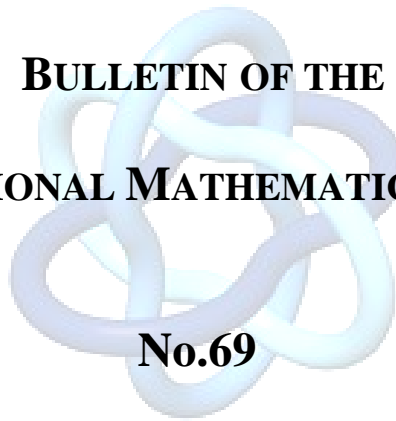


IMU

**BULLETIN OF THE
INTERNATIONAL MATHEMATICAL UNION**



No.69

December 2017

Secretariat:

*International Mathematical Union
Secretariat
Hausvogteiplatz 11a
D-10117 Berlin, Germany*

<https://www.mathunion.org/>

List of Abbreviations

AO	Adhering Organization
CDC	Commission for Developing Countries
CDE	Commission on Development and Exchange
CEIC	Committee on Electronic Information and Communication
CWM	Committee for Women in Mathematics
DCSG	Developing Countries Strategy Group
EC	Executive Committee
FIMU	Friends of the International Mathematical Union
GA	General Assembly
ICHM	International Commission on the History of Mathematics
ICM	International Congress of Mathematicians
ICM OC	ICM Opening Ceremony
ICMI	International Commission on Mathematical Instruction
ICSU	International Council for Science
IMU	International Mathematical Union
IUHPST	International Union for the History and Philosophy of Science and Technology

Dear Members of the International Mathematical Union

The annual meeting of the Executive Committee (EC) of the IMU took place in April in London, generously hosted by the London Mathematical Society. As usual in the four-year cycle of the IMU, considerable time was spent on various issues related to the 2018 General Assembly (GA) and ICM. Most importantly, the EC received an update from Marcelo Viana, the Chair of the Local Organizing Committee of the ICM 2018, about the progress regarding the planning of the ICM in Rio. Of special interest to the EC was a detailed discussion about specifics of the General Assembly in 2018 in São Paulo, and the EC started to prepare items for the agenda of the GA.

Calls went out to the Adhering Organizations regarding candidates for members of the EC, as well as the Commission for Developing Countries (CDC) and the International Commission on the History of Mathematics (ICHM).

In an unprecedented decision, the EC decided to offer travel support for one Delegate from each (regular, Associate, and Affiliate) Member to attend the General Assembly, which is the governing body of the IMU. In order that the decisions by the General Assembly receive the necessary authority, it is essential that the GA is well attended. Furthermore, it was decided to offer local support for all Delegates to the GA.

The Site Selection Committee, comprised of the EC and the chair of the Local Organizing Committee of the ICM 2014 (who, in fact, was on the EC), reviewed the two bids for the ICM 2022. The Site Selection Committee decided to recommend to the GA that the ICM 2022 be hosted in St. Petersburg.

The IMU has been a member of the International Council for Science (ICSU) since the inception of ICSU, and its predecessor International Research Council since the IMU was founded in 1920. Our membership in ICSU is even a part of the IMU Statutes. For some time, a possible merger between ICSU and the International Social Science Council (ISSC) has been discussed. Finally, at the General Assembly of ICSU in Oct 2017 in Taipei, it was decided with overwhelming support to merge the two bodies into International Science Council (ISC), and to have the first General Assembly of the new body in 2018. The merger is governed by French law.

The EC decided to try to create an International Day of Mathematics (IDM), with the goal to have UNESCO proclaim the IDM. It was decided to start by consulting the IMU Adhering Organizations about their interest in this initiative and asking for a suitable date for the IDM. The proposal received overwhelming support from the members. Various dates were proposed, and with a clear majority for March 14, «Pi Day». It was decided to proceed with the plans to have UNESCO proclaim March 14 as the IDM.

Membership issues are always an important part of the IMU activity, and we are trying to convince more countries to join the IMU. This way the IMU becomes stronger, and a better spokesperson on behalf of the international mathematical community. In 2017 Luxembourg became a member in group I of the IMU. Toward the end of 2017, the Mathematical Council of the Americas applied for Affiliate Membership, Bangladesh applied for Associate Membership, and Brazil applied for an upgrade of its membership to group V. With a recommendation from the EC, the matter was circulated to the Adhering Organizations of the IMU, and with a decision to be announced in the early part of the 2018.

At the end of 2017, the IMU launched its redesigned website. For the first time the IMU and its Commissions and Committees share the same layout and design.

With best wishes

Helge Holden
Secretary of the International Mathematical Union

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1. IMU Leadership and Membership Information

1.1. Executive Committee 2015-2018

INTERNATIONAL MATHEMATICAL UNION

Executive Committee

January 1, 2015 – December 31, 2018

President:	Shigefumi Mori	(Japan)
Vice-Presidents:	Alicia Dickenstein Vaughan Jones	(Argentina) (New Zealand/USA)
Secretary:	Helge Holden	(Norway)
Members-at-Large:	Benedict H. Gross Hyungju Park Christiane Rousseau Vasudevan Srinivas John F. Toland Wendelin Werner	(USA) (Korea) (Canada) (India) (United Kingdom) (Switzerland)
Ex-officio Member (Past President)	Ingrid Daubechies	(USA)



Meetings of the Executive Committee in 2017:

88th EC Meeting, London, United Kingdom, April 1-2, 2017

1.2. IMU Leadership 2015-2018

IMU Executive Committee (EC) 2015 – 2018

Shigefumi Mori	IMU President	Japan
Helge Holden	IMU Secretary	Norway
Alicia Dickenstein	IMU Vice President	Argentina
Vaughan Jones	IMU Vice President	New Zealand/USA
Benedict H. Gross	IMU EC Member-at-Large	USA
Hyungju Park	IMU EC Member-at-Large	Korea
Christiane Rousseau	IMU EC Member-at-Large	Canada
Vasudevan Srinivas	IMU EC Member-at-Large	India
John Francis Toland	IMU EC Member-at-Large	UK
Wendelin Werner	IMU EC Member-at-Large	Switzerland
Ingrid Daubechies	IMU EC Ex-officio Member (Past President)	USA

Commission for Developing Countries (CDC) 2015 – 2018

Wandera Ogana	CDC President	Kenya
Olga Gil Medrano	CDC Secretary Policy	Spain
Srinivasan Kesavan	CDC Secretary Grants	India
Mama Foupouagnigni	CDC, African Member	Cameroon
Polly Sy	CDC, Asian Member	Philippines
Alf Onshuus	CDC, Latin American Member	Colombia
Budi Nurani Ruchjana	CDC Member appointed by IMU EC	Indonesia
Angel Pineda	CDC Member appointed by IMU EC	USA/Honduras
Angel Ruiz	CDC Member appointed by ICMI EC	Costa Rica
Shigefumi Mori	CDC Ex-officio Member (IMU President)	Japan

C. Herbert Clemens (USA), elected CDC Secretary for Policy for the term 2015-2018, retired Oct 2015.

International Commission on the History of Mathematics (ICHM) 2015 – 2018

Ciro Ciliberto	ICHM	Italy
Shrikrishna G. Dani	ICHM	India

International Commission on Mathematical Instruction (ICMI) 2017 – 2020

Jill Adler	ICMI President	South Africa
Abraham Arcavi	ICMI Secretary-General	Israel
Merrilyn Goos	ICMI Vice President	Australia
Luis Radford	ICMI Vice President	Canada
Anita Rampal	ICMI EC Member-at-Large	India
Jean-Luc Dorier	ICMI EC Member-at-Large	Switzerland
Binyan Xu	ICMI EC Member-at-Large	China
Yuriko Yamamoto Baldin	ICMI EC Member-at-Large	Brazil
Zahra Gooya	ICMI EC Member-at-Large	Iran
Ferdinando Arzarello	ICMI EC Ex-officio Member (ICMI President 2013-2016)	Italy
Shigefumi Mori	ICMI EC Ex-officio Member (IMU President)	Japan
Helge Holden	ICMI EC Ex-officio Member (IMU Secretary)	Norway
Alicia Dickenstein	ICMI – IMU Liaison (elected by the IMU EC)	Argentina

Committee on Electronic Information and Communication (CEIC) 2015 – 2016/2018

(CEIC terms of membership are staggered.)

James Davenport	CEIC Chair	2015 – 2018	UK
	CEIC Member	2008 – 2014	
Thierry Bouche	CEIC Member	2011 – 2018	France
Tim Cole	CEIC Member	2013 – 2018	USA
Ingrid Daubechies	CEIC-IMU Liaison	2015 – 2018	USA
Patrick Ion	CEIC Member	2015 – 2018	USA
Alf Onshuus	CEIC Member	2017 – 2020	Colombia
Victoria Stodden	CEIC Member	2015 – 2018	USA
Masakazu Suzuki	CEIC Member	2015 – 2018	Japan
Ravi Vakil	CEIC Member	2011 – 2018	USA

Committee for Women in Mathematics (CWM) 2015 – 2018

Marie-Françoise Roy	CWM Chair	France
Caroline Series	CWM Vice-Chair	UK
Carolina Araujo	CWM Member-at-Large	Brazil
Bill Barton	CWM Member-at-Large	New Zealand
Ari Laptev	CWM Member-at-Large	UK/Sweden
Kristin Lauter	CWM Member-at-Large	USA
Sunsook Noh	CWM Member-at-Large	Korea
Marie-Françoise Ouedraogo	CWM Member-at-Large	Burkina Faso
Sujatha Ramdorai	CWM Member-at-Large	Canada
Betül Tanbay	CWM Member-at-Large	Turkey

Persons representing IMU in various organizations

Body	Representative/liaison	Term
Gruber Foundation, Cosmology Prize, Selection Advisory Board	Frans Pretorius	2015 – 2020
ICSU	Christiane Rousseau	2015 – 2018
ICSU Regional office for Latin America and the Caribbean (ROLAC)	Marcelo Viana	2015 – 2018
ICSU Regional office for Asia and the Pacific (ROAP)	Hyungju Park	2015 – 2018
ICSU Regional office for Africa (ROA)	Olabisi O. Ugbebor	2015 – 2018
UNESCO	Christiane Rousseau	2015 – 2018
Ramanujan Prize	Vasudevan Srinivas	2015 – 2018
ICMI (IMU EC liaison)	Alicia Dickenstein	2015 – 2018
CDC (IMU EC liaison)	Hyungju Park	2015 – 2018
ICHM (IMU EC liaison)	Vasudevan Srinivas	2015 – 2018
CEIC (IMU EC liaison)	Ingrid Daubechies	2015 – 2018
CWM (IMU EC liaison)	John Francis Toland	2015 – 2018
IMU-Net editor	Martin Hubert Raussen	2016 – 2019
IMU-Net EC correspondent	Benedict H. Gross	2015 – 2018
Curator of the IMU archive	Guillermo Curbera	2015 – 2018

1.3. Members of the Union

The following countries were Members of IMU through December 2017:

Algeria	Hong Kong	Papua New Guinea*
Argentina	Hungary	Paraguay*
Armenia	Iceland	Peru
Australia	India	Philippines
Austria	Indonesia	Poland
Belgium	Iran	Portugal
Bosnia & Herzegovina	Ireland	Romania
Brazil	Israel	Russia
Bulgaria	Italy	Saudi Arabia
Cambodia*	Ivory Coast	Senegal*
Cameroon	Japan	Serbia
Canada	Kazakhstan	Singapore
Chile	Kenya	Slovakia
China	Korea, Republic of	Slovenia
Colombia	Latvia	South Africa
Croatia	Lithuania	Spain
Cuba	Luxembourg	Sweden
Czech Republic	Madagascar*	Switzerland
Denmark	Malaysia	Thailand*
Ecuador	Mexico	Tunisia
Egypt	Moldova*	Turkey
Estonia	Montenegro	Ukraine
Finland	Nepal*	United Kingdom
France	Netherlands	United States
Gabon*	New Zealand	Uruguay
Georgia	Nigeria	Venezuela
Germany	Norway	Vietnam
Greece	Oman*	
	Pakistan	

* Associate Member

The following organizations are Affiliate Members of IMU:

African Mathematical Union (AMU)

European Mathematical Society (EMS)

South East Asian Mathematical Society (SEAMS)

Unión Matemática de América Latina y el Caribe (UMALCA)

2. Financial Information

2.1. Approved IMU Membership Dues

For the Period 2015–2018

At the IMU General Assembly meeting 2014 in Gyeongju, Korea, the delegates decided about the dues structure for the years 2015-2018, see schedule below.

Associate and Affiliate IMU members do not pay dues.

Approved membership dues 2015 – 2018				
All amounts in EUR				
Year	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
Group I	1,395	1,395	1,395	1,395
Group II	2,790	2,790	2,790	2,790
Group III	5,580	5,580	5,580	5,580
Group IV	11,160	11,160	11,160	11,160
Group V	16,740	16,740	16,740	16,740

2.2. Approved IMU Budget

For the Period 2015–2018

Date: June 30, 2014

International Mathematical Union												
Proposed new Budget for 2015-2018, in Euro (EUR)												
	2015			2016			2017			2018		
	General	Special	Sum	General	Special	Sum	General	Special	Sum	General	Special	Sum
INCOME												
I. General												
Membership Dues	386.415			386.415			386.415			386.415		
Sum General Income	386.415			386.415			386.415			386.415		
II. Special												
Special Development Fund		10.000			10.000			10.000			10.000	
Donations		44.000			44.000			44.000			44.000	
Grants												
Sum Special Income from Third Parties		54.000			54.000			54.000			54.000	
Income from IMU bank accounts		1.000			1.000			1.000			1.000	
Other Income		9.600			9.600			9.600			9.600	
Sum Special Income from Other Sources		10.600			10.600			10.600			10.600	
TOTAL INCOME	386.415	64.600	451.015	386.415	64.600	451.015	386.415	64.600	451.015	386.415	64.600	451.015
EXPENDITURE												
1. Commissions & Committees (C&C)												
1.1 CDC	77.283	44.000	121.283	77.283	44.000	121.283	77.283	44.000	121.283	77.283	44.000	121.283
1.2 CEIC	19.321			19.321			19.321			19.321		
1.3 ICM	57.962			57.962			57.962			57.962		
1.4 Ad hoc committees	19.321			19.321			19.321			19.321		
1.5 Special support	0			0			0			0		
C&C Expenditure	173.887	44.000	217.887	173.887	44.000	217.887	173.887	44.000	217.887	173.887	44.000	217.887
2. ICM												
2.1 Site Committee	3.864			3.864			3.864			3.864		
2.2 Program Committee	7.728			7.728			7.728			7.728		
2.3 Prize Committees	7.728			7.728			7.728			7.728		
2.4 Congress Subvention	19.321			19.321			19.321			19.321		
2.5 Travel Grants (Young & Senior)	27.049	10.000	37.049	27.049	10.000	37.049	27.049	10.000	37.049	27.049	10.000	37.049
2.6 ICM related admin., outreach	19.321			19.321			19.321			19.321		
ICM Expenditure	85.011	10.000	95.011	85.011	10.000	95.011	85.011	10.000	95.011	85.011	10.000	95.011
3. Union Administration												
3.1 General Assembly	3.864			3.864			3.864			3.864		
3.2 President & Secretary	46.370			46.370			46.370			46.370		
3.3 Executive Committee	23.185			23.185			23.185			23.185		
3.4 Other	3.864			3.864			3.864			3.864		
Union Administration Expenditure	77.283	0	77.283	77.283	0	77.283	77.283	0	77.283	77.283	0	77.283
4. Outreach												
4.1 ICSU Union Member Contribution	7.728			7.728			7.728			7.728		
4.2 Awards	3.864	0		3.864	0		3.864	0		3.864	0	
4.3 Website Support, Media Relations	7.728			7.728			7.728			7.728		
4.4 Bulletin	0			0			0			0		
4.5 Other	3.864	5.600	9.464	3.864	5.600	9.464	3.864	5.600	9.464	3.864	5.600	9.464
4.6 Scientific activity support	0			0			0			0		
Outreach Expenditure	23.185	5.600	28.785	23.185	5.600	28.785	23.185	5.600	28.785	23.185	5.600	28.785
5. Overhead												
5.1 Office Expenses	3.864	1.600	5.464	3.864	1.600	5.464	3.864	1.600	5.464	3.864	1.600	5.464
5.2 Bank Charges	3.864	1.000	4.864	3.864	1.000	4.864	3.864	1.000	4.864	3.864	1.000	4.864
5.3 Legal Advice, Audit Fees	7.728	1.600	9.328	7.728	1.600	9.328	7.728	1.600	9.328	7.728	1.600	9.328
5.4 Other	11.592	800	12.392	11.592	800	12.392	11.592	800	12.392	11.592	800	12.392
Overhead Expenditure	27.049	5.000	32.049	27.049	5.000	32.049	27.049	5.000	32.049	27.049	5.000	32.049
TOTAL EXPENDITURE			451.015			451.015			451.015			451.015
INCOME LESS EXPENSES			0			0			0			0

2.3. Independent Auditor's Report

Audit Report

Annual Financial Statements as at 31 December 2017

International Mathematical Union
Berlin

Mazars GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft
Steuerberatungsgesellschaft

74982/E

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General Engagement Terms

To the International Mathematical Union, Berlin:

A. AUDIT ENGAGEMENT

We were engaged by the Secretary of the

International Mathematical Union
Berlin
(hereinafter “IMU” or “Union”)

to audit and report on the annual financial statements for the reporting year ending 31 December 2017.

In performing the audit engagement awarded to us by the Secretary, we conducted our audit of the annual financial statements as at 31 December 2017 together with the accounting system for the 2017 financial year in accordance with § 317 HGB (German Commercial Code) and the German generally accepted standards for the audit of financial statements.

In addition, we were engaged to provide an economic analysis of the net assets, financial position and results of operations of the Union in this audit report. We have presented this analysis in section D. of this audit report.

In accordance with § 321 (4a) HGB, we confirm our observance of the applicable regulations governing independence during the performance of our audit.

The IMU is an international association. According to German law, the IMU is an “ideal” association (§ 21 German Civil Code (BGB) non-profit association) since it pursues ideal purposes rather than financial purposes. The Union does not have legal capacity in Germany because it is not registered with the German Register of Associations.

The Union is not required by law to have its annual financial statements audited. In accordance with Article 45 of the IMU Statutes, at least once every four years the members of the Union shall obtain an audit of the accounts from the Executive Committee. In continuation of current practice, the audit of the annual financial statements is performed annually. The financial statements consist of a statement of assets and liabilities as well as a statement of income and expenditure. According to the size definitions of § 267 German Commercial Code (HGB), the IMU would be classified as a small entity. Accordingly, the audit was performed in conformity with the accounting regulations applicable to small entities.

This report was prepared under the auditing standard of the *Institut der Wirtschaftsprüfer in Deutschland e. V.* IDW PS 450 “Generally Accepted Standards for the Issuance of Long-form Audit Reports for the Audit of Financial Statements”.

This audit report is addressed to the legal representatives of the Union. To the extent that third parties use this audit report for purposes other than those intended internally, we do not accept any responsibility, liability or obligations toward such third parties. The use of the information in this audit report is your own responsibility. In particular, it is your responsibility to decide whether this information is relevant for the use intended. If necessary, you may need to conduct your own examinations or to provide updates.

The performance of our engagement and our responsibility, also towards any third parties, are governed by the General Engagement Terms for Wirtschaftsprüfer (*German Public Auditors*) and Wirtschaftsprüfungsgesellschaften (*Public Audit Firms*) as amended on 1 January 2017, attached as an appendix. Accordingly, our liability is limited in accordance with No. 9 of the General Engagement Terms for Wirtschaftsprüfer. Towards third parties, No. 1 (2) and No. 6 of the General Engagement Terms apply.

This document is a translation of the German audit report, which is the solely legally binding version.

B. SUBJECT, NATURE AND SCOPE OF THE AUDIT

I. Subject of the audit

The subject of our audit was the annual financial statements (statements of assets and liabilities and income and expenditure) together with the bookkeeping system, prepared in accordance with German accounting principles.

Bookkeeping and the preparation of the annual financial statements are the responsibility of the Union's Treasurer.

Our responsibility is to provide an opinion on the annual financial statements based on our audit.

As of 1 January 2011, the IMU has kept its permanent secretariat in Berlin which is hosted by the *Weierstraß-Institut für Angewandte Analysis und Stochastik (WIAS)*, Berlin. The Federal Republic of Germany and the State of Berlin grant annual financial support for the IMU Secretariat, in particular by assuming personnel and material costs in the amount of approximately k€ 500 borne directly by the WIAS, which are therefore not recorded in the statement of income and expenditure.

An audit of compliance with other statutory regulations is part of our engagement only to the extent that those regulations typically have an effect on the annual financial statements.

II. Nature and scope of the audit

Our audit was conducted analogous to § 317 HGB as well as in observance of the Principles of performing Audits of Financial Statements of *the Institut der Wirtschaftsprüfer in Deutschland e.V. (IDW)*, in particular observing IDW PS 750 "Audits of Associations".

Those standards require that we plan and perform the audit such that misstatements and violations materially affecting the presentation of the net assets, financial position and results of operations in the annual financial statements in accordance with German principles of proper accounting and in the management report are detected with reasonable assurance.

The audit included assessing the accounting policies, measurement methods and classification principles applied and significant estimates made by management as well as critically evaluating the overall presentation of the annual financial statements.

Our audit commenced with our unqualified independent auditor's report on the prior year's financial statements for the year ended 31 December 2016. The Statutes do not provide for an adoption of the annual financial statements. Instead, on the basis of every fourth annual financial statement (most recently on 31 December 2013), the preparation of a budget for the following four-year-period is anticipated. The budget for the period from 1 January 2015 to 31 December 2018 was approved by the 17th General Assembly in Gyeongju/Republic of Korea on 10 and 11 August 2014.

