

**Bulletins of the
International
Mathematical Union**



Bulletin of the IMU, No. 71 (2019)

Bulletin of the International Mathematical Union

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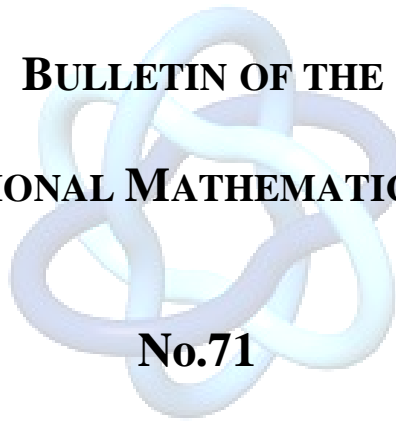
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IMU

**BULLETIN OF THE
INTERNATIONAL MATHEMATICAL UNION**



No.71

December 2019

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/ISC	International Council for Science/International Science Council
IMU	International Mathematical Union
IUHPST	International Union for the History and Philosophy of Science and Technology

Dear Members of the International Mathematical Union

The year 2019 saw the start of many activities and initiatives decided at the 2018 General Assembly.

The 2018 General Assembly decided on some important structural changes for convening the International Congress of Mathematicians (ICM) in future. Specifically, it decided to separate the responsibility of determining the scientific structure of the ICM from the very challenging task of inviting speakers to the congress. The structure of future ICMs (including the sessions and their relative size) will reside with the ICM Structure Committee, while the invitation of speakers will rest with the Program Committee. Previously, both tasks had been the responsibility of the omnipotent Program Committee.

In a joint effort between the outgoing and incoming Executive Committee (EC) membership of the ICM Structure Committee was decided, under the leadership of former IMU President László Lovász. Membership of the ICM Structure Committee is public and communicated to the IMU Adhering Organizations, and mathematicians worldwide are encouraged to provide input to the committee. For personal reasons, Lovász decided to step down as chair, and was replaced by Terence Tao.

The newly elected EC had its first scheduled meeting in the recently refurbished office venue of the IMU Secretariat in Berlin. At that meeting, in addition to laying out the groundwork for the coming four-year term, preparations started for the ICM in 2022 in St Petersburg, Russia. Specifically, the EC appointed the Program Committee under the leadership of Martin Hairer, with the heavy responsibility of appointing all speakers at the ICM. Furthermore, the EC decided on the membership of the Fields Medal committee, chaired as is the tradition by the IMU President. Membership of this committee, as well as the Program Committee, will remain confidential until the opening of the ICM. Additionally, the IMU Secretariat hosted a number of other meetings in 2019, including those of the Commission for Developing Countries and the Committee on Electronic Information and Communication, as well as a meeting of the International Program Committee of the International Commission on Mathematical Instruction for ICMI Study 25.

A substantial part of the work of the IMU is carried out by our Commissions and Committees. Many of our colleagues thus invest a lot of voluntary time for the benefit of our community. Detailed accounts of their work appear in reports in this Bulletin, and I take the liberty on behalf of all of us, to thank them for their dedication and commitment.

Preparations were initiated for the celebrations of the centennial of the IMU in 2020. More precisely, it was on 20 September 1920, during the ICM in Strasbourg, France, that representatives from Belgium, Czechoslovakia, France, Greece, Italy, Japan, Poland, Portugal, Serbia, the United Kingdom, and the United States signed the statutes for the International Mathematical Union, electing C.J. de la Vallée Poussin (Belgium) as President. Thus the IMU came into being. The EC decided to celebrate the centennial in Strasbourg on 28–29 September 2020. Furthermore, thanks to a generous donation from the Klaus Tschira Stiftung, the IMU was able to hire Norbert Schappacher to write a book on the history of the IMU.

On the initiative of the previous EC, a proposal had been made to UNESCO by several of its member states to proclaim March 14 («pi day» in many countries) as the International Day of Mathematics (IDM). This was a result of a long and dedicated effort by Christiane Rousseau. At the 40th General Conference of UNESCO in 2019, March 14 was indeed proclaimed as the IDM. Preparations for the celebration of future IDMs were quickly made; a new website www.idm314.org was set up, and *Mathematics is Everywhere* was decided as the theme for the inaugural IDM scheduled for 2020. Activities are coordinated by the IDM Governing Board chaired by Christiane Rousseau.

Membership of the IMU is always important for the IMU as an organization. Various initiatives are taken to secure payment of membership dues from the Adhering Organizations. While the financial situation of the IMU is stable, we do depend on our members to pay their dues in order to be able to function for the benefit of mathematics and mathematicians worldwide. On this note, we are happy to welcome Cyprus as a new IMU member.

Members of the IMU are regularly approached by fraudsters, trying with various means to convince members to transfer money to their accounts. The perpetrators display a certain knowledge of the structure of the IMU, but not anything beyond what can be found publicly. We want to stress once more and without any reservation that the IMU never ever approaches individuals asking for the transfer of money.

The call for bids for ICM 2026 was made to the Adhering Organizations in September of 2019, with the deadline for submitting bids being 30 November 2021.

Little did we know at the end of 2019 of what the following year would bring us. In 2020, most scientific events scheduled after March have either been cancelled or postponed for a year, with all traveling equally affected or cancelled due to the COVID-19 pandemic. The consequences for the IMU will be described in the 2020 Bulletin.

