0, ABSTENTIONS = 3*

22. Miscellaneous

Ragni Piene, delegate from Norway, suggested that the 2019–2022 EC invites a female Observer to participate at the EC meetings.

The proposal was not put to a formal vote at the General Assembly, but received considerable support, and was noted by the Executive Committee.

23. Any other item with the permission of the President

The IMU President expressed special thanks to Sylwia Markwardt, Manager of the IMU Secretariat, for her deep commitment to the IMU through a long and distinguished career with the IMU.

The President thanked all GA attendants for coming, he thanked the local organizers for the excellent organization and smooth running of the meeting. The President declared the 18<sup>th</sup> General Assembly closed.

## **EC MEMBERS**

Mori, Shigefumi (IMU President)  
Holden, Helge (IMU Secretary)  
Dickenstein, Alicia (IMU Vice President)  
Jones, Vaughan (IMU Vice President)  
Park, Hyungju (EC Member-at-Large)  
Rousseau, Christiane (EC Member-at-Large)  
Srinivas, Vasudevan (EC Member-at-Large)  
Toland, John (EC Member-at-Large)  
Werner, Wendelin (EC Member-at-Large)  
Daubechies, Ingrid (IMU Past President)

Mielke, Alexander (IMU Treasurer)  
Markwardt, Sylwia (IMU Manager)

## **MEMBERS**

### **Algeria, group I**

Nouri, Fatma

### **Argentina, group III**

Barberis, Laura

Cagliero, Leandro

Sanchez Terraf, Pedro

### **Armenia, group I**

Avetisyan, Karen

### **Australia, group IV**

Burton, Benjamin

Joshi, Nalini

Praeger, Cheryl

Villavicencio, Guillermo

### **Austria, group II**

Lamel, Bernhard

### **Belgium, group III**

Dumortier, Freddy

### **Bosnia And Herzegovina, group I**

Avdispahic, Muharem

### **Brazil, group V**

Barichello, Liliane

Bessa, Gregorio

Kohayakawa, Yoshiharu

Mesquita, Jaqueline

Santos, Walcy

### **Bulgaria, group I**

Revalski, Julian

### **Cameroon, group I**

Foupouagnigni, Mama

### **Canada, group V**

Adem, Alejandro

Darmon, Henri

Khanin, Konstantin

Vinet, Luc

**Chile, group II**

Carvacho, Mariela

Navas, Andres

**China, Chinese Mathematical Society, group V**

Chen, Dayue

Tian, Gang

Yuan, Xaxiang

**China, Mathematical Society located in Taipei, group V**

Chen, Jungkai

Cheng, Shun-Jen

**Colombia, group I**

Uribe, Bernardo

**Croatia, group I**

Kraljevic, Hrvoje

**Czech Republic, group III**

Nesetril, Jaroslav

Nesetrilova, Helena

Ryjacek, Zdenek

**Denmark, group II**

Orsted, Bent

Rordam, Mikael

**Ecuador, group I**

Torres, Luis

**Egypt, group II**

Sweilam, Nasser

**Finland, group III**

Hytönen, Tuomas

Lassas, Matti

Mattila, Pertti

**France, group V**

Benzoni, Sylvie

Esteban, Maria

Loeser, Francois

Mezard, Ariane

Remy, Bertrand

**Gabon, group I**

Nang, Philibert

**Georgia, group I**

Natroshvili, David

**Germany, group V**

Fassbender, Heike

Götze, Friedrich

Hanke, Bernhard

Röckner, Michael

Ziegler, Günter

**Hong Kong, group I**

Qiao, Zhonghua

**Hungary, group III**

Babai, Laszlo

Katona, Gyula

Simon, Peter

**India, group IV**

Prasad, Dipendra

Ramadas, T.R.