On the basis of the risk of material misstatements, we prepared a risk profile for disclosures in the accounting. For this purpose we conducted audit procedures for assessing risk and first obtained an understanding of the Union as well as an overview of its economic and legal environment. Based on this understanding, we analysed the objectives and strategies of the Union as well as their implementation in order to determine business risks that could lead to significant errors in accounting.

Based on our professional judgement, we reviewed and assessed the design of the association's internal control system and which measures the Union has taken to particularly ensure the propriety and reliability of the accounting in order to mitigate business risks, however without conducting a detailed system analysis.

We audited the complete and timely recording of business transactions on a test basis and were convinced of the implementation of the four-eye principle as the main instrument of the internal control system.

We refrained from obtaining balance confirmations from debtors since they exclusively involve members of the Union.

We conducted our audit in April 2018.

Management provided us with the information and documentation we requested.

In the written letter of representation provided to us, the legal representatives of the Union assured us that the explanations and evidence were complete. Furthermore, they stated that all business transactions had been recorded and disclosed in the annual financial statements.

C. FINDINGS ON AND EXPLANATIONS OF THE ACCOUNTING

I. Generally accepted accounting principles

1. Accounting records and other documents audited

Our audit verified that the formal and material propriety of the accounting complied with German generally accepted accounting principles and other legal requirements.

The accounting records of the Union were maintained properly. The records were complete. Based on the findings of our audit, the accounting records and other documents audited complied with legal regulations. The information extracted from other documents audited was properly reflected in the accounting records and in the annual financial statements.

The organization of the accounting, the accounting-related internal control system, data flows and recordkeeping were fundamentally appropriate for ensuring the completeness, the accuracy, the timely and orderly recording and booking of business transactions.

2. Annual financial statements

The annual financial statements we have audited for the financial year from 1 January 2017 to 31 December 2017 have been properly derived from the accounting records and the underlying documents of the Union. The enclosed annual financial statements were prepared in accordance with the regulations of the Third Book of the HGB (§§ 238 *et seq.*) under observance of the supplementary regulations for corporations in the Second Section (§§ 264 *et seq.*).

The opening balances were properly taken over from the prior year annual financial statements. Statutory regulations on recognition, disclosure and measurement were observed.

The Union does not have a legal obligation to prepare notes to the annual financial statements. Accordingly, the IMU has permissibly waived the preparation of notes.

3. Management report

The Union does not have a legal obligation to prepare a management report. Accordingly, the IMU has permissibly waived the preparation of a management report.

The IMU provides its members with an annual accounting of its activities in the Bulletin of the International Mathematical Union. The current Bulletin number is number 68 from December 2016. Printed versions of the Bulletin are provided to members. Electronic versions are available on the homepage of the IMU (<https://www.mathunion.org/membership/imu-bulletins>).

The Bulletin provides, in particular, a description of IMU activities for the promotion of mathematics in the world and the proper use of member contributions and donations.

According to management information and the results of our audit, no events of particular importance occurred after the conclusion of the reporting year.

II. Overall presentation of the annual financial statements

1. Explanations of the overall presentation

The exercise of accounting policy and measurement elective options as well as the use of discretionary judgment correspond to the prior year and do not indicate any tendency with a significant influence on the net assets, financial position and results of operations in the annual financial statements.

Foreign currency receivables and payables are recorded in the bookkeeping in euro at the exchange rate valid on the date of their accrual. Measurement on the balance sheet date is at the lower (for receivables), or higher (for liabilities), exchange rate valid on that date.

2. Findings on the overall presentation of the annual financial statements

On the basis of the audit we performed by executing our professional duties, we are of the opinion that the annual financial statements as a whole give a true and fair view of the net assets, financial position and results of operations of the Union in accordance with generally accepted accounting principles.

D. OTHER CLASSIFICATIONS AND EXPLANATIONS OF THE ANNUAL FINANCIAL STATEMENTS

I. Results of operations

The summarized statements of income and expenditure for the past two financial years show the following structure and changes in the results of operations:

	2 0 1 7		2 0 1 6		Change k€
	k€	%	k€	%	
Revenues	499	100.0	495	100.0	4
Expenditures for scientific promotion and activities	-349	-69.9	-239	-48.3	-110
Administrative expenses	-108	-21.6	-63	-12.7	-45
Expenses	-457	-91.6	-302	-61.0	-155
Operating result	42	8.4	193	39.0	-151
Interest result	0	0.0	0	0.0	0
Result before taxes on income	42	8.4	193	39.0	-151
Taxes on income	0	0.0	0	0.0	0
Annual surplus	42	8.4	193	39.0	-151
Withdrawal from/Allocation to reserves (net)	-42	-8.4	-193	-39.0	151
Unallocated cash balance	0	0.0	0	0.0	0

The IMU had **revenues** of k€ 499 in the reporting year, consisting largely of member contributions. In addition, the IMU received donations which, as a rule, come from scientific organizations.

Revenues are composed of the following:

	k€
Member contributions	397
Third-party contributions	75
Other income	<u>27</u>
	<u>499</u>

The composition of **Member contributions** is shown in Appendix 3 to this report.

Third-party contributions are composed of the following:

	k€
Niels Henrik Abel Board, Norway	39,553.70
Donations of Mathematical Associations	2,203.85
FIMU – IMU Breakout Fellowship	24,492.90
FIMU – IMU Volunteer Lecturer Program	<u>8,559.39</u>
	<u>74,809.84</u>

Other income (k€ 27) largely involves payments received for written-down receivables (k€ 12) as well as the overhead share (k€ 5) of the IMU for the project ICSU Gender Gap.

Expenditures of k€ 457 (prior year: k€ 302) are shown in detail in the Statement of Income and Expenditures (Appendix 2) as well as in the Budget Comparison (Appendix 4). Because the ICM meets every four years (most recently 2014 in Seoul/Republic of Korea), the expense is considerably less in the following three years. In deviation therefrom, there was already an increase in the financial year 2017, one year before ICM. It was caused by the costs for the project “ICSU Gender Gap” (k€ 60), which contains a provision (k€ 40), by advance expenditures in preparation of the ICM (k€ 36) as well as expenditures from currency exchange-rate losses (k€ 30).

II. Net assets

In order to evaluate the net assets and changes thereto, the balance sheets of the last two financial years are compared in condensed form:

	31 Dec 2017		31 Dec 2016		Change
	k€	%	k€	%	k€
A S S E T S					
Current assets					
Receivables from member contributions	78	4.0	105	5.7	-27
Other assets (including Prepaid Expenses)	1	0.1	13	0.7	-12
Cash and cash equivalents	1,880	96.0	1,716	93.6	164
	1,959	100.0	1,834	100.0	125
LIABILITIES					
Net assets (own funds)	1,693	89.5	1,651	90.0	42
<u>Fremdkapital</u>					
Provisions	55	2.8	9	0.5	46
Liabilities from restricted donations	160	8.2	174	9.5	-14
Other liabilities (incl. Deferred Income)	51	2.6	0	0.0	51
	266	13.6	183	10.0	83
	1,959	100.0	1,834	100.0	125

Receivables from member contributions are broken down by country as follows:

Country	Year	WD	Amount
		*	€
Algeria	2017		1,395.00
Belgium	2017		5,580.00
Bosnia & Herzegovina	2017	*	1,395.00
Cuba	2017	*	1,395.00
Ecuador	2017		1,395.00
Greece	2017		1,395.00
Iran	2017	*	11,160.00
Ivory Coast	2017		1,395.00
Kazakhstan	2017	*	1,395.00
Latvia	2017	*	1,395.00
Montenegro	2017	*	1,395.00
Nigeria	2017		1,395.00
Peru	2017	*	1,395.00
Saudi Arabia	2017	*	1,395.00
Tunisia	2017		1,395.00
Ukraine	2017	*	2,790.00
Venezuela	2017	*	1,395.00
			39,060.00
Bosnia & Herzegovina	2016	*	1,395.00
Cuba	2016	*	1,395.00
Greece	2016		1,393.27
Iran	2016	*	11,160.00
Kazakhstan	2016	*	1,395.00
Latvia	2016	*	1,395.00
Montenegro	2016	*	1,395.00
Nigeria	2016		1,395.00
Peru	2016	*	1,395.00
Saudi Arabia	2016	*	1,395.00
Ukraine	2016	*	2,790.00
Venezuela	2016	*	1,395.00
			27,898.27
Carry forward			66,958.27

Country	Year	WD	Amount
		*	€
Carry forward			66,958.27
Bosnia & Herzegovina	2015	*	1,395.00
Cuba	2015	*	1,395.00
Iran	2015	*	2,379.58
Latvia	2015	*	1,387.27
Montenegro	2015	*	1,395.00
Nigeria	2015		1,395.00
Peru	2015	*	1,395.00
Saudi Arabia	2015	*	1,395.00
Venezuela	2015	*	1,395.00
			13,531.85
Kazakhstan	2014	*	1,416.84
Montenegro	2014	*	1,416.84
Saudi Arabia	2014	*	1,416.84
Venezuela	2014	*	1,416.84
			5,667.36
Montenegro	2013	*	1,410.42
Venezuela	2013	*	1,410.42
			2,820.84
Kazakhstan	2012	*	1,371.85
Montenegro	2012	*	1,371.85
Venezuela	2012	*	1,371.85
			4,115.55
Total receivables			93,093.87
Write-downs 20 % (marked with a *)			-14,992.12
			78,101.75

At the end of 2017, the outstanding member contributions were k€ 93, of which k€ 75 were open at the time of our audit. As a result of consistent non-payment of their member contributions, open receivables of the above countries marked with a star “*” were directly written down by 20 % or the write-down was retained. Receivables are measured at the period-end exchange rate.

Cash and cash equivalents, parts of which are in foreign currency, are located in accounts with the Deutsche Bank AG and are composed of the following:

	Foreign currency	€
Account in € (5113915 10)		912,848.71
Account in CHF (5113915 01)	CHF 69,190.45	59,173.55
Account in USD (5113915 00)	USD 157,796.08	131,731.65
Account in USD (5113915 06)	USD 107,937.68	90,108.76
Account in € (5113915 00)		372,967.24
Account in € (5113915 05)		207,646.74
Account in € (5113915 04)		106,012.88
Cash in €		<u>80.43</u>
		<u>1,880,569.96</u>

The conversion of foreign currency into euro occurred at the period-end exchange rate.

Net assets (own funds) at the period-end date are composed of the following:

	k€	k€
Association capital		307
Reserves		
- Annual surplus 2007 - 2016	981	
- Annual surplus 2017	42	
- ICMI and CDC (Commission Fund)	<u>363</u>	<u>1,386</u>
		<u>1,693</u>

The Statutes do not make reference to association capital.

Of the Net assets, € 307,465.98 originates from the time before moving the domicile of the IMU to Germany as of 1 January 2007. Revenues earned as of 2007 are allocated to reserves in accordance with the recommendations of the IMU Secretary and of the Treasurer at the end of the reporting year. The General Assembly reaches a resolution every four years on the creation of reserves.

Reserves are allocated as follows:

	k€
Travel support	
– Fields-Medal 2018	15
– ICM 2018 in Brazil	195
– Project Simons Fellowships	36
Co-financing of an ICSU project 2016-2019	40
Co-financing joint workshops with other ICSU members 2016-2019	6
ICMI and CDC 2016	363
ICM default reserve	436
Project Breakout Fellowship/FIMU	32
Support CWM 2018	29
IMU Internet site	20
Unrestricted reserves	<u>214</u>
	<u>1,386</u>

Funds that are shown under ICMI und CDC (Commission Fund) the IMU has made available to its ICMI and CDC commissions for their work in the coming year. The restricted reserves for ICMI amount to € 141,919.39 and for CDC to € 221,062.69.

Provisions in the amount of k€ 40 involve the obligation of the IMU to provide a contribution in 2018 and 2019 (k€ 20 per year) within the framework of the ICSU joint project “Gender Gap in Mathematical and Natural Sciences”.

Liabilities from restricted donations developed as follows:

	€
Special Development Fund	
Per 1 Jan. 2017	56,856.12
Contribution	
– London Mathematical Society (LMS)	<u>4,742.53</u>
Per 31 Dec. 2017	61,598.65
Simons Foundation Africa	
Per 1 Jan. 2017	47,219.26
Contribution Simons Africa Award	35,336.07
Travel Fellowship for 13 mathematicians	<u>47,219.26</u>
Stand 31.12.2017	<u>35,336.07</u>
Simons Foundation Travel Fellowship	
Per 1 Jan. 2017	15,366.53
Travel Fellowships for 2 mathematicians	<u>-7,008.41</u>
Per 31 Dec. 2017	0.00
IMU Developing Country Fund	
Per 1 Jan. 2017	54,796.16
Contribution	<u>8,711.15</u>
Per 31 Dec. 2017	<u>63,507.31</u>
	<u><u>160,442.03</u></u>

The funds shown under **Special Development Fund (SDF)** are for the support of mathematicians from developing countries for travel to International Congresses of Mathematicians (ICM). An international committee decides on the grant applications.

The cash of the SDF collected between 2007 and 2010 for the congress in August 2010 in Hyderabad/India was fully expended. The cash collected for the congress in August 2014 in Seoul/Republic of Korea was not needed to finance the travel costs of ICM participants because the Korean Mathematical Society (KMS) provided travel assistance in the amount of kUSD 2,000 for mathematicians from developing countries. Cash of SDF not required for ICM 2014 is to be used for the ICM 2018 in Brazil.

The cash received from the **Simons Foundation** is designated as a Travel Fellowship for research stays of mathematicians from developing countries. The **Simons Foundation Africa Fund** is especially reserved for mathematicians from Africa.

The cash received from the Friends of IMU (FIMU) during the reporting year included in the **IMU Developing Country Fund** are for the promotion of mathematical research and scholarships in developing countries.

Other liabilities of k€ 45 involve monies in transit within the framework of the project Gender Gap in Mathematical and Natural Sciences.

III. Financial position

The IMU was at all times in a position to meet its payment obligations in a full and timely manner. The cash flow from current activities amounts to k€ 164 and corresponds to the change in the amount of cash between 1 January 2017 (k€ 1,716) and 31 December 2017 (k€ 1,880).

E. AUDITOR'S REPORT

We issued the following unqualified auditor's report:

"Independent Auditor's Report

To the International Mathematical Union, Berlin:

We have audited the annual financial statements, consisting of the statement of assets and liabilities and the statement of income and expenditure, together with the bookkeeping system of the International Mathematical Union for the reporting year from 1 January 2017 to 31 December 2017. The maintenance of the books and the preparation of the annual financial statements in accordance with the German Commercial Code (HGB) are the responsibility of the Union's management. Our responsibility is to express an opinion on the annual financial statements, together with the bookkeeping system, based on our audit.

We performed our audit of the annual financial statements in accordance with § 317 HGB and generally accepted standards for the audit of financial statements promulgated by the *Institut der Wirtschaftsprüfer* (IDW). Those standards require that we plan and perform the audit such that misstatements materially affecting the presentation of the net assets, financial position and results of operations in the annual financial statements in accordance with German principles of proper accounting are detected with reasonable assurance. Knowledge of the business activities and the economic and legal environment of the Union as well as expectations of possible misstatements are taken into account in determination of audit procedures. The effectiveness of the internal control system and the evidence supporting the disclosures in the books and records and in the annual financial statements are examined primarily on a test basis. The audit includes assessing the accounting principles used and significant estimates made by management as well as evaluating the overall presentation of the annual financial statements. We believe that our audit provides a reasonable basis for our opinion.

Our audit has not led to any reservations.

In our opinion based on the information gathered during the audit, the annual financial statements correspond to statutory requirements as applicable to small entities and give a true and fair view of the net assets, financial position and results of operations of the Union in accordance with German principles of proper accounting."

F. FINAL REMARKS

Publication or distribution of the annual financial statements of the International Mathematical Union, Berlin, for the financial year from 1 January 2017 to 31 December 2017 in a form different from the certified form also requires our consent if our independent auditor's report is quoted or if reference is made to our audit. We herein refer to § 328 HGB.

Berlin, 30 June 2018

Mazars GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft
Steuerberatungsgesellschaft

Helmut Schuhmann
Wirtschaftsprüfer
(German Public Auditor)

International Mathematical Union, Berlin

STATEMENT OF INCOME AND EXPENDITURE for 2017

		2017	Prior Year
	€	€	€
Revenues		499.146,97	495.724,65
Member contributions	396.877,50		393.738,75
Donations - international	74.809,84		80.079,27
Other income	<u>27.459,63</u>		21.906,63
Expenses for Scientific Promotion and Activities		-348.659,91	-239.258,49
Promotion of scientific activities	-310.293,56		-237.051,24
Expenditures ICM	<u>-38.366,35</u>		-2.207,25
Administrative Expenses		-108.160,93	-62.943,20
Reimbursement personnel expenses	-23.000,00		-23.000,00
Travel expenses	-20.078,85		-9.113,53
Audit fees	-9.785,00		-11.727,40
Member contributions	-3.710,00		-3.602,00
Postage	-123,20		-191,40
Bank fees	-440,16		-373,86
Other	<u>-51.023,72</u>		-14.935,01
Other Expenditures		-456.820,84	-302.201,69
Interest and Similar Income		91,28	75,54
Interim Result		42.417,41	193.598,50
Other Taxes		0,00	-426,69
Annual Surplus		42.417,41	193.171,81
Withdrawals from Reserves		27.175,50	187.626,79
Allocation to Reserves		-69.592,91	-380.798,60
Unallocated Cash Balance		0,00	0,00

International Mathematical Union, Berlin
Schedule of Member Contributions 2017

Country	Amount EUR
Algeria	1.395,00
Argentina	5.580,00
Armenia	1.395,00
Australia	11.160,00
Austria	2.790,00
Belgium	5.580,00
Bosnia & Herzegovina	1.395,00
Brazil	11.160,00
Bulgaria	1.395,00
Cameroon	1.395,00
Canada	16.740,00
Chile	2.790,00
CMS, Beijing	10.044,00
Colombia	1.395,00
Croatia	1.395,00
Cuba	1.395,00
Czech Republic	5.580,00
Denmark	2.790,00
Ecuador	1.395,00
Egypt	2.790,00
Estonia	1.395,00
Finland	5.580,00
France	16.740,00
Georgia	1.395,00
Germany	16.740,00
Greece	1.395,00
Hong Kong	1.395,00
Hungary	5.580,00
Iceland	1.395,00
India	11.160,00
Indonesia	1.395,00
Iran	11.160,00
Ireland	2.790,00
Israel	16.740,00
Italy	16.740,00
Ivory Coast	1.395,00
Japan	16.740,00
Kazakhstan	1.395,00
Kenya	1.395,00
Korea, Republic of	11.160,00

International Mathematical Union, Berlin

Schedule of Member Contributions 2017

Country	Amount EUR
Latvia	1.395,00
Luxembourg	697,50
Lithuania	1.395,00
Malaysia	1.395,00
Math Society, Taipei	6.696,00
Mexico	5.580,00
Montenegro	1.395,00
Netherlands	11.160,00
New Zealand	1.395,00
Nigeria	1.395,00
Norway	5.580,00
Pakistan	1.395,00
Peru	1.395,00
Philippines	1.395,00
Poland	11.160,00
Portugal	2.790,00
Romania	1.395,00
Russia	16.740,00
Saudi Arabia	1.395,00
Serbia	1.395,00
Singapore	1.395,00
Slovakia	2.790,00
Slovenia	1.395,00
South Africa	2.790,00
Spain	11.160,00
Sweden	11.160,00
Switzerland	11.160,00
Tunisia	1.395,00
Turkey	2.790,00
Ukraine	2.790,00
United Kingdom	16.740,00
Uruguay	1.395,00
USA	16.740,00
Venezuela	1.395,00
Vietnam	1.395,00
Total	396.877,50

INTERNATIONAL MATHEMATICAL UNION

Budget Comparison 2017

	Budget 2017 EUR			Actual 2017 EUR		
	General	Special	Sum	General	Special	Sum
INCOME						
I. General						
I.a Membership Dues	386.415			396.878		
Sum General Income	386.415			396.878		
II. Special						
II.a Special Development Fund		10.000			4.743	
II.b Donations		44.000			66.250	
II.c Grants					52.607	
Sum Special Income from Third Parties		54.000			123.600	
II.d Income from IMU bank accounts		1.000			31	
II.e Other Income		3.600			27.460	
Sum Special Income from Other Sources		10.600			27.551	
TOTAL INCOME	386.415	64.600	451.015	396.878	151.151	548.029
EXPENDITURE						
1. Commissions & Committees (C&C)						
1.1 CDC	77.283	44.000	121.283	62.082	44.000	106.082
1.2 CEIC	19.321			3.423		
1.3 ICM	57.962			31.220		
1.4 Ad hoc committees	19.321			33.010		
1.5 Special support	0			5.660	102.711	
C&C Expenditure	173.887	44.000	217.887	135.395	146.711	282.106
2. ICM						
2.1 Site Committee	3.864			5.498		
2.2 Program Committee	7.728			14.698		
2.3 Prize Committees	7.728			18.166		
2.4 Congress Subvention	19.321			0		
2.5 Travel Grants (Young & Senior)	27.049	10.000	37.049	0	0	
2.6 ICM related admin., outreach	19.321			5		
ICM Expenditure	85.011	10.000	95.011	38.367	0	38.367
3. Union Administration						
3.1 General Assembly	3.864			0		
3.2 President & Secretary	46.370			23.000		
3.3 Executive Committee	23.185			17.091		
3.4 Other	3.864			2.988		
Union Administration Expenditure	77.283	0	77.283	43.079	0	43.079
4. Outreach						
4.1 CSU Union Member Contribution	7.728			3.710		
4.2 Awards	3.864	0		0		
4.3 Website Support, Media Relations	7.728			28.188		
4.4 Bulletin	0			0		
4.5 Other	3.864	5.600	9.464	0		
4.6 Scientific activity support	0			0		
Outreach Expenditure	23.184	5.600	28.785	31.898	0	31.898
5. Overhead						
5.1 Office Expenses	3.864	1.600	5.464	4.890	1.600	6.490
5.2 Bank Charges	3.864	1.000	4.864	0	440	440
5.3 Legal Advice, Audit Fees	7.728	1.600	9.328	8.185	1.600	9.785
5.4 Other	11.592	800	12.392	43.856	800	44.656
Overhead Expenditure	27.048	5.000	32.049	56.931	4.440	61.371
TOTAL EXPENDITURE			451.015			456.821
Transfer to liabilities from donations not yet spent						-48.790
Interim Result			0			42.418
Draw from Reserves			0			27.176
Return to Reserves			0			-69.533
Result			0			0

Legal and Tax Position

1. Legal Position

Association, Legal Domicile

International Mathematical Union, Berlin/Germany

The IMU is an international association. According to German law, the IMU is an “ideal” association (§ 21 German Civil Code (BGB)) since it pursues ideal purposes rather than financial purposes. The Association does not have legal capacity in Germany because it is not registered with the German Register of Associations.

The legal domicile of the IMU was located in Princeton/USA, until 31 December 2006. According to article 29 of the IMU Statutes, as amended in 2010, the legal domicile of the Union shall be located at the offices of the Union.

The permanent Secretariat of the Union shall be located in Berlin/Germany as of 1 January 2011.

Place of Management

IMU Secretariat, Hausvogteiplatz 11A, 10117 Berlin/Germany.

The IMU Secretariat transacts the entire routine operative business of the IMU. This includes the administrative support of the International Commission on Mathematical Instruction (ICMI) and the Commission for Developing Countries (CDC). In addition, the IMU Secretariat is also responsible for bookkeeping and monetary transactions; it prepares the annual financial statements and operates the IMU archives.

Statutes

The Statutes were amended on 16 and 17 August 2010 in Bangalore/India by the 16th General Assembly. The amendments included article 28 (Treasurer) and article 29 (Legal Domicile). A certified German translation is on file.

Objectives of the Association

According to article 1 of the Statutes, the objectives are:

- “(a) to promote international cooperation in mathematics;
- (b) to support and assist the International Congress of Mathematicians and other international scientific meetings or conferences;
- (c) to encourage and support other international mathematical activities considered likely to contribute to the development of mathematical science in any of its aspects, pure, applied, or educational.”

Association Capital, Members

The Statutes make no provision for association capital. Association capital amounted to k€ 307 on 1 January 2007, the time when the legal domicile was transferred from Princeton/USA to Berlin/Germany.

According to article 3, a country adheres to the Association through an adhering organization. This may be the principal academy, a mathematical society, its research council or some other institution or association of institutions, or an appropriate agency of its government. At the end of 2017, the IMU had 75 regular members (voting), 10 associate members (non-voting) and 4 affiliate members (non-contributory and non-voting).

Executive Committee, Representatives

Since 1 January 2015, the Executive Committee consists of the following persons:

Shigefumi Mori, Japan (President)

Helge Holden, Norway (Secretary)

Alicia Dickenstein, Argentina (Vice-President)

Vaughan Jones, New Zealand/USA (Vice-President)

Benedict H. Gross, USA (Member-at-Large)

Hyungju Park, Korea (Member-at-Large)

Christiane Rousseau, Canada (Member-at-Large)

Vasudevan Srinivas, India (Member-at-Large)

John Francis Toland, Great Britain (Member-at-Large)

Wendelin Werner, Switzerland (Member-at-Large)

Ingrid Daubechies, USA (Ex-officio, because she is the former President of the IMU)

Reporting Year

The reporting year corresponds to the calendar year.

Reports to members are made annually by dispatching the Bulletin of the IMU as well as through publication on the IMU homepage www.mathunion.org.

General Assembly

The following was resolved during the last General Assembly in August 2014:

Appointments to various committees and commissions

Budget for the time between 2015 and 2018

No increase in member contributions

The next General Assembly will take place in 2018 in São Paulo/Brazil.

2. Tax Information

The Association is registered with the Finanzamt für Körperschaften I, Berlin, under the tax number 27/640/57572.

At the time of the audit, no tax assessment notifications had been issued for the Association, which has had its legal domicile in Germany since 2007.

The Association is non-profit. After common inquiries on 16 April 2007 at the Finanzamt für Körperschaften I, Berlin, the formal requirements for the recognition as a non-profit organization were fulfilled. The final certification of the non-profit status will be made after actual fulfilment of the requirements.

The Finanzamt für Körperschaften I, Berlin, issued a preliminary certification on 4 May 2007. This was done upon the instruction of the Senatsverwaltung für Finanzen, Berlin, before it issued a notice of exemption for 2007 and 2008 on 9 June 2009.

The Finanzamt für Körperschaften I issued a notice of exemption for 2012 to 2014, in which the current income of the IMU is exempt from corporate and trade tax. In addition, revenue from capital of the IMU is not subject to withholding tax on capital up to 31 December 2019. The IMU is entitled to issue donation confirmations.

[Translator's notes are in square brackets]

General Engagement Terms

for
Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften
[German Public Auditors and Public Audit Firms]
as of January 1, 2017

1. Scope of application

(1) These engagement terms apply to contracts between German Public Auditors (*Wirtschaftsprüfer*) or German Public Audit Firms (*Wirtschaftsprüfungsgesellschaften*) – hereinafter collectively referred to as “German Public Auditors” – and their engaging parties for assurance services, tax advisory services, advice on business matters and other engagements except as otherwise agreed in writing or prescribed by a mandatory rule.

(2) Third parties may derive claims from contracts between German Public Auditors and engaging parties only when this is expressly agreed or results from mandatory rules prescribed by law. In relation to such claims, these engagement terms also apply to these third parties.

2. Scope and execution of the engagement

(1) Object of the engagement is the agreed service – not a particular economic result. The engagement will be performed in accordance with the German Principles of Proper Professional Conduct (*Grundsätze ordnungsmäßiger Berufsausübung*). The German Public Auditor does not assume any management functions in connection with his services. The German Public Auditor is not responsible for the use or implementation of the results of his services. The German Public Auditor is entitled to make use of competent persons to conduct the engagement.

(2) Except for assurance engagements (*betriebswirtschaftliche Prüfungen*), the consideration of foreign law requires an express written agreement.

(3) If circumstances or the legal situation change subsequent to the release of the final professional statement, the German Public Auditor is not obligated to refer the engaging party to changes or any consequences resulting therefrom.

3. The obligations of the engaging party to cooperate

(1) The engaging party shall ensure that all documents and further information necessary for the performance of the engagement are provided to the German Public Auditor on a timely basis, and that he is informed of all events and circumstances that may be of significance to the performance of the engagement. This also applies to those documents and further information, events and circumstances that first become known during the German Public Auditor's work. The engaging party will also designate suitable persons to provide information.

(2) Upon the request of the German Public Auditor, the engaging party shall confirm the completeness of the documents and further information provided as well as the explanations and statements, in a written statement drafted by the German Public Auditor.

4. Ensuring independence

(1) The engaging party shall refrain from anything that endangers the independence of the German Public Auditor's staff. This applies throughout the term of the engagement, and in particular to offers of employment or to assume an executive or non-executive role, and to offers to accept engagements on their own behalf.

(2) Were the performance of the engagement to impair the independence of the German Public Auditor, of related firms, firms within his network, or such firms associated with him, to which the independence requirements apply in the same way as to the German Public Auditor in other engagement relationships, the German Public Auditor is entitled to terminate the engagement for good cause.

5. Reporting and oral information

To the extent that the German Public Auditor is required to present results in writing as part of the work in executing the engagement, only that written work is authoritative. Drafts are non-binding. Except as otherwise agreed, oral statements and explanations by the German Public Auditor are binding only when they are confirmed in writing. Statements and information of the German Public Auditor outside of the engagement are always non-binding.

6. Distribution of a German Public Auditor's professional statement

(1) The distribution to a third party of professional statements of the German Public Auditor (results of work or extracts of the results of work whether in draft or in a final version) or information about the German Public Auditor acting for the engaging party requires the German Public Auditor's written consent, unless the engaging party is obligated to distribute or inform due to law or a regulatory requirement.

(2) The use by the engaging party for promotional purposes of the German Public Auditor's professional statements and of information about the German Public Auditor acting for the engaging party is prohibited.

7. Deficiency rectification

(1) In case there are any deficiencies, the engaging party is entitled to specific subsequent performance by the German Public Auditor. The engaging party may reduce the fees or cancel the contract for failure of such subsequent performance, for subsequent non-performance or unjustified refusal to perform subsequently, or for unconscionability or impossibility of subsequent performance. If the engagement was not commissioned by a consumer, the engaging party may only cancel the contract due to a deficiency if the service rendered is not relevant to him due to failure of subsequent performance, to subsequent non-performance, to unconscionability or impossibility of subsequent performance. No. 9 applies to the extent that further claims for damages exist.

(2) The engaging party must assert a claim for the rectification of deficiencies in writing (*Textform*) [Translator's Note: The German term “Textform” means in written form, but without requiring a signature] without delay. Claims pursuant to paragraph 1 not arising from an intentional act expire after one year subsequent to the commencement of the time limit under the statute of limitations.

(3) Apparent deficiencies, such as clerical errors, arithmetical errors and deficiencies associated with technicalities contained in a German Public Auditor's professional statement (long-form reports, expert opinions etc.) may be corrected – also versus third parties – by the German Public Auditor at any time. Misstatements which may call into question the results contained in a German Public Auditor's professional statement entitle the German Public Auditor to withdraw such statement – also versus third parties. In such cases the German Public Auditor should first hear the engaging party, if practicable.

8. Confidentiality towards third parties, and data protection

(1) Pursuant to the law (§ [Article] 323 Abs 1 [paragraph 1] HGB [German Commercial Code: *Handelsgesetzbuch*], § 43 WPO [German Law regulating the Profession of *Wirtschaftsprüfer: Wirtschaftsprüferordnung*], § 203 StGB [German Criminal Code: *Strafgesetzbuch*]) the German Public Auditor is obligated to maintain confidentiality regarding facts and circumstances confided to him or of which he becomes aware in the course of his professional work, unless the engaging party releases him from this confidentiality obligation.

(2) When processing personal data, the German Public Auditor will observe national and European legal provisions on data protection.

9. Liability

(1) For legally required services by German Public Auditors, in particular audits, the respective legal limitations of liability, in particular the limitation of liability pursuant to § 323 Abs. 2 HGB, apply.

(2) Insofar neither a statutory limitation of liability is applicable, nor an individual contractual limitation of liability exists, the liability of the German Public Auditor for claims for damages of any other kind, except for damages resulting from injury to life, body or health as well as for damages that constitute a duty of replacement by a producer pursuant to § 1 ProdHaftG [German Product Liability Act: *Produkthaftungsgesetz*], for an individual case of damages caused by negligence is limited to € 4 million pursuant to § 54 a Abs. 1 Nr. 2 WPO.

(3) The German Public Auditor is entitled to invoke demurs and defenses based on the contractual relationship with the engaging party also towards third parties.

(4) When multiple claimants assert a claim for damages arising from an existing contractual relationship with the German Public Auditor due to the German Public Auditor's negligent breach of duty, the maximum amount stipulated in paragraph 2 applies to the respective claims of all claimants collectively.

(5) An individual case of damages within the meaning of paragraph 2 also exists in relation to a uniform damage arising from a number of breaches of duty. The individual case of damages encompasses all consequences from a breach of duty regardless of whether the damages occurred in one year or in a number of successive years. In this case, multiple acts or omissions based on the same source of error or on a source of error of an equivalent nature are deemed to be a single breach of duty if the matters in question are legally or economically connected to one another. In this event the claim against the German Public Auditor is limited to € 5 million. The limitation to the fivefold of the minimum amount insured does not apply to compulsory audits required by law.

(6) A claim for damages expires if a suit is not filed within six months subsequent to the written refusal of acceptance of the indemnity and the engaging party has been informed of this consequence. This does not apply to claims for damages resulting from scienter, a culpable injury to life, body or health as well as for damages that constitute a liability for replacement by a producer pursuant to § 1 ProdHaftG. The right to invoke a plea of the statute of limitations remains unaffected.

10. Supplementary provisions for audit engagements

(1) If the engaging party subsequently amends the financial statements or management report audited by a German Public Auditor and accompanied by an auditor's report, he may no longer use this auditor's report.

If the German Public Auditor has not issued an auditor's report, a reference to the audit conducted by the German Public Auditor in the management report or any other public reference is permitted only with the German Public Auditor's written consent and with a wording authorized by him.

(2) If the German Public Auditor revokes the auditor's report, it may no longer be used. If the engaging party has already made use of the auditor's report, then upon the request of the German Public Auditor he must give notification of the revocation.

(3) The engaging party has a right to five official copies of the report. Additional official copies will be charged separately.

11. Supplementary provisions for assistance in tax matters

(1) When advising on an individual tax issue as well as when providing ongoing tax advice, the German Public Auditor is entitled to use as a correct and complete basis the facts provided by the engaging party – especially numerical disclosures; this also applies to bookkeeping engagements. Nevertheless, he is obligated to indicate to the engaging party any errors he has identified.

(2) The tax advisory engagement does not encompass procedures required to observe deadlines, unless the German Public Auditor has explicitly accepted a corresponding engagement. In this case the engaging party must provide the German Public Auditor with all documents required to observe deadlines – in particular tax assessments – on such a timely basis that the German Public Auditor has an appropriate lead time.

(3) Except as agreed otherwise in writing, ongoing tax advice encompasses the following work during the contract period:

- a) preparation of annual tax returns for income tax, corporate tax and business tax, as well as wealth tax returns, namely on the basis of the annual financial statements, and on other schedules and evidence documents required for the taxation, to be provided by the engaging party
- b) examination of tax assessments in relation to the taxes referred to in (a)
- c) negotiations with tax authorities in connection with the returns and assessments mentioned in (a) and (b)
- d) support in tax audits and evaluation of the results of tax audits with respect to the taxes referred to in (a)
- e) participation in petition or protest and appeal procedures with respect to the taxes mentioned in (a).

In the aforementioned tasks the German Public Auditor takes into account material published legal decisions and administrative interpretations.

(4) If the German Public Auditor receives a fixed fee for ongoing tax advice, the work mentioned under paragraph 3 (d) and (e) is to be remunerated separately, except as agreed otherwise in writing.

(5) Insofar the German Public Auditor is also a German Tax Advisor and the German Tax Advice Remuneration Regulation (*Steuerberatungsvergütungsverordnung*) is to be applied to calculate the remuneration, a greater or lesser remuneration than the legal default remuneration can be agreed in writing (*Textform*).

(6) Work relating to special individual issues for income tax, corporate tax, business tax, valuation assessments for property units, wealth tax, as well as all issues in relation to sales tax, payroll tax, other taxes and dues requires a separate engagement. This also applies to:

- a) work on non-recurring tax matters, e.g. in the field of estate tax, capital transactions tax, and real estate sales tax;
- b) support and representation in proceedings before tax and administrative courts and in criminal tax matters;
- c) advisory work and work related to expert opinions in connection with changes in legal form and other re-organizations, capital increases and reductions, insolvency related business reorganizations, admission and retirement of owners, sale of a business, liquidations and the like, and
- d) support in complying with disclosure and documentation obligations.

(7) To the extent that the preparation of the annual sales tax return is undertaken as additional work, this includes neither the review of any special accounting prerequisites nor the issue as to whether all potential sales tax allowances have been identified. No guarantee is given for the complete compilation of documents to claim the input tax credit.

12. Electronic communication

Communication between the German Public Auditor and the engaging party may be via e-mail. In the event that the engaging party does not wish to communicate via e-mail or sets special security requirements, such as the encryption of e-mails, the engaging party will inform the German Public Auditor in writing (*Textform*) accordingly.

13. Remuneration

(1) In addition to his claims for fees, the German Public Auditor is entitled to claim reimbursement of his expenses; sales tax will be billed additionally. He may claim appropriate advances on remuneration and reimbursement of expenses and may make the delivery of his services dependent upon the complete satisfaction of his claims. Multiple engaging parties are jointly and severally liable.

(2) If the engaging party is not a consumer, then a set-off against the German Public Auditor's claims for remuneration and reimbursement of expenses is admissible only for undisputed claims or claims determined to be legally binding.

14. Dispute Settlement

The German Public Auditor is not prepared to participate in dispute settlement procedures before a consumer arbitration board (*Verbraucherschlichtungsstelle*) within the meaning of § 2 of the German Act on Consumer Dispute Settlements (*Verbraucherstreitbeilegungsgesetz*).

15. Applicable law

The contract, the performance of the services and all claims resulting therefrom are exclusively governed by German law.

2.4. IMU Special Development Fund

Contributions to the IMU Special Development Fund.

2017

London Mathematical Society, UK	4,742.53 EUR
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2.5. Third-Party Donations (monetary contributions)

2017

American Mathematical Society, US	17,270.54 EUR
FIMU, US	24,492.90 EUR
Mathematical Society of Japan, Japan	1,223.85 EUR
Niels Henrik Abel Board, Norway	39,553.70 EUR
Simons Foundation, US	42,299.40 EUR
Swiss Mathematical Society, Switzerland	980.00 EUR

2.6. IMU Bank Accounts

International Mathematical Union, Markgrafenstr. 32, D-10117 Berlin, Germany

Deutsche Bank

Otto-Suhr-Allee 6-16, D-10585 Berlin, Germany

BIC (SWIFT) code: DEUTDEDB110

<u>EUR transfer</u> to account No.:	<u>USD transfer</u> to account No.:	<u>CHF transfer</u> to account No.:
IBAN code:	IBAN code:	IBAN code:
DE85100708480511391500	DE85100708480511391500	DE58100708480511391501

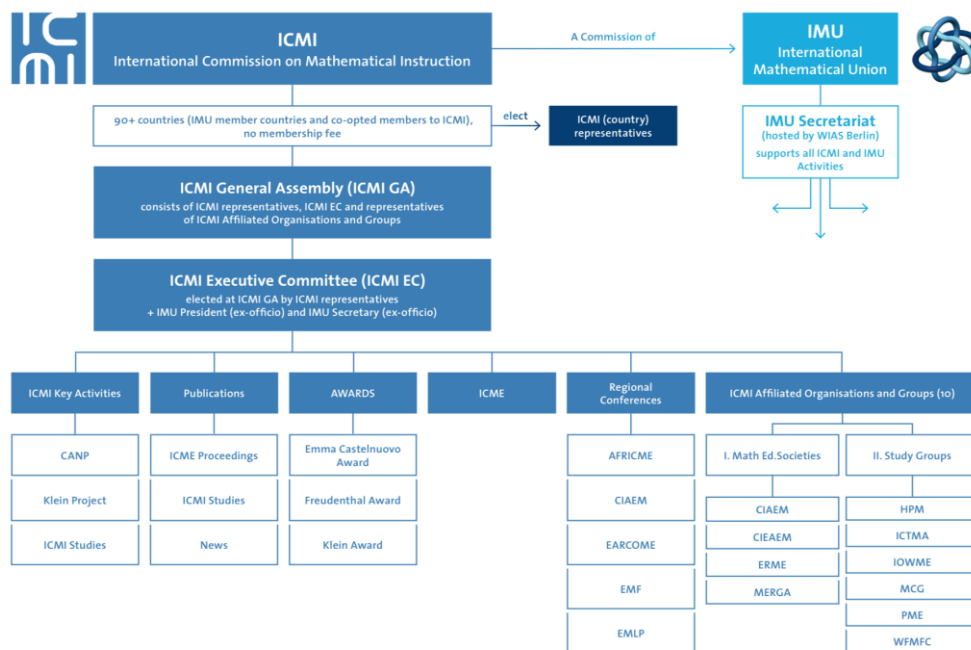
3. Commissions and Committees

3.1. International Commission on Mathematical Instruction (ICMI)

<https://www.mathunion.org/icmi>

Activity and Financial Report 2017

Overview of ICMI



2017 Key activities and overview:

Administration and Governance

The ICMI Executive Committee (2017-2020) held its first meeting from June 8th – 10th, 2017 in Geneva, Switzerland.

ICMI Members and Representatives

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. In 2017, ICMI had 94 member countries, 85 are also members of the IMU.

ICME-13

The proceedings of ICME13 (volume 1) were published and are available from Springer on open access.

ICME-14

The first IPC meeting of ICME 14 (to be held in 2020 in Shanghai, China) was held in September 2017 Shanghai, China.

ICMI-15

Following a call to bid for ICME15 to be held in 2024, two countries declared their intention to submit a proposal.

ICMI Regional Conferences

No regional conference was held in 2017. Preparations for several regional conferences which will be held in 2018 and 2019 were supported by ICMI.

ICMI Studies

In 2017 the editors continued working on ICMI Study 23 “Primary Mathematics Study on Whole Numbers” to publish the volume with Springer in early 2018 as open access.

The first IPC meeting of ICMI Study 24 with the topic: "School Mathematics Curriculum Reforms: Challenges, Changes and Opportunities" was held during 13-15.11.2017 in Berlin Germany at the premises of the IMU Secretariat.

ICMI Awards

In December 2017 *Terezinha Nunes, University of Oxford, UK* was announced as the recipient of the 2017 Hans Freudenthal Award for a major programme of research on mathematics education and *Deborah Loewenberg Ball, University of Michigan, USA* was announced as the recipient of the 2017 Felix Klein Award for lifelong achievement in mathematics education research.

Outreach to Developing Countries

During the ICMI EC meeting in Geneva in June 2017 the final results of the CANP review were presented. Based on the results the ICMI EC decided to organise a CANP workshop with participants from CANP 1-5 which will take place during EARCOME-8 in May 2018 in Taipei.

The following key activities under the umbrella of the Capacity and Network Project (CANP) were held in 2017:

- CANP 5 Andean Region and Paraguay (launched 2016) held its follow up meeting in Ecuador.
- CANP 2 Central America and the Caribbean (launched 2012) held a General Assembly of its network and a conference in Cali, Colombia.
- Publication of CANP books

Klein Project

In 2017 the main activities were the appointment of Hans-Georg Weigand as contact person of the Klein Project group and the maintenance of the Klein Project blog.