Shah, Riddhi

**Indonesia, group I**

Baskoro, Edy

**Iran, group IV**

Daneshkhah, Ashraf

Darafsheh, Mohammad Reza

**Ireland, group II**

Mckay, Benjamin

**Israel, group V**

Robins, Sinai

Soifer, Gregory

Teicher, Mina

**Italy, group V**

Cannarsa, Piermarco

Caporaso, Lucia

Liverani, Carlangelo

Nelli, Barbara

Patrizio, Giorgio

**Ivory Coast, group I**

Desquith, Etienne

**Japan, group V**

Kotani, Motoko

Kozono, Hideo

Ozawa, Tohru

Shimizu, Senjo

Tsuboi, Takashi

**Kazakhstan, group I**

Suragan, Durvudkhan

**Korea/Republic Of, group IV**

Keum, Jonghae

Kim, Jeong

Lee, Hyang-Sook

Lee, Yong-Hoon

**Latvia, group I**

Sadyrbaev, Felix

**Lithuania, group I**

Stepanuskas, Gediminas

**Luxembourg, group I**

Schlichenmaier, Martin

**Mexico, group III**

Arroyo, Aubin

Iturriaga, Renato

Teresa, Luz

**Nigeria, group I**

Akinwande, Ninuola

**Norway, group III**

Munthe-Kaas, Hans

Piene, Ragni

Ranestad, Kristian

**Oman, group I**

Hinai, Magda

**Pakistan, group I**

Noor, Waleed

**Philippines, group I**

Roque, Marian

**Poland, group IV**

Blocki, Zbigniew

Januszkiewicz, Lech

Marzantowicz, Wacław

Przytycki, Feliks

**Portugal, group II**

Buescu, Jorge

Clementino, Maria

**Romania, , group I**

Beznea, Lucian

**Russia, group V**

Kislyakov, Sergei

Okounkov, Andrei

Pechen, Alexander

Smirnov, Stanislav

Vassiliev, Victor

**Saudi Arabia, , group I**

Alfaiz, Humoud

**Senegal, group I**

Seck, Diaraf

**Serbia, group I**

Djoric, Mirjana

**Singapore, group I**

Tan, Victor

**Slovakia, group II**

Kalina, Martin

**South Africa, group II**

Kubayi, David

**Spain, group IV**

Jarque, Xavier

Marcellan, Francisco

Siles Molina, Mercedes

Vega, Luis

**Sweden, group IV**

Dencker, Nils

Rocco, Sandra

Tucker, Warwick

**Switzerland, group IV**

Jeltsch, Rolf

Morgenthaler, Stephan

Riviere, Tristan

Viazovska, Maryna

**Thailand, group I**

Suantai, Suthep

**Tunisia, group I**

Ali, Baklouti

**Turkey, group II**

Askar, Atilla

Tanbay, Betül

**United Kingdom, group V**

Huggett, Stephen  
Hunton, John  
Pila, Jonathan  
Roberts, Mark  
Series, Caroline

**Uruguay, group I**

Portela, Aldo

**USA, group V**

Chang, Sun-Yung  
Friedlander, Eric  
Lauter, Kristin  
Ono, Ken  
Ribet, Kenneth

**Vietnam, group I**

Phung, Ho

**ASSOCIATE MEMBERS**

**Bangladesh**

Uddin, Muhammad

**Cambodia**

Roath, Chan

**Madagascar**

Rakotondrajao, Fanja

**Nepal**

Pahari, Narayan

**Paraguay**

Pinto-Roa, Diego

**Uzbekistan**

Ashurov, Ravshan

**AFFILIATE MEMBERS**

**African Mathematical Union (AMU)**

El Yacoubi, Nouzha

**European Mathematical Society (EMS)**

Exner, Pavel

**Mathematical Council of Americas (MCofA)**

Friedlander, Susan

**Southeast Asian Mathematical Society (SEAMS)**

Balmaceda, Jose

**Union Matematica de America Latina y el Caribe (UMALCA)**

Cortinas, Guillermo

## **OBSERVERS**

Adler, Jill (South Africa)  
Alghafri, Mohammed (Oman)  
Anantharaman, Nalini (France)  
Arcavi, Abraham (Israel)  
Bailey, Katherine (United States of America)  
Balushi, Moza (Oman)  
Barrow-Green, June (United Kingdom)  
Belov, Yurii (Russia)  
Bertolini, Bruna (France)  
Bogomolov, Fedor (Russia)  
Cuminato, Jose (Brazil)  
Curbera, Guillermo (Spain)  
Dvorkovich, Arkady (Russia)  
Dzhuraev, Abubakir (Kyrgyzstan)  
Falconer, Isobel (United Kingdom)  
Frances, Charles (France)  
Gooya, Zahra (Iran)  
Grötschel, Martin (Germany)  
Hintermüller, Michael (Germany)  
Hounkonnou, Mahouton (Benin)  
Kenig, Carlos (United States of America)  
Kollár, János (United States of America)  
Kojima, Sadayoshi (Japan)  
Lovász, László (Hungary)  
McClure, Donald (United States of America)  
Medrano, Olga Gil (Spain)  
Moreira, Andrea (Ecuador)  
Nazar, Mudassar (Pakistan)  
Nongxa, Loyiso (South Africa)  
Ogana, Wandera (Kenya)  
Onshuus, Alf (Colombia)  
Recalde, Diego (Ecuador)  
Reddy, Daya (South Africa)  
Saez, Mariel (Chile)  
Solotar, Andrea (Argentina)  
Talay, Denis (France)  
Toure, Saliou (Ivory Coast)  
Volkov, Iurii (Russia)

## **GA ORGANIZERS**

Piccione, Paolo (Brazil)  
Viana, Marcelo (Brazil)