Support for MPE 2017

ICMI supported the Mathematics of Planet Earth competition 2017 with 2500 Euros.

Archiving, Outreach and Dissemination of Information

The following ongoing channels of communication with professional organisations and the general public cover archival requirements and fulfil ICMI's statutory obligations.

- ICMI Newsletter
- ICMI Website
- ICMI Facebook
- L'Enseignement Mathématique
- A section in the Newsletter of the European Mathematical Society
- ICMI Archive (based in the IMU Archive in Berlin/IMU Secretariat)
- ICMI Posters and other materials
- Reports to IMU, ICMI GA and the general public

Further details about outreach, archiving and dissemination of information can be found in section “2017 in Detail”.

Gender Gap Project

The IMU Committee for Women in Mathematics (CWM) is leading the project "A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce It?" funded by the International Council for Science (ICSU). On June 1-3 2017 the initial workshop for the

project took place at the UNESCO Headquarters and the Institute Henry Poincaré (IHP) in Paris. Marilyn Goos and Anita Rampal represented ICMI.

Affiliated Organisations and Study Groups

In 2017 ICMI accepted the request of the International Society for Design and Development in Education (ISDDE) to become an affiliated member to ICMI.

ICM 2018

A Panel on Mathematics Education and Popularization of Mathematics will be chaired by Cheryl Praeger with the participation of additional ICMI representation.

MOOCs and AMOR (Awardees Multimedia Online Resources Project)

In 2013 ICMI EC started to explore the role and potential of MOOCs (Massive Open Online Courses) in mathematics education. In 2014 Jean-Luc Dorier (ICMI EC member at large) developed the idea of creating MOOCs around the ICMI Awardees and a project has been launched to develop MOOCs for the education of researchers (graduate students and young career fellows) in mathematics education around French-speaking ICMI Awardees. The ICMI EC decided in 2017 to continue this project and to extend it to other ICMI awardees.

2017 in detail

Administration and Governance

Organisation

ICMI Members and Representatives

In 2017 ICMI had 94 member countries, 85 are also members of IMU. Each member country is required to elect an ICMI Representative who represents the ICMI member country at the ICMI General Assembly and has the (sole) voting right for electing the ICMI Executive Committee (ICMI EC). The ICMI representatives also inform the national communities of developments within ICMI. The ICMI EC, in particular the Secretary General and the ICMI Administrator support its member countries and IMU adhering organisations to re-elect ICMI representatives after their 8-year tenure (KOBÉ RULE). The ICMI Representatives are informed about ICMI activities and developments via a mailing list. In 2017 an ICMI Representatives guidelines was developed describing the role of ICMI representatives (representing their countries in ICMI, especially in the GA and representing ICMI in their countries). The text was published in the March 1st, 2017 issue of the ICMI News. With the help of IMU Secretary, Helge Holden who contacted all the IMU Adhering Organisations, many countries appointed new country representatives in 2017.

ICMI Executive Committee (EC) 2017-2020

The members of the EC for the period 2017-2020 are:

Position		Country (place of work)
President	Jill Adler	South Africa
Secretary-General	Abraham Arcavi	Israel
Vice Presidents	Marilyn Goos	Ireland
	Luis Radford	Canada
Member-at-large	Yuriko Baldin	Brazil
	Jean-Luc Dorier	Switzerland
	Anita Rampal	India
	Binyan Xu	China
	Zahra Gooya	Iran
Ex officio members	Ferdinando Arzarello, Past President of ICMI	Italy
	Shigefumi Mori, President of IMU	Japan
	Helge Holden, Secretary of IMU	Norway

IMU EC member (Liaison to ICMI)

Alicia Dickenstein (IMU Vice President, Argentina) is the ICMI liaison person with the IMU EC until December 31, 2018.

Meetings of the ICMI EC

The first meeting of the ICMI EC took place in Geneva and was hosted by Jean Luc Dorier. Participants: Jill Adler, Abraham Arcavi, Yuriko Yamamoto Baldin, Alicia Dickenstein, Jean Luc Dorier, Merrilyn Goos, Zahra Gooya, Helge Holden, Shigefumi Mori, Anita Rampal, Luis Radford, Binyan Xu and Lena Koch. The meeting was opened by Jill Adler. She thanked the University of Geneva and in particular Jean-Luc Dorier for hosting the EC meeting. Shigefumi Mori, IMU President and Pascal Zesiger, Dean of the Faculty of Psychology and Education, University of Geneva also welcomed the EC members. The meeting was very successful in establishing the workings of the new EC, setting out activities and priorities for its term of office, in line with its budget. All members of the ICMI EC received a copy of the minutes of the meeting.

ICMI General Assembly

The next ICMI General Assembly will take place in Shanghai, China in July 2020.

IMU Secretariat

The IMU Secretariat in Berlin, Germany continues to give full ongoing administrative and logistical support for ICMI activities.

ICMI Affiliate Organisations and Study Groups

ICMI's organisational outreach includes eleven multi-national organisations and international study groups in mathematics education, which have obtained affiliation to ICMI. Affiliated organisations are independent from ICMI and are self-financed. They collaborate with ICMI on specific activities, such as the [ICMI Studies](#) or CANP. The ICMI Affiliate Organisations present activity reports to the [General Assembly of ICMI](#). In 2017 ICMI received a request by the International Society for Design and Development in Education (ISDDE) to become an affiliated member to ICMI which was accepted by the ICMI EC in December 2017.

The following five multi-national Mathematics Education Societies are currently affiliated to ICMI:

- CIAEM: Inter-American Committee on Mathematics Education (affiliated in 2009)
<http://ciaem-redumate.org/ciaem/?q=en/principal>
- CIEAEM: International Commission for the Study and Improvement of Mathematics Teaching (affiliated in 2010)
<http://www.cieaem.org/>
- ERME: European Society for Research in Mathematics Education (affiliated in 2010)
www.mathematik.uni-dortmund.de/~erme/index.php
- MERGA: Mathematics Education Research Group of Australasia (affiliated in 2011)
<https://www.merga.net.au/>
- ISDDE: International Society for Design and Development in Education (affiliated in 2017)
<http://www.isdde.org/isdde/index.htm>

The following six Study Groups are currently affiliated to ICMI:

- HPM: The International Study Group on Relations between the History and Pedagogy of Mathematics (affiliated in 1976) <http://www.clab.edc.uoc.gr/HPM/>
- ICTMA: The International Study Group for Mathematical Modelling and Applications (affiliated in 2003) <http://www.ictma15.edu.au>
- IOWME: The International Organization of Women and Mathematics Education (affiliated in 1987) <https://www.mathunion.org/icmi/organisation/affiliated-organisations/iowme>
- MCG: The International Group for Mathematical Creativity and Giftedness (affiliated in 2011) <http://www.igmcg.org/>
- PME: The International Group for the Psychology of Mathematics Education (affiliated in 1976) <http://igpme.org/>

- WFNMC: The World Federation of National Mathematics Competitions (affiliated in 1994)
<http://www.wfnmc.org>

For further details see: <https://www.mathunion.org/icmi/organisation/affiliated-organizations>

The International Congress on Mathematical Education (ICME)

ICME 13

The first volume of the Proceedings of ICME 13 was published in 2017, this volume has open access and can be found here: <https://link.springer.com/book/10.1007%2F978-3-319-62597-3>. The second volume with the invited lectures appeared in February 2018. It is available as open access at <https://link.springer.com/book/10.1007%2F978-3-319-72170-5>

ICME-14

In 2015 the ICMI EC selected Shanghai, China as the location for the ICME-14 to be held on July 12th-19th, 2020). The ICME-14 International Programme Committee (IPC) members are: Jianpan Wang (Chair, China), Jill Adler (ICMI President, ex-officio, South Africa), Abraham Arcavi, (ICMI Secretary General, ex-officio, Israel), Jiansheng Bao, China (ICME-14 LOC Co-chair), Dan Chazan (USA), Faiza Chellougui (Tunisia), Marta Civil (USA), Alicia Dickenstein (IMU Vice-President and Liaison Person, Argentina), Yufeng Guo (China), Anjum Halai (Tanzania), Gabriele Kaiser (ex-officio as ICME13 IPC Chair, Germany), Caroline Lajoie (Canada), Celi Espasandin Lopes (Brazil), Tom Lowrie (Australia), Maria Alessandra Mariotti (Italy), Luis Moreno-Armella (Mexico), Takeshi Miyakawa (Japan), Frode Rønning (Norway), Ewa Swoboda (Poland), Luc Trouche (France), Catherine Vistro-Yu (Philippines), Binyan Xu, (ICME-14 LOC Co-chair, China), Ivan Yashchenko (Russia).

The first IPC meeting took place in Shanghai in September 2017. During the meeting, key activities and participants in the programme were identified. Currently invitations are being issued. The second IPC meeting will be held in 2019 where the scientific programme will be finalised and also issues regarding the ICMI GA will be discussed. The LOC has been set up and is fully functional. It consists of twenty members (educators, mathematicians and young researchers from all over China). The group members can be found on the ICME-14 website at <http://www.icme14.org/>). There are four working sub-groups in charge of the following tasks (a) fundraising, (b) website and announcements, (c) publicity and networking and (d) logistics. Also, there is a group in charge of international relations.

ICME-15

The bidding process for ICME-15 (held in 2024) has started with the submission of “letters of intent” to bid submitted by December 1st, 2017. Full proposals (according to the ICME guidelines (available at <https://www.mathunion.org/icmi/conferences/icme/bidding-icme>) have to be submitted by November 1st, 2018. Site visits are planned for 2019.

ICMI Regional Conferences

Launched in the mid-seventies, ICMI Regional Conferences aim to facilitate wider discussion of mathematical education issues in particular regions. In 2017 ICMI supported the planning/preparation of the following ICMI regional conferences:

- **AFRICME (Africa Regional Conference)**
The next AFRICME conference will be held in Dar es Salaam, Tanzania, August 29th-31st, 2018. Jean-Luc Dorier is the ICMI EC liaison person. See <https://www.mathunion.org/icmi/news-and-events/2017-12-15/africme-5-2018>
- **CIAEM-15 (XV Inter-American Conference on Mathematics Education)** will be held in Medellín, Colombia, May 5-9, 2019. See xv.ciaem-iacme.org and www.facebook.com/ciaem

- **EARCOME-8 (East Asia Regional Conference on Mathematics Education)** will be held in the Taipei from May 7-11, 2018. Anita Rampal is the ICMI EC liaison person. See <http://earcome8.math.ntnu.edu.tw/>
- **EMF (Espace Mathématique Francophone)** is an ICMI regional conference held every three years. It is aimed at an international audience of mathematics educators, mathematicians, researchers, teacher educators and teachers. The conference language is French. The seventh EMF colloquium (EMF2018) will take place in Paris, from October 22 to 26, 2018. The theme of the colloquium is "Mathematics on the stage, bridges between disciplines." ICMI Vice President Luis Radford is the ICMI EC liaison person. See <http://emf.unige.ch/index.php/emf-2018/>
- In 2015 the **EMeLP (Espaço Matemático em Língua Portuguesa)** created the "Conferência Internacional do Espaço Matemático em Língua Portuguesa, CiEMeLP". The conference does not yet take place on a regular basis. In 2017, ICMI was not involved in activities concerning CiEMeLP. Yuriko Baldin is the ICMI EC liaison person.

ICMI Studies

A major ICMI programme is the series of ICMI Studies. Each Study addresses an issue or topic of particular significance in contemporary mathematical education, and is conducted by an international team of leading scholars and practitioners selected by the ICMI EC. Built around an international conference, it is directed towards the preparation of a published volume to promote discussion and action at the international, regional or institutional level. 22 volumes have been published between 1986 and 2015. The series editors 2017-2020 are ICMI President Jill Adler and Secretary-General Abraham Arcavi. In 2017 the ICMI Studies Guideline was updated and published on the ICMI website https://www.mathunion.org/fileadmin/ICMI/ICMI%20studies/ICMI_Studies_Revised_Jan2018.pdf.

The two ongoing ICMI Studies are:

- **ICMI Study 23 Primary Mathematics Study on Whole Numbers**
The Study was launched in 2012. The two co-chairs are Mariolina Bartolini Bussi, University Modena e Reggio Emilia, Italy and Sun Xuhua of the University of Macau, China. The IPC started working in 2013 and the study conference was held in January 19-24, 2014 at the IMU Secretariat in Berlin, Germany. The Study Conference was held in June 2015 in Macau, China. (For further details see <http://www.umac.mo/fed/ICMI23/>). In 2017, the series editors negotiated with Springer the open access of this volume and it will be published in March 2018.
- **ICMI Study 24 "School Mathematics Curriculum Reforms: Challenges and Changes"**
The 24th ICMI study was launched by the ICMI EC in 2016. The two appointed co-chairs are Professor Renuka Vithal (South Africa) and Professor Yoshinori Shimizu (University of Tsukuba, Japan). Ferdinando Arzarello (Past ICMI President and current ex-officio member of the ICMI EC) is the ICMI EC liaison person for this Study. The IPC was selected during the ICMI EC meeting in 2016 and started working in February 2017. The IPC meeting took place in Berlin, Germany (IMU Secretariat) from November 13-15th, 2017. The key result of the IPC meeting was the finalisation of the Discussion Document which was published on the ICMI website and distributed widely in December 2017. This document describes the aims and themes of the study and includes a call for contributions for the Study conference. The Study Conference will be hosted by the University of Tsukuba, Japan (26-30.11.2018). For further details, please see <https://www.mathunion.org/fileadmin/ICMI/ICMI%20studies/ICMI%20STUDY%2024%20Discussion%20Document%20FINAL%2015%20Dec%202017.pdf>. ICMI aims to publish the Study Volume of ICMI Study 24 in 2020 and to present the publication during ICME-14 in Shanghai.

ICMI Awards

In December 2017 *Terezinha Nunes, University of Oxford, UK* was announced recipient of the 2017 Hans Freudenthal Award for a major programme of research on mathematics education and *Deborah Loewenberg Ball, University of Michigan, USA* was announced recipient of the 2017 Felix Klein Award for lifelong achievement in mathematics education research. The announcements can be found and the citations can be found at:

The Klein Project

In 2008, this project began as an IMU/ICMI joint activity, with the aim of producing mathematics resources for secondary teachers on contemporary mathematics. It was inspired by Felix Klein's book *Elementary Mathematics from an Advanced Standpoint*, first published 100 years earlier. A Design Group of 8 people (mathematicians and educators) was established in 2008, and started to create "vignettes". A vignette is a short, readable piece on a topic of contemporary mathematics targeted for school teachers. As Vignettes began to be produced and tested amongst teacher readers, the "Klein Vignette Style" evolved, and in 2011 it was decided to establish a Blog (<http://blog.kleinproject.org>) as a means of distribution. It was also decided to make Vignettes available in as many languages as possible. By December 2017, a total of 24 Vignettes, all available in English, and many translated into Arabic, French, German, Italian, Spanish, Portuguese, Khmer and Mandarin, were published on the blog. The Blog also has a "Book of the Month" and "Site of the Month" feature, the former featuring books of general mathematical interest for teachers first published more than ten years ago. There is an active "Klein community" of volunteer translators. In 2017 the Klein Blog received an average of 100-200 hits per day and it is growing, with an all-time total of over 118,000 hits. While this may be small by web standards, it represents at least 50 vignettes being read by teachers somewhere every day, after accounting for accidental and non-teacher hits.

In 2017, the ICMI EC confirmed its commitment to continue supporting the Klein Project Blog. In May 2017 Hans-Georg Weigand (Germany) and Bill Barton (New Zealand) met in Berlin and discussed the future of the project. This discussion was continued at the ICMI EC meeting in July 2017. It was decided to continue the Klein Project focusing on the further development of the blog and possibly a new Klein website following the relaunch of the ICMI and IMU websites. Hans-Georg Weigand was appointed as the new contact person. Yuriko Baldin (ICMI liaison person) and Ferdinando Arzarello will support Hans-Georg Weigand in taking the Project forward.

Outreach to Developing Countries

Capacity and Networking Project (CANP)

CANP aims to enhance mathematics education in developing countries by supporting the educational capacity of those responsible for mathematics teachers, and creating sustained regional networks of teachers, mathematics educators and mathematicians, linking them to international support. The main CANP activities in 2017 were the following:

1. Follow-up meetings and conferences

- CANP 5, Andean Region and Paraguay (launched 2016)

The fifth CANP Andean Region and Paraguay (Bolivia, Ecuador, Paraguay, Peru) held a follow up meeting in Ecuador on April 19-21, 2017 at ESPOL, Guayaquil, Ecuador. 15 participants were present (country representatives and delegates from Bolivia, Ecuador, Paraguay, Peru; Yuriko Baldin, ICMI liaison person from Brazil and Patrick Scott, invited observer from the National Council of Teachers of Mathematics (NCTM, USA) and the ICMI affiliated organisation IACME- CIAEM).

- CANP 2, Central America and the Caribbean (launched 2012)

On October 28th, 2017 a General Assembly of the Mathematics Education Network for Central America and the Caribbean (the network that was created in 2012 as a result of the CANP workshop) was held in Cali, Colombia one day before CEMACYC II (II Congress of Mathematics Education for Central America and the Caribbean) was held in Cali, on October 29th - November 1st, 2017. Most of the activities of CEMACYC II were carried-out at the Universidad del Valle. Approx. 400 persons (primary, secondary and university teachers, math educators, mathematicians, school administrators and university students) from 24 countries participated in the activities. CEMACYC III is going to be held in Costa Rica in November of 2021. During the upcoming years the regional Network plans to develop publications and implement activities. In particular, the CEMACYC II has propelled the on-

going organisation of the ICMI affiliated regional conference IACME XV (XV Inter-American Conference on Mathematics Education), to be held in 2019, May 5 to 10, in Medellín Colombia.

2. CANP Publications

Ferdinando Arzarello, ICMI President (2013-2016) negotiated in 2015 with Springer the publication of the CANP reports. In 2016/2017 two CANP books were published and one is in the process of publication:

- CANP 4: “Mathematics Education in East Africa: Towards Harmonization and Enhancement of Education Quality” Editors: Anjum Halai and Geoff Tennant (<http://www.springer.com/us/book/9783319272573>)
- CANP 2: “Teacher preparation in Central America and the Caribbean”, Editor: Angel Ruiz, was published as an e-book in 2016 and as a printed copy in 2017. The book is a synthesis of the initial and continuing preparation for Mathematics Teaching in Colombia, Costa Rica, Dominican Republic and Venezuela, showing similarities and differences, and highlighting different perspectives. (<http://www.springer.com/us/book/9783319441764>)
- CANP 5: The publication process of the book started in 2017 and is aimed to end in 2018.

3. Involvement in ICMI activities

Efforts to involve CANP participants from non - ICMI member countries in ICMI activities are ongoing. Hopefully their countries can become ICMI members in the near future.

4. The Future of CANP and Review of CANP 1-5

Between 2010 and 2016, the five CANP projects reached more than 250 participants from 25 countries in non-affluent regions. ICMI and IMU invested considerable funding and many requests are received to support CANP follow-up activities. In 2015 a thorough and systematic review process was initiated by a commission of six members: Michèle Artigue and Bill Barton (former ICMI Presidents and the two originators of the CANP Project), Angel Ruiz (former ICMI Vice President and one of the CANP ICMI Liaisons and in his capacity as CDC member), Ferdinando Arzarello (ICMI President at a time and a CANP ICMI Liaison Person), Lena Koch (for her knowledge of all five CANPs, her international development experience, and her CANP 1-5 financial and project management experience) and Abraham Arcavi as ICMI Secretary General. The entire review process was carried out by Lena Koch. In 2017, Lena presented the final results at the ICMI EC meeting and future steps were discussed. The overarching conclusion from the review is that CANPs (and their follow-ups) have amply fulfilled the most optimistic expectations of their initiators. As a result the ICMI EC decided in 2017 to organise a CANP workshop regarding future directions with two representatives from each CANP region (CANP 1-5) to be held May 9th and 10th, 2018 in Taipei, alongside the ICMI regional conference EARCOME 8.

Further information about the results of the CANP review can be found at:

<https://www.mathunion.org/icmi/activities/developing-countries-support/canp/canp-review>

5. IMU - Commission for Developing Countries (CDC)

The ICMI EC appoints one member of the IMU Commission for Developing Countries (CDC). The ICMI EC 2013-2016 nominated Angel Ruiz as member of this Commission (2015-2018). He participated in the 2017 CDC activities.

Communication and Outreach

The following channels of communication fulfil ICMI's statutory obligations.

- **ICMI Newsletter**

Like in previous years, three issues of the ICMI Newsletter were published and distributed (March 1, July 1^{and} November 1). The Editors are Abraham Arcavi, Marilyn Goos and Lena Koch. See

<https://www.mathunion.org/icmi/publications/icmi-newsletter/icmi-newsletter-archive-starting-july-2014>

- **ICMI Website**

The IMU re-launching of the IMU website included the new-design of the ICMI website. The new ICMI website went online in December 2017. The editors were Jaime Carvalho e Silva (former ICMI Secretary General) and Lena Koch. See <https://www.mathunion.org/icmi>

- **ICMI Facebook** The ICMI Facebook page was established in 2011 and has more than 5,500 subscribers (fans). The editors are Jaime Carvalho e Silva (former ICMI Secretary General) and Lena Koch. See <https://www.facebook.com/icmi.math.edu/>

- **L'Enseignement Mathématique and Newsletter of the European Mathematical Society** The regular columns on ICMI News were published in the journal L'Enseignement Mathématique (historically connected to ICMI) and the Newsletter of the European Mathematical Society. The editor is ICMI EC member at large Jean-Luc Dorier.

- **ICMI Archive** Preservation of ICMI historical documents is ongoing under the joint coordination of former ICMI Secretary General Bernard Hodgson and IMU archivist Birgit Seeliger.

- **ICMI Materials** ICMI materials were distributed at various conferences and events.

- **Reports** Each spring ICMI submits to the IMU EC an activity and financial report on the preceding calendar year (similar to the present one).

Further Activities and Outreach

ICMI Digitization Program

The ICMI Digital Library Project aims at providing open access to all ICMI publications and thematic Studies. Currently proceedings of the symposium organized in the year 2000 on the occasion of the centennial of L'Enseignement Mathématique, the first five ICMI Studies, ICMI Bulletins, and proceedings of various meetings and conferences are available for free download from <https://www.mathunion.org/icmi/publications/icmi-digital-library-project>

ICM 2018

The panel on Mathematics Education and Popularization of Mathematics, which will be held at the ICM 2018 will be chaired by Cheryl Praeger (former ICMI Vice President), with the participation of ICMI colleagues. The program includes plenary speakers and panelists (see invited section lectures #18 at <http://www.icm2018.org/portal/en/invited-section-lectures-speakers>).

MOOCs and AMOR (Awardees Multimedia Online Resources Project)

With the encouragement and support of IMU Past President Ingrid Daubechies, the ICMI EC started to explore in 2013 the role and potential of MOOCs (Massive Open Online Courses) in mathematics education. Bill Barton attended an ad hoc conference in 2013, and Angel Ruiz reported to the ICMI EC in 2014 on experience with MOOCs in teacher education in Central America. In 2014 Jean-Luc Dorier (ICMI EC member at large) developed the idea of creating MOOCs around the ICMI Awardees and a project has been launched to develop MOOCs for mathematics education graduate students and young career fellows. The project is named “Awardees Multimedia Online Resources (AMOR)” and it started in cooperation with French colleagues, among them Michèle Artigue and Claire Margolinas. They produced draft versions of parts of the course. The ICMI EC decided in 2017 to continue this project and to extend it to other ICMI awardees.

Gender Gap Project

The IMU Committee for Women in Mathematics (CWM) is leading the project "A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce It?" funded by the International Council for Science (ICSU). An award of 300,000 Euros for the period 2017-2019 funds this project. CWM was one of the two lead applicants. On June 1-3 2017 the initial workshop for the project took place at the UNESCO Headquarters and the Institute Henry Poincaré (IHP) in Paris. Members of all participant scientific unions, as well as experts and the project's advisory board and executive committee, gathered during three days to discuss a global approach to narrowing the gender gap in mathematics and natural sciences as well as to share gender statistics

from regional perspectives, and to define new indicators used to measure gender equality. ICMI EC members at large Merrilyn Goos and Anita Rampal represented ICMI.

Further International Cooperation and Outreach

- In 2017 ICMI continued its cooperation with UNESCO, in particular with the Division of Science Policy and Capacity Building (SC/PCB) of the International Basic Sciences Programme (IBSP) based in Paris.
- The ICMI EC members and the ICMI representatives kept their national organisations and adhering organisations informed about ICMI developments.

Support for MPE 2017

In 2017, ICMI supported the The Mathematics of Planet Earth (MPE) competition with 2,500 Euros, alongside the support of UNESCO, the International Mathematical Union (IMU), and IMAGINARY. The winners of the second international competition for exhibition modules for the Open Source Exhibition of MPE (MPE) can be found at <https://imaginary.org/de/node/1318?page=10>
This project aims to showcase ways in which the mathematical sciences are useful for understanding our planet and addressing the challenges of sustainable development and global changes.

Financial Summary

ICMI's principal source of income is an annual grant from the International Mathematical Union (IMU). Another source of financial support source for ICMI activities comes from academic institutions all over the world that support their faculty members to attend ICMI meetings (EC meetings, ICME IPCs, ICMI Studies IPCs, ICMI Regional Meetings, CANPs etc).

ICMI administrator and ICMI Secretary General prepare each year the annual budget and submit it to the ICMI EC for comments and approval. The funds are transferred from the IMU Secretariat in Berlin.

The ICMI EC would like to thank IMU, the IMU Secretariat and its host institution WIAS in Berlin and all institutions who financially and administratively supported ICMI activities in 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.

Jill Adler, ICMI President
Abraham Arcavi, ICMI Secretary-General
Lena Koch, ICMI Administration, IMU Secretariat

Thursday, 1 March 2018

3.2. Commission for Developing Countries (CDC)

<https://www.mathunion.org/cdc>

Report on the Activities of the IMU Commission for Developing Countries (CDC) January 1 – December 31, 2017

The Commission for Developing Countries (CDC) is a ten-member commission. Its members are elected or appointed for a four-year term by the IMU General Assembly.

The CDC members 2015-2018 are:

- Wandera Ogana (Kenya) - CDC President
- Olga Gil Medrano (Spain) - CDC Secretary for Policy (since 1.1.2016)
- Srinivasan Kesavan (India) - CDC Secretary for Grant Selection
- Alf Onshuus (Colombia) - Latin American Member
- Angel Pineda (USA/Honduras) - CDC member appointed by the IMU Executive Committee
- Angel Ruiz (Costa Rica) - CDC member appointed by the ICMI Executive Committee
- Budi Nurani Ruchjana (Indonesia) - CDC member appointed by the IMU Executive Committee
- Mama Foupouagnigni (Cameroon) - African Member
- Polly Sy (Philippines) - Asian Member
- Shigefumi Mori (Japan) - IMU President (2015-2018) and Ex-officio CDC Member

The applications to the various CDC grant programs are evaluated and selected by CDC and additional committees:

- **CDC-Grants Selection Committee (CDC- GSC) (2015-2018)**
The grants for conferences and the IMU-Simons Travel Fellowship and IMU-Simons African Travel Fellowship Program grants are allocated by the Grants Selection Committee (GSC). The GSC is a seven-member committee, chosen and supervised by the Commission for Developing Countries (CDC) and chaired by the CDC Secretary for Grants Selection.
- **Abel Visiting Scholar Program Selection Committee (2016-2019)**
The committee consists of three members: one member chosen by the Abel board (since July 2016 chosen by IMU EC), one member chosen by CDC and one member chosen by the IMU EC.
- **African Diaspora Mathematicians Program Selection Committee (2017-2019)**
The ADMP Selection committee consists of four members from four countries.
- **CDC Volunteer Lecturer Program Selection Committee (2015-2018)**
This CDC sub-committee supports and evaluates applications to the CDC Volunteer Lecturer Program. The committee consists of five members. All members are CDC members.
- **GRAID Committee**
The GRAID committee consists of six members from three countries and one ex-officio, non-voting member.
- **IMU Breakout Selection Committee (2016-2018)**
The committee consists of five members and one ex-officio, non-voting member.

Applications and requests to all other CDC programs and projects are evaluated and selected by CDC.

The CDC and all CDC related activities are supported by staff members from the IMU Secretariat in Berlin, Germany who manage most of the administration of the CDC in addition to the many volunteers who support CDC activities worldwide. Two programs (Breakout and GRAID) are mainly administrated outside the IMU Secretariat, but receive support by staff members of the IMU Secretariat.

During 2017 one new program has been launched (GRAID) and the Individual Research Travel Grant Program replaced the IMU Simons Travel Fellowship, which ended in May 2017. CDC has continued to use the funds it receives from the International Mathematical Union (IMU) and other donors to support mathematics research and advanced mathematical teaching in developing and less affluent countries. CDCs work is guided by the basic principles incorporated into its original charge:

- I. Work with and support local mathematical leadership in developing countries.
- II. Leverage resources through partnering and networking with other organizations with goals compatible with the CDC mandate.
- III. Set clear norms of quality, transparency and accountability.

Guided by these principles, the CDC allocated its funds in 2017 for the following new and continuing activities:

A) Project Support Program

Under the Project Support Program the CDC supports capacity building projects and programs in mathematics and mathematics education, be they international, regional or local initiatives in developing countries. The CDC members evaluate and select the grant recipients.

B) Volunteer Lecturer Program

The goal of the Volunteer Lecturer Program is to offer universities in the developing world lecturers for intensive 2-4 week courses in mathematics at the advanced undergraduate or master's level.

C) Grants for Conferences

The Conference Support Program gives partial support to conferences organized in developing and economically disadvantaged countries. The Program also supports major international conferences occurring in developed countries to enable them to invite mathematicians from developing countries. The funds are for academic use only (travel or living expenses of invited speakers or participants coming from developing countries). The CDC Grant Selection Committee (GSC) selects the grant recipients.

D) IMU-Simons Travel Fellowship for Individuals

The IMU-Simons Travel Fellowship supports 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. The Simons Foundation, based in New York, funds the program. The Foundation has been annually giving the amount of USD 25.000 during the period 10/2014-09/2016. In 2016 the program was extended until May 31, 2017. It replaces the Individual Research Travel Grant Program during this time. The CDC Grant Selection Committee (GSC) selects the grant recipients.

E) IMU-Simons African Fellowship Program

In 2016 a new grant program, the “IMU – Simons African Fellowship Program” was launched. 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 will run for five years until September 2021 and receive 50.000 USD per year from the Simons Foundation, NY, USA. All travel and living expenses of the grantees will be covered by the fellowship up to USD 5.000.

F) Abel Visiting Scholar Program (AVSP)

In 2013 the Niels Henrik Abel Board (Norway) and the CDC launched the Abel Visiting Scholar Program. The Niels Henrik Abel Board gives an annual grant of NOK 350.000, which includes USD 15.000 for the Abel Visiting Scholar Program to support mathematicians professionally based in developing countries to visit an international research collaborator for a period of one month. The period is extendable for up to three months in the case of matching support from the host institution. The AVSP is designed for postdoctoral mathematicians in the early stages of their professional

careers. It is designed to offer the opportunity for a ‘research sabbatical,’ a necessary complement to teaching and other academic duties for mathematicians desiring to also sustain a viable research program. The Abel Visiting Scholar Program Selection Committee selects the grant recipients. The remaining amount of the annual Niels Henrik Abel Board grant is used for various CDC activities.

G) Individual Research Travel Program

This program supports travel costs for research visits (minimum stay is four weeks) by mathematicians based in developing and economically disadvantaged countries. The host institution must cover local living expenses like accommodation and boarding. Until May 31, 2017 the IMU-Simons Travel Fellowship replaced the program.

H) IMU Breakout Graduate Fellowship Program

Thanks to a generous donation by the winners of the Breakthrough Prizes in Mathematics – the International Mathematical Union, with the assistance of FIMU and TWAS launched in 2016 a fellowship program to support postgraduate studies, in a developing country, leading to a PhD degree in the mathematical sciences. The IMU Breakout Graduate Fellowships offer a limited number of grants for excellent students from developing countries. The program is mainly administered by TWAS, supported by the IMU Secretariat.

I) Library Assistance Scheme

The IMU-CDC Library Assistance Scheme matches donors of mathematical materials with libraries in universities/research institutions in developing countries where there is a need for mathematical research literature. The 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.

J) African Diaspora Mathematicians Program (ADMP)

In 2016 CDC initiated the African Diaspora Mathematicians Program. The objective of the program is to utilise the expertise of African Diaspora mathematicians, whilst at the same time encouraging collaboration in research by mathematicians in Africa and those in the African Diaspora. The program aims to establish three partnerships in Africa between 1) Mathematicians with a PhD who were born and raised in Africa and are now full-time employed outside of Africa as professors in mathematics and 2) Mathematics academic units at any university in Africa who want to build long term connections with African Diaspora Mathematicians and the home institution of the Diaspora Mathematician. Since 2017 the IMU Secretariat mainly administers the program.

K) Graduate Research Assistantships in Developing Countries (GRAID) Program. The Program provides research assistantships to 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. It provides modest support for emerging research groups, making it possible for them to fund their most talented students as graduate research assistants, thereby fostering the growth of a mathematics community. The GRAID Program is funded by voluntary donations from mathematicians or mathematical institutions worldwide. The program is administered by the GRAID Selection Committee (supported by AMS). Applications are evaluated and recipients selected by the GRAID committee.

L) Meetings

In 2017 the CDC met for two days in April at the University of Sussex.

M) Policy Issues

In 2017 the CDC members discussed policy issues related to CDC activities during the meeting and using e-mail and Skype.

N) Administration

Administrative costs are kept to no more than 10% of the CDC operating budget. The CDC Administration is, unless mentioned differently, supported by staff members of the IMU Secretariat (hosted by WIAS Berlin).

O) 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 website is hosted by WIAS Berlin.

Administrative costs are kept to no more than 10% of the CDC operating budget. The IMU Secretariat staff salaries and many other administrative expenses are covered by the IMU Secretariat budget, which receives its funds from the German Ministry of Education and Research (BMBF) and the Federal State of Berlin. The IMU Secretariat is hosted by the *Weierstrass Institute for Applied Analysis and Stochastics* (WIAS) in Berlin, Germany. The costs of the website and all technical costs are mainly covered by the IMU Secretariat funds (WIAS). All updates, programs and information about all CDC programs can be found on the CDC website: www.mathunion.org/cdc

CDC Activities in 2017 in Detail

A) Project Support Program

Under the Project Support Program the CDC supports capacity building projects and programs in mathematics and mathematics education, be they international, regional or local initiatives in developing countries. The CDC members evaluate and select the grant recipients.

In 2017 two projects and activities were supported from CDC project funds:

- **Mentoring African Research in Mathematics (MARM)**

In 2016 the MARM program received from CDC EURO 11,330 and an equivalent amount from the London Mathematical Society to support the continuation of the Mentoring African Research in Mathematics program (MARM) in 2016 and 2017. The program links African academics with their UK and European counterparts via professional mentoring partnerships. In doing so, MARM provides the means and opportunities for African mathematicians to develop international working relationships while also improving the quality of academic provision within their home institution. Each partnership has collaboratively defined its own objectives and priorities specific to the needs of the African institution, as well as its own-targeted methods of accomplishing these. Activities undertaken in 2016 and 2017 have included: Exchange visits, lectures, seminars and workshop series at African institution, joint PhD supervision, mentoring and support for African postgraduate students with respect to wider academic and life skills, mentoring African early careers staff in research and other skills and developing of research contacts and networking. More information can be found on the program website. www.lms.ac.uk/grants/mentoring-african-research-mathematics.

- **Travel Support for a graduate student**

The Cambodian student Veasna Chum completed a Master degree in mathematic at CIMAT (*Centro de Investigación en Matemáticas, A.C.*). CIMAT supported local expenses (housing and basic living fees). He graduated in July 2017 and in 2017 his cost for the return flight was supported.

B) Volunteer Lecturer Program

The goal of this program is to offer universities in the developing world lecturers for intensive 2-4 week courses in mathematics at the advanced undergraduate or master's level. In 2017 the CDC supported and reimbursed 8 lecturers who gave courses in developing countries under the CDC Volunteer Lecturer Program:

- Prof. Fabrizio Ruggeri (Consiglio Nazionale delle Ricerche - Istituto di Matematica Applicata e Tecnologie Informatiche, Italy) has taught at the Universidad Nacional Autonoma de Honduras in Tegucigalpa, Honduras during February 13-24, 2017 a course in Nonparametric Statistics (first part).
- Prof. Fabrizio Ruggeri (Consiglio Nazionale delle Ricerche - Istituto di Matematica Applicata e Tecnologie Informatiche, Italy) has taught at the Universidad Nacional Autonoma de Honduras in Tegucigalpa, Honduras between March 25 and April 9, 2017 a course in Nonparametric Statistics (second part).
- Prof. Michel Jambu from the University of Nice-Sophia Antipolis, France visited the National University of Mongolia (NUM) between April 23 and May 13, 2017. The goal of his missions was to start joint activities between NUM and the University of Nice-Sophia Antipolis and to give a course within the master program of mathematics of NUM. Prof. Jambu gave a course on Topology. Besides the master students, some teachers of the department of mathematics attended our lectures, as well as some teachers of the secondary schools. There were about 20 participants, but due to some constraints, the teachers could not attend all the lectures.
- In May 2017 CDC supported the travel and living cost of Prof. Michel Waldschmidt (France) who taught Modul I during May 1 - 12, 2017. 13 Master Students participated in the course. His travel, living and accommodation cost were supported.
- Prof. Sylvia Wiegand (USA) and Prof. Roger Wiegand (USA) gave a course in the Nepal Algebra Project 2017, VLP, Module II from May 14-26, 2017. They were responsible for Module II, the second of five modules. They presented material in lecture format, encouraging questions from students and asking questions of them. Each day they wrote a summary of what was covered that day; these summaries, as well as miscellaneous notes, homework assignments, and (after assignments were due) solutions, were promptly posted on the course website by Dr. Nilakantha Paudel. Homework was graded by graduate students at University of Rom (Italy) Roma Tre and the grading policies were determined by the faculty at Roma Tre, in particular by Professor Francesco Pappalardi. CDC supported in 2017 their travel, living and accommodation cost.
- Prof. Carlos Fernández (Spain) gave a course in Real Analysis at the Universidad Nacional Pedagógica Francisco Morarón (Honduras) during November 5-December 1, 2017. From the 2017 CDC budget his flight cost were supported.
- Prof. Joaquim Correia (Portugal) gave a course in Real analysis, duration of the visit January 2 - February 1, 2018 at the Department of Mathematics, Faculty of Science, Silpakorn Univeristy, Nakhon Pathom, 73000 Thailand. He received in 2017 a first payment for his costs.
- Prof. Fernando Pestana da Costa gave a course in Differential Equations during January 13, 2018 and February 11, 2018 at the Faculty of Natural Sciences, Dongdok Campus, Vientiane Capital, Lao PDR. His travel, living and accommodation cost were supported.
- Prof. Michel Jambu (France) gave a course in “Projective Geometry” at the University of Mandalay between during December 2017. His flight costs were supported from the CDC 2017 budget.
- Prof. Brigitte Lucquin (France) gave a course in “Partial Differential Equations: Mathematical Analysis and Numerical Approximation” at the University of Mandalay between during December 2017. Her flight costs were supported from the CDC 2017 budget.

The reports of the lecturers and photos can be found online. <http://www.mathunion.org/cdc/volunteer-lecturer-program/country-reports/>

C) Grants for Conferences

During the interval 1st January – 31st December 2017, the Grant Selection Committee supported conferences, in the two existing categories:

Conferences in developing countries¹

Conferences in developed countries²

Conferences in developing countries

During 2017 **37 conferences** taking place in the following developing countries received a conference grant award:

Country	Number of Awards	Total value of awards (Euro)
Armenia	1	1,000
Bolivia	1	1,500
Cameroon	1	1,500
China	1	1,000
Colombia	2	3,000
D.R. of Congo	1	1,500
Ecuador	3	3,500
Georgia	1	1,000
India	6	6,000
Iran	1	1,500
Kenya	2	2,000
Mongolia	1	1,500
Morocco	1	1,000
Myanmar	1	1,000
Nigeria	1	1,500
Nepal	1	1,500
Pakistan	1	1,500
Palestine	1	1,500
Philippines	1	1,000
Senegal	2	3,000
Serbia	1	1,000
South-Africa	2	3,000
Thailand	1	1,000
Tunisia	1	1,500
Vietnam	2	3,000
Total	37	46,500

¹ Since December 2015 IMU classifies Developing Countries as those with **Gross National Income (GNI) per capita in USD**, not exceeding 11,000 USD, in accordance with the [United Nations data](#) (December 2015).

² CDC support to this category is intended solely for the participation of mathematicians from developing countries. Furthermore, conference organizers are required to demonstrate that they will match the funds being requested from/granted by CDC by an equal amount from other sources also dedicated to the participation of mathematicians from developing countries.

Conferences in Developed Countries

Support was granted in **3 cases** for conference participation of developing country mathematicians to conferences taking place in the following **developed countries**:

Country	Number of Awards	Total value of awards (Euro)
Argentina	2	2,500
Brazil	1	1,500
Total	3	4,000

Total Spending for Conference Grants /Year		Total value of awards (Euro)
2017	40	50,500

CDC Research Travel Fellowship Programs:

D) IMU-Simons Travel Fellowship for Individuals (the program ended 31.5.2017)

The IMU Simons Travel Fellowship Funds are not budgeted to the general CDC budget, but kept in a separate budget line.

During 1.1.2017 and 31.5.2017 three mathematicians received support from the IMU-Simons Travel Fellowship Program to travel abroad for individual research periods.

- Grigori Karagulyan from the Institute of Mathematics, Armenian National Academy of Sciences, Yerevan, Armenia spent a research period at the Georgia Institute of Technology, Atlanta, USA between 20.9.2017-20.10.17 His collaborator was Professor Michael Lacey.
- Bac Nguyen Trong from the Thai Nguyen University of Economics and Business Administration, Vietnam spent a research period at the Department of Mathematical Sciences, Kent State University, USA between 08.11.2017- 08.1. 2018. His collaborator was Professor Hai Dinh.
- Bazar Babajanov from the Department of Mathematical Physics and Applied Mathematics at the Urgench State University, Uzbekistan has received the reimbursement of his insurance cost to visit Comenius University in Bratislava, Slovakia. They worked between 15.09.2016 and 15.10.2016 on inverse spectral problems for differential and difference operators, inverse scattering methods, nonlinear evolution PDE with Prof. Jozef Masarik.

E) IMU-Simons African Fellowship Program

The IMU-Simons African Fellowship Program funds (USD 50,000 per year) are not budgeted to the general CDC budget, but kept in a separate budget line.

The program was launched September 1, 2016. During the interval 1st September – 31st December 2017, 17 mathematicians were selected.

The following mathematicians were selected:

- Patrick Ali is a Senior Lecturer at the Chancellor College, University of Malawi, Zomba, Malawi. He was hosted by Prof R. B. Bapat at the Indian Statistical Institute, New Delhi, India during the period 2017-03-01 - 2017-03-31. His research topic involved graph theory and matrix theory. He explored the distance matrix of signed graphs and digraph.
- Kazeem Okosun is an Associate Professor at the Vaal University of Technology, Vanderbijlpark, South Africa. He was hosted by Prof.Majid Jaber-Douraki at the Kansas State University, Manhattan, USA during the period 01.06.2017 - 31.07.2017. His research plans for the visit was to develop computational and mathematical models of different biological systems including infectious and autoimmune diseases.

- Farai Nyabadza is an Associate Professor at the Stellenbosch University, Matieland, South Africa. He was hosted by Dr Rachel Mbogo at the Strathmore University, Nairobi, Kenya during the period 2017-01-02 - 2017-01-31. His research has focused on the impact of long term antiretroviral treatment on the incidence of noncommunicable diseases (NCDs), e.g. the model formulation and Analysis of HIV infections.
- Emile Franc Doungmo Goufo is a Senior Lecturer at the University of South Africa - UNISA, Pretoria, South Africa. He was hosted by Professor Adrian Ilinca at the Université du Québec à Rimouski, Canada during the period 2017-04-03 - 2017-05-03. His research focused on the New Riemann-Liouville derivative (NRLD), the aim was to explore numerical methods and signal/image processing with the NRLD.
- Michael Ogundiran is a Senior Lecturer at the Obafemi Awolowo University, Ile-Ife, Nigeria. He was hosted by Luigi Accardi at the University Tor Vergata, Rome, Italy during the period 2017-03-09 - 2017-05-01. His research focused on the Stochastic Limit of Quantum theory.
- Thomas Bouetou Bouetou is a Full Professor at the University of Yaounde I, Yaounde, Cameroon. He was hosted by Professor Emmanuel Ullmo at the Institut des Hautes Études Scientifiques, Université Paris-Saclay, France during the period 2017-08-15 - 2017-09-15. This research project was to study manifolds, groups and simply connected algebras.
- Mamadou Diop is an Assistant professor in applied mathematics at the UFR SAT, Université Gaston Berger, Saint-Louis, Senegal. He was hosted by Professor Khalil Ezzinbi at the Université Cadi Ayyad, Marrakesh, Morocco during the period 2017-09-01 - 2017-11-01. During his stay, he will work on stochastic evolution equations and related topics.
- Philibert Nang is a Full Professor at the Ecole Normale Supérieure, Research Laboratory of Mathematics, Libreville, Gabon. He was hosted by Professor Susumu Tanabe at the Galatasary University, Istanbul, Turkey. His work concerns a classification of a class of D -modules compatible with some stratifications given by an orbit decomposition of special kind of prehomogeneous vector spaces.
- Babacar Mbaye Ndiaye is a Professor in Applied Mathematics at the Cheikh Anta Diop University, Dakar, Senegal. He was hosted by Professor Wilfrid D. Gangbo at the University of California at Los Angeles, USA during the period 2017-11-06 - 2017-12-17. His research will focus on the numerical resolutions of optimization problems for mass transport problems.
- Frederic D. Y Zongo is a Lecturer at the Dept. des Sciences Exactes, Institut Des Sciences, Ouagadougou, Burkina Faso. He was hosted by Professor Michael Melgaard at the School of Mathematical and Physical Sciences, University of Sussex, Great Britain during the period 2017-09-01 - 2017-10-04. The aim of this project was to deepen the study of Perturbation methods in critical point theory with applications to relativistic electronic structure models.
- Surafel Tilahun is a Lecturer at the Computational Science program, Addis Ababa University, Ethiopia. He was hosted by Professor Mohamed Tawhid at the Thompson Rivers University, Canada during the period 15.06.2017 - 15.07.2017. His research topic involved the theory of slice hyperholomorphic functions and Clifford analysis.
- Yaogan Mensah is an Associate Professor of Mathematics at the University of Lomé, Department of Mathematics, Togo. He was hosted by Professor Hartmut Führ at the RWTH Aachen, Germany. The aims of this project is to deepen the study of the multipliers for two

algebras and to characterize their multipliers by means of the Gelfand transform and the generalized Gelfand transform respectively. His research visit is postponed to March 2018.

- Allal Ghanmi is a Professor of Mathematics at the Mohammed V University in Rabat, Department of Mathematics, Morocco. He was hosted by Professor Irene Maria Sabadini at the Politecnico di Milano, Milan, Italy during the period 2017-05-01 - 2017-07-30. His research topic involved the theory of slice hyperholomorphic functions and Clifford analysis.
- Imen Manoubi is an Assistant Professor at the Superior Institute of Applied Sciences and Technology Of Gabès (ISSATG), University Of Gabès, Tunisia. She was hosted by Professor Serge Dumont at the Institut Montpelliérain Alexander Grothendieck (IMAG) Montpellier, France during the period 2017-06-21 - 2017-07-19. Her research topic involved the interface of mathematical modelling and numerics.
- Elias Offen is a senior lecturer at the University of Botswana, Faculty of Science, Mathematics Department Gaborone, Botswana. He was hosted by Professor Jan Dhaene at the University of Leuven-KU, Leuven, Belgium during the period 2017-06-01 - 2017-07-31. His research topic involved Minimal Entropy Martingale Measure in a Market of traded Financial and Actuarial risk.
- Ibrahim Adamou is a Professor at the Mansoura University, Mathematics Department, Egypt. He will be hosted by Professor Dr.Mohamed Tawhid at theThompson Rivers University, Kamloops, Canada during the period 2018-01-01 - 2018-04-30. During the visit his research topic will be "Highly Flexible Evolutionary Multi-Objective Optimization Algorithm and Its Applications". Together with Prof. Tawhid he will be working to find a set of well-converged trade-off solutions and well-diversified solutions across the entire efficient front.
- Remi Cocou Avohou is an Assistant Professor at Ecole Normale Supérieure of Natitingou, Natitingou, Benin. He will be hosted by Prof. Vyacheslav Futorny at the University of São Paulo, Brazil during the period 2018-03-01 - 2018-04-30. During the visit his research topic will be Graph Theory. Together with Prof. Futorny he will be working to construct a new class of symmetric algebras of tame representation type using the arbitrary rank n colored tensor graphs.

F) Abel Visiting Scholar Program

The funds for the Abel Visiting Scholar Program (USD 15,000) are not budgeted to the general CDC budget, but kept in a separate budget line.

In 2017 the following five scholars were selected for an Abel Visiting Fellowship Award:

- Ibrar Hussain (b. 1978) is Assistant Professor at the National University of Sciences and Technology of Islamabad, Pakistan. His research centred on the study of Noether symmetries of the Lagrange functional for field equations and of the geodetic Lagrangians in some spacetimes. He was hosted by Professor Peter J. Olver of the School of Mathematics, University of Minnesota, USA.
- Roger Kameugne (b. 1980) is a Senior Lecturer of Applied Mathematics at the University of Bamenda, Cameroon. His research centred on a generalized edge finder algorithm for scheduling problems with cumulative resource constraint. He was hosted by Professor Claude-Guy Quimper, Université de Laval, Canada.

G) Individual Research Travel Program

Until May 31, 2017 the IMU-Simons Travel Fellowship has replaced the program. During 1.6.2017 and 31.12.2017 no mathematicians received support to travel abroad for individual research periods

through this program.

H) IMU Breakout Graduate Fellowship Program

The funds for the Program, obtained by donation of the Breakthrough Prize winners are not budgeted to the general CDC budget, but transferred from FIMU to IMU.

In 2017 no new fellowships were awarded. The three 2016 grantees have provided satisfactory annual reports and their grants have been renovated.

I) Library Assistant Scheme

No books were donated in 2017.

J) African Diaspora Mathematicians Program (ADMP)

In 2016 the CDC launched the African Diaspora Mathematician Program. ADMP will run as a pilot program in Africa for two years (May 2017 - June 2019) and offers three partnerships to be established between a mathematician originally from Africa and now living and working outside of Africa and a mathematics department based in Africa. Besides the travel and living cost for the volunteers to spend 3 to 6 weeks in Africa, the amount of Euro 1,000 per year can be spent by the Diaspora Mathematician to cover the cost of educational material such as books, software, journals and other learning material. CDC President Wandera Ogana (Kenya) is the chair of pilot program. Initially the program was administered in Kenya, since the selection of the three projects the IMU Secretariat administers the funds for the program and supports the three projects. In March 2017 three projects were selected and have started their cooperation. Two mathematicians have visited the institutions in 2017:

- Professor Anotida Madzvamuse (Department of Mathematics at University of Sussex, Brighton, United Kingdom) visited the University of Zimbabwe between 13th October 2017 - 10th November 2017 and participated in the following activities: postgraduate teaching, examinations and supervision, curriculum development and improvement, initiation of proof-of-concept research projects with the aim of producing rapid publications, mentorship of young staff members and postgraduate students, advice on acquisition of software, literature, and other educational materials, exploring formal links between the University of Zimbabwe, University of Sussex, Southern African Mathematical Sciences Association (SAMSA) and the Masamu Program and many others. Professor Madzvamuse's research involves, among other areas, the development of new mathematical and computational models for 3D cell migration, new inverse problems with applications to biology and new optimal control models for parameter and function identification, as well as development of innovative commercial software packages for particle and whole cell tracking.
- Professor Shiferaw Berhanu (Department of Mathematics, Temple University, Philadelphia, USA) visited the Department of Mathematics at Addis Ababa University, Addis Ababa, Ethiopia, during May 27 - July 16, 2017. He performed the following activities for the postgraduate program of the mathematics department: taught a graduate course in complex analysis; advised the program on various academic issues including curriculum improvement and initiated first steps in this direction. Prof. Berhanu also supported a grant proposal for the ISP and gave a public lecture on a mathematical topic that is of interest to physicists and engineers. The title was "A local Hopf Lemma and unique continuation for the Helmholtz equation". Professor Berhanu's research involves, among other areas, investigation of the properties of solutions of systems of first order partial differential equations with complex-valued coefficients.

K) Graduate Research Assistantships in Developing Countries (GRAID) Program

The funds for the Program received by donation are not budgeted to the general CDC budget, but kept in FIMU account.

The Program provides research assistantships to 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. It provides modest support for emerging research groups, making it possible for them to fund their most talented students as graduate research assistants, thereby fostering the growth of a mathematics community. The GRAID Program is funded by voluntary donations from

mathematicians or mathematical institutions worldwide. The program is administrated by the GRAID Selection Committee (supported by AMS). Applications are evaluated and recipients selected by the GRAID committee. The funds are transferred by AMS. Two research assistantships were selected in 2017 and have received their first grant. The IMU GRAID committee has selected two projects for funding in the first round of applications.

- Two Ph.D. students will be funded at the University of Yaounde I in Cameroon. This team is led by Principal Investigator Edgar Tchoundja (University of Yaounde I, Cameroon) and International Partner Brett D. Wick (Washington University in St. Louis, USA). The total grant for the two students in Cameroon per year is USD 5217.
- Three students will be funded at the Mohammed V University in Rabat, Morocco. (One of the students is female.) This team is led by Principal Investigator Driss Bennis (Mohammed V University in Rabat, Morocco) and International Partners Juan Ramon Garcia Rozas and Luis Oyonarte (Universidad de Almeria, Spain). The funding requested for each student is USD 3000 per year. The total for three students in Morocco per year is USD 9000.

L) Meetings and participation in CDC-related events

The CDC met in April 2017 at the University of Sussex, UK.

M) Policy Issues

No new policy issues to report.

N) Administration

Administrative costs are kept to no more than 10% of the CDC operating budget. The CDC Administration is, unless mentioned differently, supported by staff members of the IMU Secretariat (hosted by WIAS Berlin). The IMU Secretariat staff salaries and many other administrative expenses are covered by the IMU Secretariat funds, which receives an annual grant from the German Ministry of Education and Research (BMBF) and the Federal State of Berlin, Germany for administrative purposes.

O) 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 website is hosted by WIAS Berlin. In 2017 the website was edited by Lena Koch, Ramona Fischer and Theresa Loske. Gerhard Telschow, the IMU Secretariat IT Support helped with many issues related to the CDC website, mailing lists, email accounts and most important the online application forms for the grant programs. Further information about CDC and its activities can be found on the website: www.mathunion.org/CDC

CDC Income

The CDC's regular income is an annual grant from the International Mathematical Union (IMU). The IMU in turn receives its financial support from IMU member countries. Additionally the CDC received for its activities in 2017 support from the Niels Henrik Abel Board (Norway), the Simons Foundation in NY (USA), and the American Mathematical Society (AMS) and UNSCM.

IMU/CDC most gratefully acknowledges the continuing generous support to help to promote and sustain mathematics in the developing world from:

- IMU member countries
- WIAS Berlin (host of the IMU Secretariat)
- German Federal Ministry of Education and Research
- City of Berlin (Germany)
- Simons Foundation NY (USA)
- Niels Henrik Abel Board (Norway)
- Breakthrough Prize Winners
- American Mathematical Society (AMS)
- NAS USNC/M (USA)
- University of Sussex (U.K.)

- All volunteers who support CDC activities worldwide.

Reported by
Lena Koch and Theresa Loske

3.3. International Commission on the History of Mathematics (ICHM)

<https://www.mathunion.org/ichm>

Report IMU 2017

by June Barrow-Green

1. Commission organization

a. List officers and members of governing body and governance procedures

The Executive Committee of the ICHM consists of the following members:

Chair

June Barrow-Green (School of Mathematics & Statistics, Faculty of STEM, Open University, Milton Keynes, UK) June.Barrow-Green@open.ac.uk

Vice-chair

Niccolò Guicciardini (University of Bergamo, Italy) niccolo.guicciardini@fastwebnet.it

Secretary

Sloan Despeaux (Western Carolina University, USA) despeaux@email.wcu.edu

Treasurer

Henrik Kragh Sørensen (University of Copenhagen, Denmark) henrik.kragh@ind.ku.dk

Members-at-Large

Thomas Archibald (Canada) tarchi@sfu.ca

Abdelmalek Bouzari (Algeria) bouzari@ens-kouba.dz, malek_bouzari@yahoo.fr

Michela Malpangotto (France) michela.malpangotto@obspm.fr

Volker Remmert (Germany) remmert@uni-wuppertal.de

Clara H. Sánchez (Colombia) chsanchezb@unal.edu.co

Galina Sinkevich (Russia) galina.sinkevich@gmail.com

GUO Shirong (China) guoshirong1959@163.com, gsr@imnu.edu.cn

IMU Representatives

Ciro Ciliberto (Dipartimento di Matematica, Università degli Studi di Roma Tor Vergata, Rome, Italy) cilibert@mat.uniroma2.it

Shrikrishna G. Dani (Department of Mathematics, Indian Institute of Technology - Bombay, Powai, Mumbai, India) sdani@math.iitb.ac.in, shrigodani@gmail.com

Ex-Officio

Craig Fraser (Canada) craig.fraser@utoronto.ca (immediate past chair)

Reinhard Siegmund-Schultze (Norway) reinhard.siegmund-schultze@uia.no (editor *Historia Mathematica*)

Nathan Sidoli (Japan) sidoli@waseda.jp (editor *Historia Mathematica*)

The Executive Council of the ICHM had four electronic meetings (E-meetings) in 2017.

b. Sub-committees and their functions, with brief details of activities

The subcommittee struck in 2016 to receive nominations and make a recommendation for the Kenneth O. May Prize to be awarded at the Rio ICHST Congress in 2017 completed its work (see below for Prizes awarded).

The Kenneth O. May Medal and Prize is given for outstanding contributions to the history of mathematics on the occasion of the International Congress of History of Science.

The subcommittee struck in 2016 to make a recommendation for the Montucla Prize to be awarded at the Rio ICHST Congress in 2017 completed its work (see below for Prize awarded).

The Montucla Prize is awarded by the Executive Committee of the International Commission for the History of Mathematics every four years to the author of the best article by a junior scholar published in *Historia Mathematica* in the four years preceding the International Congress of History of Science and Technology.

c. Details of membership of the Commission

There are 46 National Members of the ICHM: 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, Luxemburg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Russia, Saudi Arabia, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Syria, Taiwan, Tunisia, Turkey, Ukraine, United Kingdom, USA. Individuals are listed at <http://www.unizar.es/ichm/members.htm>.

d. URL of Commission website

<http://darboux.mathunion.org/ichm>. It is updated at least four times annually.

2. Activities

a. Activities undertaken or sponsored by the Commission in the last year

ICHM Co-Sponsored AMS-MAA Special Sessions on History of Mathematics (Atlanta, Georgia, USA, January 4-5, 2017).

ICHM Co-Sponsored Symposia on the History of Mathematics at the 25th International Congress of History of Science and Technology (ICHST, Rio de Janeiro, Brazil, July 23-29, 2017)

S-26. State of the art in the history of mathematics in Iberoamerica

S-27. The resurgence of applied mathematics 1850-1950: national and international, academic, industrial and military contexts

S-79. Mathematical Methods at Work in Ancient China—Local Applications with Global Connections

S-82. Global Mathematics

ICHM-Co-Sponsored 28th Novembertagung on the History of Mathematics (Vrije Universiteit, Brussels, Belgium, November 2-4, 2017.)

The Grattan-Guinness Archival Research Travel Grant. The ICHM actively promoted this grant.

b. Publications arising from the work of the Commission in the last year.

Historia Mathematica is the official journal of the ICHM. It appears four times annually and publishes roughly 525 pages of original research in the history of mathematics from all times and cultures. The journal is currently edited by Nathan Sidoli (Waseda University, Tokyo) and Reinhard Siegmund-Schultze (University of Adger, Norway). It is published by Elsevier Science and is available electronically to subscribers of [ScienceDirect](#).

c. Other activities supported in the last year.

Kenneth O. May Medal and Prize, was awarded at the Rio ICHST Congress in 2017 to Eberhard Knobloch (Berlin) and Roshdi Rashed (Paris), the latter in absentia.

Montucla Prize 2017, was awarded at the Rio ICHST Congress in 2017 to Jemma Lorenat (USA) in absentia.

The ICHM maintains an international e-mail list. This list serves to send out information from the ICHM to historians of mathematics internationally. Any historian of mathematics may become part of this e-list simply by contacting the Secretary of the ICHM.

d. Changes to the governance or organisation structure of the Commission

The ICHM rules of governance were reformulated in 2017 as “terms of reference” for inter-union member commissions of the DHST and the IMU.

3. Future plans

a. Activities planned for the next year.

ICHM Co-Sponsored *AMS-MAA Special Sessions on History of Mathematics* (San Diego, California, USA, January 10-12, 2018). No financial aid is requested.

ICHM symposium at the Rio ICM August 2018. Funds will be used to support Jemma Lorenat, the winner of the Montucla Prize, to deliver the Montucla lecture at the symposium.

€2,000 will be made available to the organizers of the conference *Mathematical Communities in Postwar Reconstruction (1918-1928)* to be held at CIRM, Marseille in November 2018. Funds will be used to support the participation of doctoral students, young scholars and underfunded scholars from countries in economic difficulty. As is customary, funds that are not used will be returned to the Treasurer.

4. Financial report

Expenditure for 2017: website (\$171), administration (\$110), prizes and travel for recipients (\$5024), ICHM symposia and prize reception at ICHST Rio (\$7851).

Income for 2017: DHST grant US\$1834.18; Elsevier Honoraria US\$5000.

Conference organizers submit reports on their conferences that are published on the ICHM website. The financial assistance is offered to the conference organizer in the form of a grant. Although a summary of how the funds are used is required, the ICHM does not currently employ detailed accounting procedures involving scans of receipts.

For 2018 we are budgeting for \$180 (website costs, although this may change with the change in web support), \$130 (administrative costs) and \$5000 (conference support). The conference funds will contribute support for the ICHM symposium at the Rio ICM, and for the conference *Mathematical*

Communities in Postwar Reconstruction (1918-1928) to be held at CIRM, Marseille in November 2018. In addition to this, there are other conferences in 2018 that the ICHM will consider for co-sponsorship.

The financial position of the ICHM is currently good.

3.4. Committee on Electronic Information and Communication (CEIC)

<https://www.mathunion.org/ceic>

CEIC Activity Report 2017

James H. Davenport

CEIC met in March 2017, hosted by Mathematical Reviews in Ann Arbor, and local arrangements were kindly made by Patrick Ion.

1 Global Digital Mathematics Library

Background. On August 17, 2014, in conjunction with the International Congress of Mathematicians in Seoul, South Korea, the IMU and CEIC hosted a meeting of a select group of 21 experts plus at least eight remote participants to plan the next practical steps towards the construction of the Global Digital Mathematical Library (GDML). As a result, a smaller eight person working group (WG) under the sponsorship of the IMU, was created. The WG members are Patrick Ion chair (USA, CEIC), Thierry Bouche (France, CEIC), Bruno Buchberger (Austria), Michael Kohlhase (Germany), Jim Pitman (USA), Olaf Teschke (Germany), Stephen Watt (Canada), and Eric Weisstein (USA). The WG is charged with the tasks of designing a road map for the practical next steps towards the GDML, determining its organizational structure, prioritizing the different requirements for its implementation, estimating an incremental budget, both start-up and sustaining funds, and fostering the writing of proposals to funding organizations.

2017 events. The WG had determined that the best way forward was to establish an independent International Mathematical Knowledge Trust (IMKT). The WG obtained (announced start of 2017) an Alfred P. Sloan/Wolfram Foundation grant to establish this. It is a charity located in Canada (but with the opportunity to have subsidiaries elsewhere to benefit from different jurisdictions charitable foundation arrangements). See www.imkt.org.

2 Other Business

CEIC considered various other issues.

DOIs. We fed the need to manage DOIs into website design. Still unresolved is the issue of whether IMU should be a DOI-minter: through CrossRef, who now support DOIs for “posted content”, membership fees are \$275 for organizations whose “total revenue from publishing” is less than \$1M, and \$0.25 per DOI¹.

IMU-Net. CEIC's column in IMU-Net is now called “CEIC Notes and Comments”. James Davenport has taken over for 2017/18, but CEIC will need a new liaison. Various articles have been submitted.

Copyright. The 2001 “Best Practice” document was looking dated. It needs updating to cover items such as Green/Gold Open Access, Creative Commons licences (which version?), copyright in items such as TeX macros, interaction between arXiv and publishers' policies. We had established a working party to look at this, but no progress has been made. The process has been restarted under Tim Cole's leadership.

ICSU (International Council for Science). CEIC (on behalf of IMU) is an Associate Member of the ICSU World Data System. Olga Caprotti maintained our liaison here: James Davenport has taken over for 2017/18, but CEIC will need a new liaison. There has been great pressure over the last few years from funders (notably NSF, EU and the UK research councils) for the publishing of research data. Funders are beginning to notice that this is of little use without the corresponding software. Davenport and UK colleagues have a paper into the 2018 CODATA Conference emphasising this. CEIC should continue to keep a watching brief on these developments.

Website. IMU has commissioned a new website. CEIC endeavoured to work with the development team, noting the need for support for low-bandwidth connections.

Metrics. In many developed countries, the “peer review versus metrics” battle is being won by peer review, with the San Francisco Declaration (<https://sfdora.org/>); signed by EMS and AMS, but not, paradoxically, by IMU) and the Leiden Manifesto (<http://www.leidenmanifesto.org/>). However, there are real problems in some, at least, less developed countries, where the community is not large, and there is a fear of cronyism. Raw data are often used inappropriately, and some have asked for more IMU support here. CEIC will liaise with CDC on these matters.

Accessibility. This was discussed at the 2017 Meeting, but we need to be more pro-active here.

3 Membership

We welcomed Alf Onshuus (Universidad de los Andes, Columbia).

3.5. Committee for Women in Mathematics (CWM)

<https://www.mathunion.org/cwm>

Report of the IMU Committee for Women in Mathematics in 2017

Marie-Françoise Roy and Caroline Series

Committee Members

Marie-Françoise Roy, France (Chair); Caroline Series, UK, (Vice Chair); 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 IMU EC Liaison: John Toland, UK. CWM now has two associate members Neela Nataraj (IIT Mumbai - Coopted for coordinating grant reports) and Petra Bonfert-Taylor (Dartmouth College, USA - Coopted for website).

Activities funded by CWM 2017 call

The CWM 2017 call for Networks and Schools received 50 applications of which CWM decided to support 12 for a total of €24950. These are for networks, schools and other projects and took place in Brazil, Canada (a round table “*Women in Mathematics in the Americas*” during the Mathematical

Congress of the Americas 2017), Morocco, Chile, India, Nepal, Tunisia, South Africa, Iran, Vietnam, Mexico and Japan. The support offered ranged from €3000 to €750. In total, there were about 960 participants in these various meetings, among them about 675 women.

The call for Supplementary Grants received 23 applications, of which 6 were granted. It was noted that only one application completely fulfilled the conditions of the call. We also supported Gabriela Araujo Pardo (UNAM, Mexico) to attend the AWM Symposium in Los Angeles (April 2017) where she gave a well-appreciated short presentation of CWM.

For a detailed account see Annex D.

Third CWM meeting in Berlin in 2017

A CWM meeting directly funded by IMU took place in Berlin, 29-30 May 2017. All CWM members attended except KL, replaced by Ami Radunskaya (AWM President from Feb. 2017), and SN. NN, who attended our initial meeting in 2015 and who has greatly assisted in coordinating reports from the CWM sponsored events, and PBT, who will be taking as website manager, also attended. MFR and CS had a preliminary meeting in London at the end of March.

A major topic was the organization of events around the Rio ICM, namely the satellite meeting (WM)² and the CWM panel discussion during the ICM (see below). The domain name <https://www.worldwomeninmaths.org/> was chosen for the conference website, in the hopes that (WM)² may be followed by future editions. It was decided to make a proposal for making a short film to the Simons Foundation, to be presented at (WM)² (see below). Various conference expenses were discussed and approved.

A new CWM call was decided for 2018, for three types of activity as in 2017: networks of women in mathematics; a Summer/Winter school with all women speakers and aimed mainly though not exclusively at women participants; and any other project for researching or addressing issues encountered by women in mathematics.

The Gender Gap in Science Project was introduced, including a very interesting presentation by Helena Mihaljević-Brandt on publication patterns which will form the basis of a wider study in the project itself.

The support to CWM was again increased by the EC and is now €39200 per year. In 2018, it is planned to split the budget equally between supporting the above events in Rio and proposals resulting from the 2018 call.

For a detailed report of the Berlin CWM Meeting see Annex A.

IMU GA (WM)² and CWM panel at ICM Rio

The CWM report for the IMU GA in Sao Paulo (July 29 - 30, 2018) will be prepared by MFR and CS, then discussed and approved by CWM. The report will be presented by CS.

CWM's proposed meeting *World Meeting for Women in Mathematics (WM)²* is a satellite event for ICM 2018, to be held in Rio on Sunday July 31st, 2018. It will be an international meeting with a Latin-American focus. CA is the main organizer (and also on the local organizing committee for ICM 2018). The scientific committee chaired by Georgia Benkart (University of Wisconsin-Madison) has selected a key-note lecturer (Monique Laurent), three invited lecturers (Alicia Dickenstein, Salome Martinez, Maria Eulalia Vares) and a public lecturer (Maria Esteban). The program will also include group discussion, posters (both mathematical and on women in mathematics), and a tribute to Maryam Mirzakhani.

Female OpenArms grantees already identified (234 individuals) have been contacted and offered free registration for (WM)² provided they register before 31 March. A similar offer will be made to female OpenArms grantees from Brazil once they are selected. As of 16 February, 172 people had registered, among them 61 from the OpenArms programme.

During the ICM itself, CWM is organizing a panel discussion "*The gender gap in mathematical and natural sciences from a historical perspective*", followed by a reception, on 2 August 2018. A brief description of IMU-CWM by MFR will be followed by presentations by June Barrow Green (Open University, UK): *Historical context of the gender gap in mathematics* and Silvina Ponce-Dawson (University Buenos Aires, Argentina): *The International Union of Pure and Applied Physics Working Group on Women in Physics: activities and perspectives*. The panel will be chaired by CS.

Detailed information on both events is in Annex C.

Film project

With the help of a recommendation from Ingrid Daubechies, CWM proposed making a short film "*Women in Mathematics Around the Globe*" to the Simons Foundation. Micro-Documentaries has been selected by the Simons Foundation to create the film. Micro-Documentaries is the company which created the short films on the Fields Medal winners in Seoul and they will make similar films this year for the Fields Medal winners in Rio.

The focus will be the quality and diversity of women mathematicians worldwide. Rather than showcasing "famous women mathematicians", the first version (to be shown at (WM)²) will present women active in organizing regional and trans-national networks. We suggested three names, Carolina Araujo (Rio), a CWM member, (WM)² main organizer and also an ICM lecturer; Neela Nataraj (Mumbai), CWM associate and active member of Indian Women in Mathematics; and Amina Pecha (Yaounde, Cameroon), the founding chair of the Cameroon Women in Mathematics Association. Micro-Documentaries will meet them in their home countries. The second augmented version will highlight some of the best women mathematicians internationally, with female speakers at (WM)² and ICM 2018 providing possible subjects.

A 6000 USD budget will be given by the Simons Foundation to CWM (probably through FIMU) to support (WM)² and the distribution of the film.

See Annex F for a full description of the film project.

Gender Gap

The project "*A Global Approach to the Gender Gap in Mathematical, Computing and Natural Sciences: How to Measure It, How to Reduce It?*" lead by the IMU and the International Union of Pure and Applied Chemistry (IUPAC), was approved by ICSU on 7 February 2017 (with a budget from ICSU of €100 000 per year in 2017, 2018 and 2019). There are 9 other partners in the project, see <https://icsugendergapinscience.org/>: International Union of Pure and Applied Physics (IUPAP), International Astronomical Union (IAU), International Council for Industrial and Applied Mathematics (ICIAM), International Union of Biological Sciences (IUBS), International Union of History and Philosophy of Science and Technology (IUHPST), United Nations Educational, Scientific and Cultural Organization (UNESCO), Gender in Science, Innovation, Technology and Engineering (GenderInSITE), Organization of Women in Science for the Developing World (OWSD), Association for Computing Machinery (ACM). See <https://icsugendergapinscience.org/>.

Barriers to achievement by women in mathematical, computing and natural sciences persist, especially in developing countries. The aim of the project is to produce sound data to support the choices of interventions that ICSU and member unions can feasibly undertake. It will provide evidence for informed decisions, including trends – since the situation for women continues to change around the world, with some negative developments – and will provide easy access to materials proven to be useful in encouraging girls and young women to study and work in these fields. It will do this through a Joint Global Survey (Task 1) planned to reach 45,000 respondents in more than 130 countries using at least 8 languages, together with a Joint Study on Publication Patterns (Task 2) which will analyze relative to gender and location comprehensive metadata sources corresponding to publications of more than 500,000 scientists since 1970. Finally, it is impossible to ignore that there are many initiatives

around the world that aim to enhance the participation of girls and women in science and mathematics. Which ones work? What is the evidence for effectiveness? Can effective practices developed in one place be used in other contexts? How do we know? These are some of the questions that will structure an online database of good practices (Task 3). The contrasts and common ground across regions and cultures, less developed and highly developed countries, men and women, mathematical, computing and natural sciences, will be highlighted.

A launch meeting in Paris and three regional workshops have already been organized during the first year 2017, in Asia (with participants from Australia, China, France, India, Israel, Japan, Korea, Nepal, Malaysia, Taiwan, Thailand, USA), Latin-America (with participants from Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, El Salvador, Mexico, Peru, USA) and Africa (with participants from Algeria, Burkina Faso, Botswana, Cameroon, Ethiopia, France, Kenya, Lesotho, Morocco, Madagascar, Malawi, Nigeria, South Africa, Swaziland, Uganda, USA and Zimbabwe). In all these workshops, the proportion of male participants was very low (less than 5%).

The second year 2018 will be devoted to data collection and analyses from the 3 project tasks. A coordination meeting will take place in Paris 11-12 June 2018.

For more information see Annex E with the report of the first year, already approved by ICSU.

The final conference of the project will take place at the end of 2019. A proposal has been made to ICTP Trieste to host a jointly sponsored conference, with the following proposed programme:

- Report on the findings and achievements of the project.
- Discuss and evaluate the results of the project.
- Formulate recommendations and discuss new initiatives.

It will include a public lecture directed at the whole scientific community present at ICTP about the findings of our project.

See Annex G for the proposal submitted to ICTP.

CWM ambassadors

CWM has compiled and contacted a list of about 120 so-called *CWM Ambassadors*, each of whom has the job of disseminating information such as CWM funding calls in her geographical or mathematical neighborhood, and equally of keeping CWM informed about relevant activities or initiatives. The list is posted on the CWM website.

For the current list of CWM Ambassadors, see Annex H.

CWM website and publicity

The website has been updated on a regular basis by CS, with input from CWM members and ambassadors. In particular we post details of relevant events. We note the increasing number of countries which now have some form of organization for female mathematicians, see www.mathunion.org/organizations/by-country/ CWM is the only organization gathering such information internationally. The entire IMU website has recently been redesigned with CS's participation both in the overall design and the CWM pages in particular. The new website is easier to work with and PBT is taking over from CS.

See <http://www.mathunion.org/cwm/>

CWM flyer, poster, roll-up

The CWM flyer and poster have been distributed through CWM Ambassadors and organizers of CWM funded events. A CWM roll-up for use in displays has been designed in the same style. Three posters (one for Africa, one for Asia, one for Latin-America) reporting on CWM funded activities

since ICM Seoul are currently being designed for display at (WM)² and ICM. The planning and implementation was all done by BT and her designer.

Activities supported in 2018

The CWM 2018 call for Networks and Schools received 55 applications of which CWM decided to support 10 for a total of €25000, with individual grants of €2000-€3000. Most grants are for developing regional networks for Women in Mathematics, in Africa, Latin America, and Asia. Often the initiatives take the form of a meeting with both a mathematical and a career development part. This is the case for two regional meetings of the African Women in Mathematics Association (AWMA), one in Addis Ababa (Ethiopia) for East Africa and one in Ibadan (Nigeria) for West Africa, and also for the second Central Asia Women in Mathematics Association meeting in Uzbekistan. The Indian Women in Mathematics association wins support for the participation of women from the South Asian Association for Regional Co-operation at their meeting at Shiv Nadar University in Uttar Pradesh. The first workshop of "Women in mathematics in the Balkan region" taking place in Skopje (Macedonia) will involve several neighboring countries. A Workshop in El Salvador (supported by the Vice Minister of Science and Technology and the ICSU Regional Office of Latin America and the Caribbean) will be focused on less developed Central American countries. An activity inspired by the series of meetings "Women in ..." (see for example "Women in numbers") held at the Banff International Research station, will take place for the first time in South America, in Uruguay. The African Women in Mathematics Association will also be writing portraits of African women mathematicians, both to post on AWMA website and to publish as a booklet to be used for promoting mathematics among young African women. Two further events are taking place in Europe, an ICTP school in Trieste (Italy) on Dynamical Systems, with all female organizers and lecturers, and the European Women in Mathematics General Meeting taking place in Graz (Austria). In both cases the CWM grant will be used to support the attendance of women from developing countries.

A short film for International Women's Day 2018, *Faces of Women in Mathematics*, was proposed by Eugenie Hunsicker, Chair of the London Maths Society Women in Maths Committee, and Irina Linke, a filmmaker. The aim is to create a 3 minute film featuring women mathematicians from around the world. It will consist of an edited sequence of film clips of women or girls saying into the camera "I am (name) from (country), and I am a mathematician!" in the language of their choice. The project was sent to CWM ambassadors and more than 124 clips were received, with 225 women appearing, speaking 27 different languages. CWM has decided to use a small part of its budget for the editing of the clips.

CWM operation mode and Liaison with EC

Apart from the Berlin meeting, most of CWM's work has been done by email. Skype and phone calls have also been used. The liaison with EC through JT has been regular and very helpful. MF and CS met in London in March 2017 to discuss ongoing issues. We would like to thank Sylwia Markwardt and all the other members of the IMU office staff who have consistently been very helpful.

Annexes

- A CWM meeting in Berlin
- B CWM call 2018
- C Program of (WM)² and CWM panel inside ICM
- D Synthetic report of 2017 activities funded by CWM
- E Gender gap ICSU first year report
- F Gender gap conference pfojd g at ICTP
- G Film project approved by the Simons Foundation
- H List of CWM ambassadors

CWM Expenditure 2017

Income

remainder from 2016	2 147,41 €
IMU CWM 2017	39 320,00 €
TOTAL	41 467,41 €

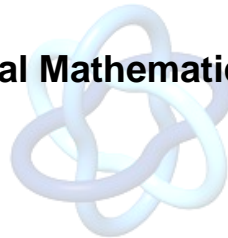
Expenses

activities	24 950,00 €	75,90%
supplementary grant	2 900,00 €	8,82%
flyers and posters	1 434,35 €	4,36%
Berlin meeting	462,77 €	1,41%
expenses to attend events	1 892,86 €	5,76%
coordination expenses	391,09 €	1,19%
bank charges	841,57 €	2,56%
TOTAL	32 872,64 €	

4. Circular Letters of the IMU Secretary to the Adhering Organizations

IMU AO Circular Letter 1/2017

International Mathematical Union



January 16, 2017
IMU AO Circular Letter 1/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

Fraud alert

Dear colleagues,

This is a warning about an ongoing fraud attempt. Someone has created a false email address in the name of IMU President Shigefumi Mori and sent emails to several of the IMU member countries.

Here is an example:

+++++

*On 1/15/17, Prof. Shigefumi Mori <mori.kurims.kyoto.u.ac.jp@gmail.com> wrote:
Hello Prof. Nalini. How are you? Our friend Anders Navas Flores and IMU member from Chile are on the way now to Sydney to attend His sister funeral. As far as I know, they are on the way to Australia and they have some problem in the Philippine airport. Kindly*

call them at 0011639770882133 or +639770882133 and please help them in any possible way and I will call you as soon as possible. At this time, its midnight here in London and I have a flight to catch later this morning back to Japan... I will call you as soon I will arrive in my office. Thank you very much in advance and God Bless.

In Prayers,
Prof. Shigefumi Mori
IMU President
International Mathematical Union
Research Institute for Mathematical Sciences
Kyoto University
Kyoto, 606-8502 Japan
Fax: +81-75-753-7272

+++++

This is a fraud. Do not respond to this.

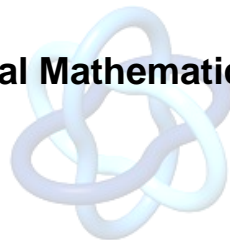
We apologize for this, and will investigate it further.
Please let us know if you have been contacted similarly, as we would like to see the extent of this attempted fraud.

Regards

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 2/2017

International Mathematical Union



January 24, 2017
IMU AO Circular Letter 2/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

Heidelberg Laureate Forum 2017

Dear colleagues,

This is a short-term notice regarding the 5th Heidelberg Laureate Forum (HLF), see <http://www.heidelberg-laureate-forum.org>, which will take place in Heidelberg, Germany during September 24 – 29, 2017.

At HLF all winners of the Fields Medal, the Abel Prize, the Alan Turing Award and the Nevanlinna Medal, and this year for the first time the ACM Prize in Computing, are invited to attend. In addition, young and talented computer scientists and mathematicians

are invited to apply for participation. The previous HLFs have been an exceptional success. The HLF serves as a great platform for interaction between the masters in the fields of mathematics and computer science and young talents.

Applications for participation at the 5th HLF are open in three categories: Undergraduates, PhD Candidates, and PostDocs. See the webpage

www.application.heidelberg-laureate-forum.org

for the online application form and further information. The IMU Adhering Organizations and national mathematical societies can nominate young researchers. Nominated persons get “priority treatment”, but, since there may be too many nominations, they have no acceptance guarantee. During the nomination process you will be asked for an Org-ID, which is IMU47278 for the IMU. The deadline for application is February 14, 2017.

IMU asks its Adhering Organizations to distribute this information among their national mathematical communities, if possible through the newsletters of the national mathematical societies.

The HLF was initiated by the late German entrepreneur Klaus Tschira, and is supported by the Klaus Tschira Foundation, The Norwegian Academy of Science and Letters, The Association for Computing Machinery, as well as The International Mathematical Union.

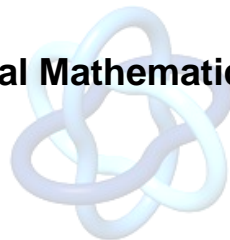
Regards

Helge Holden

Secretary of the International Mathematical Union

IMU AO Circular Letter 3/2017

International Mathematical Union



March 22, 2017

IMU AO Circular Letter 3/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

Travel grants for ICM 2018

Dear colleagues,

It has been a longstanding tradition that the organizers of the ICM offer support in order that mathematicians from developing countries can participate at the ICM.

For the ICM 2018 in Rio de Janeiro, Brazil, the organizers have generously announced the

ICM2018 Open Arms Program

that will grant 550 travel awards, 200 of which to mathematicians working in countries in Latin America other than Brazil. The program is sponsored by IMPA (Instituto Nacional de Matemática Pura e Aplicada) and the Brazilian Mathematical Society, alongside with a generous offer of 50 travel grants from the International Mathematical Union. Applications to the program will be open from April 15 to July 20, 2017.

See

<http://www.icm2018.org/portal/en/travel-grants-program>

for further details and deadlines.

Please help us disseminating this to your colleagues and students.

We look forward to seeing you at the ICM 2018!

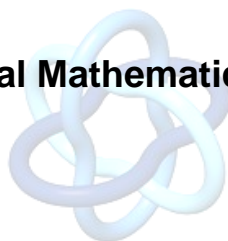
Regards

Helge Holden

Secretary of the International Mathematical Union

IMU AO Circular Letter 4/2017

International Mathematical Union



April 3, 2017

IMU AO Circular Letter 4/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)
(Adhering Organizations of Associate Members receive this letter for information)

From: Helge Holden, IMU Secretary

The IMU General Assembly 2018 – Support for participants

Dear colleagues,

The next General Assembly (GA) meeting of the IMU will take place in São Paulo, Brazil, July 29-30, 2018.

It is very important to the IMU that as many as possibly of our members can participate with full delegations at this meeting, as the GA is the highest body of the IMU, and all important decisions are taken there.

The Executive Committee (EC) of the IMU realizes that it will be very expensive, and for many prohibitively expensive, to participate at this GA meeting due to high travel costs.

To compensate for this, the EC has decided to cover the accommodation expenses for all registered Delegates (full members of the IMU) and Representatives (Associate/Affiliated members of the IMU) at the 2018 GA meeting. Furthermore, the IMU will also cover the travel expenses (economy class) for one registered Delegate from each of our full Members, and one Representative from each of our Associate or Affiliated Members.

In special cases, upon request, the travel support can be extended to more than one Delegate or Representative.

We will return to you with more details regarding the reimbursement procedure later.

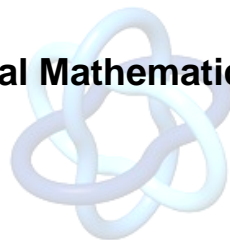
We hope to see many of you at the GA meeting in São Paulo!

Regards

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 5/2017

International Mathematical Union



April 7, 2017

IMU AO Circular Letter 5/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

An International Day of Mathematics

Dear colleagues,

At this year's annual meeting the Executive Committee of IMU decided to investigate the feasibility of having UNESCO declare an International Day of Mathematics (IDM).

We first want to consult with our members on the matter, both regarding exploring the advantages of celebrating an IDM and choosing an appropriate date.

An International Day of Mathematics, devoted to a specific theme each year, might be an opportunity for all mathematical communities around the world to join forces in reaching out to schools and the public. Clearly the success of an IDM will depend on the activities organized locally.

To find out whether and how the EC should prepare an inquiry to UNESCO, you are asked to answer the following questions:

1. Do you support the idea of having UNESCO declare an International Day of Mathematics?
2. If you answered yes to the first question, do you have a date to propose that
 - is not already an international day,
see: <http://en.unesco.org/celebrations/international-days>
 - is a suitable date for organizing outreach activities for schools and the public, both in your country and elsewhere in the world, including the other hemisphere.A short rationale for the choice would be much appreciated (one page maximum).
3. Are there periods of the year that are unsuitable in your country for organizing activities related to an International Day of Mathematics?

Please send me your answers by May 15, 2017.

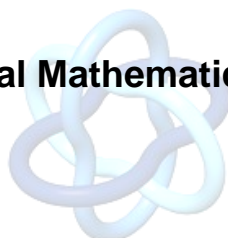
Thank you.

Regards

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 6/2017

International Mathematical Union



May 4, 2017
IMU AO Circular Letter 6/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

The President-nominee and Secretary-nominee for IMU for 2019–2022

Dear colleagues,

This is a follow-up of the Circular Letter 11/2016 of Sep 29, 2016 sent by IMU Secretary Helge Holden inviting your nominations for President and Secretary of the IMU for the next term 2019–2022.

The GA 2014 had approved to change the timeline of the nomination process scheduled in the Procedures for Election. In accordance with this, the names for President and

Secretary are proposed by spring of ICM year-1, and the names are communicated to the AOs with the opportunity for comments.

In order to implement the GA 2014 decision, I now want to inform you of the selection made by the Nominating Committee. Proposed are

IMU President – Carlos Kenig, US

IMU Secretary – Helge Holden, Norway (incumbent)

Short CVs are attached.

The President-nominee and the Secretary-nominee stated that they are willing to serve if elected.

Any comments on these proposals should be sent **by July 1, 2017**, to the email address <**president@mathunion.org**> using the official email address of your Adhering Organization or Committee for Mathematics.

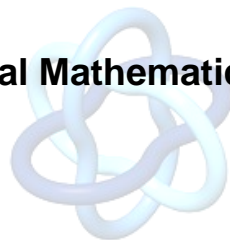
According to the GA 2014 decision, if there are no objections, the President-nominee will be invited to attend the EC meetings in 2018 as an observer.

Sincerely yours

Shigefumi Mori
IMU President

IMU AO Circular Letter 7/2017

International Mathematical Union



May 5, 2017

IMU AO Circular Letter 7/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)
(Adhering Organizations of Associate Members receive this letter for information)

From: Helge Holden, IMU Secretary

– **Postal Ballot**
01/17:

Application for Membership of Luxembourg

Dear colleagues,

Luxembourg has applied for full membership of the IMU. The Executive Committee of the IMU unanimously recommends the application. The enclosed document which

was submitted by the Société Mathématique du Luxembourg, reports about the state of mathematics in Luxembourg.

Postal ballot sheets will be sent to the Adhering Organizations by regular mail.

Please vote on the application of Luxembourg using the postal ballots, and return the ballots by mail, email or fax

by June 30, 2017

to the address indicated on the ballot form.

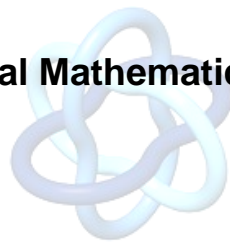
[Ballots are sent by regular mail only, as ballots sent out by email (with possibly multiple recipients) could lead to conflicting votes of one member country.]

Sincerely

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 8/2017

International Mathematical Union



July 3, 2017
IMU AO Circular Letter 8/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

Results of application from Luxembourg

Dear colleagues,

I am happy to report about the outcome of the postal ballot on the application from Luxembourg, see IMU AO Circular Letter 7/2017

(http://www.mathunion.org/fileadmin/IMU/Publications/CircularLetters/2015-2016/IMU_AO_CL_7_2017.pdf).

The vote on Luxembourg's application for full IMU Membership yielded a positive result. As of July 2017, Luxembourg is a Member in group I of the IMU.

Thank you for your contribution.

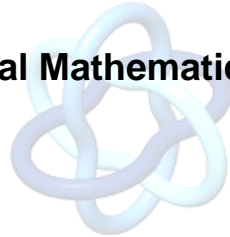
Sincerely

Helge Holden

Secretary of the International Mathematical Union

IMU AO Circular Letter 9/2017

International Mathematical Union



July 4, 2017

IMU AO Circular Letter 9/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

Update: The President-nominee and Secretary-nominee for IMU for 2019–2022

Dear colleagues,

This letter refers to the IMU AO Circular Letter 6/2017.

No objections were received regarding the following nominations for the term 2019-2022:

IMU President – Carlos Kenig, US

IMU Secretary – Helge Holden, Norway (incumbent).

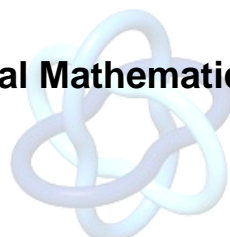
According to what has been decided by the General Assembly, Carlos Kenig will be invited to attend the IMU EC meetings in 2018 as guest without voting rights.

Sincerely

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 10/2017

International Mathematical Union



July 7, 2017

IMU AO Circular Letter 10/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

Call for nominations for the offices of

- **IMU Vice Presidents and IMU EC Members-at-Large**
- **President, Secretaries and Members-at-Large of CDC**
- **IMU Representatives to ICHM**

for the term 1 Jan 2019 – 31 Dec 2022

Dear colleagues,

Further to my call for nominations for the offices of President and Secretary of IMU, see IMU AO Circular Letter 11/2016

(http://www.mathunion.org/fileadmin/IMU/Publications/CircularLetters/2015-2016/IMU_AO_CL_11_2016.pdf),

I am now inviting IMU's Adhering Organizations to submit names for the offices of the

- IMU Vice Presidents and IMU Executive Committee (EC) Members-at-Large.
The General Assembly will elect 2 Vice Presidents and 6 Members-at-Large.
- President, Secretaries and Members-at-Large of the Commission for Developing Countries (CDC).
1 President, 1 Secretary for Policy and 1 Secretary for Grant Selection, and 3 Members-at-Large, representing Africa, Asia, and Latin America to be elected by the General Assembly. See CDC Terms of Reference, <http://www.mathunion.org/cdc/about-cdc-and-news/cdc-terms-of-reference/>.
- IMU Representatives to the International Commission on the History of Mathematics (ICHM).
2 IMU Representatives to ICHM to be elected by the General Assembly.

Submissions must include a candidate's statement of willingness to serve if elected and a CV. CVs exceeding two pages in length will not be considered. Only electronic submissions are accepted.

Please send your nominations by 15 November 2017 to the Chair of the Nominating Committee, Martin Grötschel <chair@nc18.mathunion.org> using the official email address of your Adhering Organization or Committee for Mathematics.

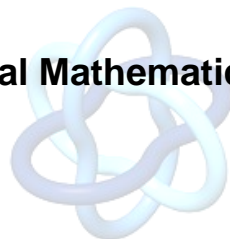
Please note that members of the Committee on Electronic Information and Communication and the Committee for Women in Mathematics are appointed by the IMU EC.

Sincerely

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 11/2017

International Mathematical Union



September 14, 2017
IMU AO Circular Letter 11/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

Mathematical outreach – national websites

Dear colleagues,

We all know that mathematical outreach activities are essential to convey the importance of our science to the general public and to stimulate the interest among children and the young.

Currently the IMU is working on a complete overhaul of its website, and we hope that it will serve, for example, as a great platform for sharing various initiatives regarding mathematical outreach and popularization. Mathematics is by nature international, and thus we can all benefit by learning from each other. We expect this website to be very promotional.

We are asking each Adhering Organization (AO) to create a national website where national activities regarding mathematical outreach and popularization are collected, and that the link to this webpage is communicated to us. You are free to use English or your local language(s) on this website. We will present all national websites on the revamped IMU website.

Please send us the link to your national website, preferably by 1 December 2017. If you send us your contribution after this deadline, it will be possible to add it later. We will regularly send out a call to contribute more websites. With close to 90 members, we would prefer to restrict the number of national websites to one link per country, but we understand that local conditions may make that difficult. Thus we will accept a small number of links per country.

Each AO or the external provider will be responsible for the contents of external links sent to us and published on the IMU website. The AOs will also be responsible for keeping links up to date.

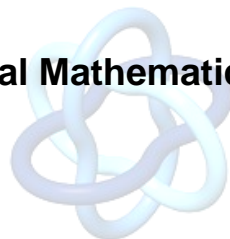
Links can be sent to me at the email address secretary@mathunion.org.

Regards

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 12/2017

International Mathematical Union



October 17, 2017
IMU AO Circular Letter 12/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)
(Adhering Organizations of Associate Members receive this letter for information)

From: Helge Holden, IMU Secretary

– **Postal Ballot** **Application for Affiliate Membership of the**
02/17: **Mathematical Council of the Americas (MCofA)**

Dear colleagues,

The Mathematical Council of the Americas (MCofA), <http://www.mcofamericas.org/>, has applied for Affiliate Membership of the IMU. The Executive Committee of the IMU recommends the application. The application from MCofA will have no consequences regarding the IMU membership of UMALCA. Enclosed is MCofA's application which gives account on the activities of this network organization.

Postal ballot sheets will be sent to the Adhering Organizations by regular mail.

Please vote on the application of the Mathematical Council of the Americas using the postal ballots, and return the ballots by mail, email or fax

by December 15, 2017

to the address indicated on the ballot form.

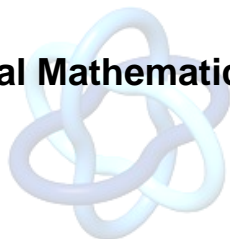
[Ballots are sent by regular mail only, as ballots sent out by email (with possibly multiple recipients) could lead to conflicting votes of one member country.]

Regards

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 13/2017

International Mathematical Union



November 9, 2017
IMU AO Circular Letter 13/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

Heidelberg Laureate Forum 2018

Dear colleagues,

The 6th Heidelberg Laureate Forum (HLF), see

<http://www.heidelberg-laureate-forum.org>,

will take place in Heidelberg, Germany during September 23 – 28, 2018.

At HLF all winners of the Fields Medal, the Abel Prize, the ACM A.M. Turing Award, the Nevanlinna Prize, and the ACM Prize in Computing are invited to attend. In addition, young and talented computer scientists and mathematicians are invited to apply for participation. The previous HLFs have been an exceptional success. The HLF serves as a great platform for interaction between the masters in the fields of mathematics and computer science and young talents.

Applications for participation at the 6th HLF are open in three categories: Undergraduates, PhD Candidates, and PostDocs. See the webpage

www.application.heidelberg-laureate-forum.org

for the online application and further information. The IMU Adhering Organizations and national mathematical societies can nominate young researchers. Nominated persons get “priority treatment”, but, since there may be too many nominations, they have no acceptance guarantee. During the nomination process you will be asked for an Org-ID, which is IMU38526 for the IMU. The deadline for application is February 9, 2018.

IMU asks its Adhering Organizations to distribute this information among their national mathematical communities, if possible, through the newsletters of the national mathematical societies.

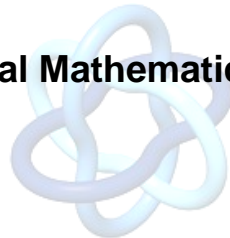
The HLF was initiated by the late German entrepreneur Klaus Tschira, and is supported by the Klaus Tschira Foundation, The Norwegian Academy of Science and Letters, The Association for Computing Machinery, as well as The International Mathematical Union.

Regards

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 14/2017

International Mathematical Union



November 10, 2017
IMU AO Circular Letter 14/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)
(Adhering Organizations of Associate Members receive this letter for information)

From: Helge Holden, IMU Secretary

- **Postal Ballot 03/17 Application for Associate Membership of Bangladesh**
- **Postal Ballot 04/17 Application for Change of Group of Adherence of Brazil**

Dear colleagues,

- Bangladesh has requested to be admitted as an Associate Member of the IMU. The Executive Committee of the IMU unanimously recommends the application. The enclosed document which was submitted by the Bangladesh Mathematical Society (BMS) reports on the mathematical activities in Bangladesh as well as on the activities organized by the BMS.
- Brazil has requested a change from Group IV to Group V. The Executive Committee of the IMU unanimously recommends this change. Enclosed is a survey in support of this application, presented by the Instituto de Matemática Pura e Aplicada (IMPA) and the Sociedade Brasileira de Matemática (SBM).

Postal ballot sheets will be sent to the Adhering Organizations by regular mail.

Please vote on the applications of Bangladesh and Brazil using the postal ballots, and return the ballots by mail, email or fax

by January 15, 2018

to the address indicated on the ballot form.

[Ballots are sent by regular mail only, as ballots sent out by email (with possibly multiple recipients) could lead to conflicting votes of one member country.]

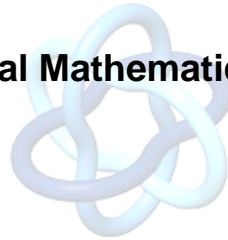
Regards

Helge Holden
Secretary of the International Mathematical Union

Encl.

IMU AO Circular Letter 15/2017

International Mathematical Union



November 27, 2017
IMU AO Circular Letter 15/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

Call for Nominations for the Ramanujan Prize 2018

Dear colleagues,

The Ramanujan Prize for young mathematicians from developing countries has been awarded annually since 2005. The Prize is funded by the Department of Science and Technology of the Government of India (DST). It is administered jointly by the Abdus Salam International Centre for Theoretical Physics (ICTP), the International Mathematical Union (IMU), and the DST.

The Ramanujan Prize is usually awarded to one person, but may be shared equally among recipients who have contributed to the same body of work. The Prize is awarded annually to a researcher from a developing country who is less than 45 years of age on 31 December of the year of the award, and who has conducted outstanding research in a developing country.

The deadline for nominations is **1 February 2018**.

Nominations can only be made by using the online system. See <https://e-ramanujan.ictp.it/nominator>.

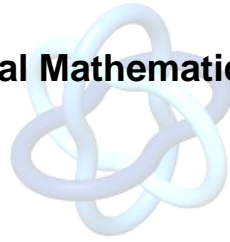
Please advertise this call for nominations for the Ramanujan Prize in your mathematical community.

Sincerely

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 16/2017

International Mathematical Union



December 7, 2017
IMU AO Circular Letter 16/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

New IMU website launched today!

Dear colleagues,

After a long and time-consuming process we finally launched the new IMU website today.

For the first time, the IMU as well as its Commissions and Committees share the same layout and design.

Please send your friendly remarks to webmaster@mathunion.org. We will prioritize to correct dead links and factual errors.

There is still considerable work that remains to be done, and some pages are still from the old website. It is our goal to replace these pages with pages consistent with the new structure.

A unavoidable consequence of this process is the old webpages will appear high on the Google ranking. Hopefully this problem will disappear over time.

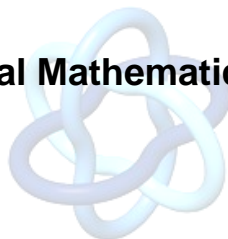
I would like to thank all the people that have been actively involved in developing the new websites.

Regards

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 17/2017

International Mathematical Union



December 20, 2017
IMU AO Circular Letter 17/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

Country Representatives of ICMI

Dear colleagues,

As you know, The International Commission on Mathematical Instruction (ICMI) is a Commission of the IMU, and it currently has 93 member countries, 83 of which are also members or associate members of the IMU. Thus, ten ICMI member countries are not IMU members. Each member country of ICMI is asked to appoint an official Country Representative to ICMI, who acts as a liaison between ICMI and the mathematics education community in the country.

The appointment of the ICMI Country Representatives is submitted to ICMI by the IMU Adhering Organizations consensually with the major mathematics education organizations of the country. You can find the current list of Country Representatives on the webpage <https://www.mathunion.org/icmi/organisation/our-members/icmi-representatives>.

If your organization has recently appointed a new Country Representative, please send the name, position, affiliation, address, and email address to the ICMI Secretary General Prof. Abraham Arcavi <abraham.arcavi@weizmann.ac.il>. If the representative was appointed in the past, please confirm the appointment date. A Country Representative cannot serve for more than two consecutive four-year terms. Also, please kindly call the attention of the Country Representative to the description of his/her expected role and activities (see below).

Your collaboration will greatly help ICMI to smoothly run the organization. On behalf of IMU and ICMI I would like to thank you for the role your Adhering Organization in this process and for your responsiveness to ICMI regarding these matters.

Helge Holden

Secretary of the International Mathematical Union

On the role and activities of ICMI Country Representatives

The International Commission on Mathematical Instruction (ICMI) has recently revised the role and tasks of ICMI Country Representatives and a new document was developed describing their roles. The role of the Country Representative is “bi-directional”, namely, to act as the liaison person between the mathematics education community of her/his country and the global community of mathematics educators organized in the ICMI.

The current list of ICMI Country Representatives can be found at:

<https://www.mathunion.org/icmi/organisation/our-members/icmi-representatives>

In order to find a reasonable balance between continuity and renewal, ICMI has decided that Country Representatives cannot serve for more than two consecutive four-year terms. We ask that your country abides by this regulation.

The role of the Country Representative consists of several functions and regular activities, including:

- To work to bring together all the parties involved in mathematics education in the country (teachers, teacher educators, curriculum developers, mathematicians, researchers in mathematics education and policy makers), and become a nexus between them. This implies promoting several kinds of joint activities in order to consolidate a community in which communication and collaborations are frequent and productive.
- To disseminate and promote the international and regional activities of ICMI and to encourage professionals to take part in them.
- To serve as an active channel of communication with ICMI, requesting support for activities, travel funds for selected members of the community to professional events, suggesting national or regional activities (conferences, workshops, seminars).
- To inform ICMI of relevant activities and developments in their country, e.g., with texts/event information for ICMI news, the ICMI website, or the ICMI Facebook page.
- To be alert to the work of the International Program Committee for the International Congress of Mathematical Education (ICME), so as to communicate effectively and responsively to requests for information on participants in the Congress program.
- To propose, in consultation with all relevant constituencies of the national community of mathematics education, nominations for members of the ICMI Executive Committee (EC) and nominations for ICMI awards.
- To actively participate in the quadrennial ICMI General Assembly meeting, which takes place one day before the beginning of an ICME conference. In the General Assembly, the country representatives are the only people with the right to elect the EC members from a slate presented by an ad-hoc nomination committee. During the General Assembly, the country representatives meet, discuss ICMI activities and make proposals to the EC.

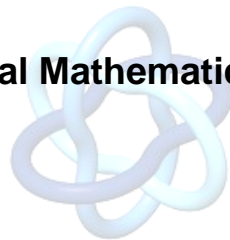
ICMI Country Representatives are appointed by the country's IMU Adhering Organization. Given the responsibilities of the Country Representatives, it is advisable that the Adhering Organizations consult with prominent members of the local mathematics education communities. A Country Representative cannot serve for more than two consecutive four-year terms. Country Representatives for countries with no IMU Adhering Organizations are appointed by the mathematics education community of the country.

ICMI Officers and the community at large are looking forward to fruitful collaborations with the Country Representatives, and invite them to contact us for any initiatives or queries.

For more details please see Item 5 in the March 2017 issue of the ICMI News, see http://www.mathunion.org/fileadmin/ICMI/files/News/ICMI_Newsletter_March_2017.pdf.

IMU AO Circular Letter 18/2017

International Mathematical Union



December 22, 2016
IMU AO Circular Letter 18/2017

To: The Adhering Organizations of the International Mathematical Union (IMU)

From: Helge Holden, IMU Secretary

IMU Bulletin No. 68, December 2016

Dear colleagues,

The IMU Bulletin No. 68, reporting about the IMU activities in 2016, is available on the IMU Web server at

<https://www.mathunion.org/membership/imu-bulletins>

A printed version will be mailed to the Adhering Organizations.

I apologize for the delayed publication.

Regards

Helge Holden

Secretary of the International Mathematical Union

5. The IMU Secretariat

Since January 2011, the Secretariat of the International Mathematical Union has been permanently based in Berlin, Germany, at the Weierstrass Institute. (<https://www.wias-berlin.de/index.jsp?lang=1>).

Under the supervision of the IMU Executive Committee, the Secretariat runs IMU's day-to-day business and provides support for many IMU operations, including administrative assistance for the International Commission on Mathematical Instruction (ICMI) and the Commission for Developing Countries (CDC) as well as mainly technical assistance for the Committee on Electronic Information and Communication (CEIC) and the Committee for Women in Mathematics (CWM).

The IMU Secretariat also hosts the IMU archive.

The IMU Secretariat is supported by a grant from the German Federal Ministry of Education and Research (BMBF) and the Berlin Senate.

A Memorandum of Understanding and a Cooperation Agreement provide the legal basis of the relationship of IMU and WIAS.



IMU Secretariat staff:

Alexander Mielke: Head of the Secretariat and IMU Treasurer (✉ treasurer@mathunion.org)

Sylwia Markwardt: Manager of the Secretariat (✉ manager@mathunion.org)

Lena Koch: ICMI/CDC Administrator (✉ icmi.cdc.administrator@mathunion.org)

Anita Orłowsky: IMU Accountant (✉ accountant@mathunion.org)

Birgit Seeliger: IMU Archivist (✉ archive@mathunion.org)

Gerhard Telschow: IT and Technical Support (✉ technician@mathunion.org)

Ramona Keuchel: Project Assistant (✉ assistant@mathunion.org)

IMU Secretary:

Helge Holden (✉ secretary@mathunion.org)

Address of the IMU Secretariat:

International Mathematical Union
Secretariat

Hausvogteiplatz 11a

10117 Berlin, Germany

Phone: +49 30 20372-430

Fax: +49 30 20372-439

E-mail: office@mathunion.org

6. Impressum

International Mathematical Union
Secretariat
Hausvogteiplatz 11a
D 10117 Berlin, Germany
Phone: +49 30 20372-430
Fax: +49 30 20372-439
E-mail: office@mathunion.org
URL: <https://www.mathunion.org>

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K. Herschelmann

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