With best wishes

Helge Holden
Secretary General of the International Mathematical Union

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1. IMU Leadership and Membership Information

1.1. Executive Committee 2019-2022

INTERNATIONAL MATHEMATICAL UNION

Executive Committee

January 1, 2019 – December 31, 2022

President:	Carlos E. Kenig	(USA)
Vice-Presidents:	Nalini Joshi Loyiso G. Nongxa	(Australia) (South Africa)
Secretary General:	Helge Holden	(Norway)
Members-at-Large:	Luigi Ambrosio Andrei Okounkov Paolo Piccione R. T. Ramadas Gang Tian Günter M. Ziegler	(Italy) (Russia) (Brazil) (India) (China) (Germany)
Ex-officio Member (Past President)	Shigefumi Mori	(Japan)



Meetings of the Executive Committee in 2019:

91st EC Meeting, Berlin, Germany, March 1-3, 2019

1.2. IMU Leadership 2019-2022

IMU Executive Committee (EC) 2019 – 2022

Carlos E. Kenig	IMU President	USA
Helge Holden	IMU Secretary General	Norway
Nalini Joshi	IMU Vice President	Australia
Loyiso G. Nongxa	IMU Vice President	South Africa
Luigi Ambrosio	IMU EC Member-at-Large	Italy
Andrei Okounkov	IMU EC Member-at-Large	Russia
Paolo Piccione	IMU EC Member-at-Large	Brazil
R. T. Ramadas	IMU EC Member-at-Large	India
Gang Tian	IMU EC Member-at-Large	China
Günter M. Ziegler	IMU EC Member-at-Large	Germany
Shigefumi Mori	IMU EC Ex-officio Member (Past President)	Japan

Commission for Developing Countries (CDC) 2019 – 2022

Dipendra Prasad	CDC President	India
Olga Gil Medrano	CDC Secretary Policy	Spain
Alf Onshuus	CDC Secretary Grants	Colombia
Mama Foupouagnigni	CDC, African Member	Cameroon
José Maria Balmaceda	CDC, Asian Member	Philippines
Andrea Solotar	CDC, Latin American Member	Argentina
Galina Rusu	CDC Member appointed by IMU EC	Moldova
Michel Waldschmidt	CDC Member appointed by IMU EC	France
Jean-Luc Dorier	CDC Member appointed by ICMI EC	Switzerland
Carlos E. Kenig	CDC Ex-officio Member (IMU President)	USA

International Commission on the History of Mathematics (ICHM) 2019 – 2022

Isobel Falconer	ICHM	UK
Catherine Goldstein	ICHM	France

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
Carlos E. Kenig	ICMI EC Ex-officio Member (IMU President)	USA
Helge Holden	ICMI EC Ex-officio Member (IMU Secretary General)	Norway
Paolo Piccione	ICMI – IMU Liaison (elected by the IMU EC)	Brazil

Committee on Electronic Information and Communication (CEIC) 2019 – 2022

(CEIC terms of membership are staggered.)

Henry Cohn	CEIC Chair	2019 – 2022	USA
Tim Cole	CEIC Member	2013 – 2020	USA
Marie Farge	CEIC Member	2019 – 2022	France
Patrick Ion	CEIC Member	2015 – 2022	USA
Nalini Joshi	CEIC-IMU Liaison	2019 – 2022	Australia
Rajeeva Karandikar	CEIC Member	2019 – 2022	India
Alf Onshuus	CEIC Member	2017 – 2020	Colombia
Mila Runnwerth	CEIC Member	2019 – 2022	Germany
Victoria Stodden	CEIC Member	2015 – 2022	USA

Committee for Women in Mathematics (CWM) 2019 – 2022

Marie-Françoise Roy	CWM Chair	France
Carolina Araujo	CWM Vice-Chair	Brazil
Alejandro Adem	CWM Member-at-Large	Canada
Petra Bonfert-Taylor	CWM Member-at-Large	USA
Tony Ezome	CWM Member-at-Large	Gabon
Josephine Kagunda	CWM Member-at-Large	Kenya
Motoko Kotani	CWM Member-at-Large	Japan
Neela Nataraj	CWM Member-at-Large	India
Ekin Ozman	CWM Member-at-Large	Turkey
Cheryl Praeger	CWM Member-at-Large	Australia

Persons representing IMU in various organizations

Body	Representative/liaison	Term
COSPAR, International Scientific Union Representative	Nalini Joshi	2019 – 2020
Gruber Foundation, Cosmology Prize, Selection Advisory Board	Frans Pretorius	2015 – 2020
ISC	Loyiso G. Nongxa	2019 – 2022
UNESCO	Loyiso G. Nongxa	2019 – 2022
Ramanujan Prize	R. T. Ramadas	2019 – 2022
ICMI (IMU EC liaison)	Paolo Piccione	2019 – 2022
CDC (IMU EC liaison)	Luigi Ambrosio	2019 – 2022
ICHM (IMU EC liaison)	Gang Tian	2019 – 2022
CEIC (IMU EC liaison)	Nalini Joshi	2019 – 2022
CWM (IMU EC liaison)	Carlos E. Kenig	2019 – 2022
IMU-Net editor	Martin Hubert Raussen	2016 – 2020
IMU-Net EC correspondent	Andrei Okounkov	2019 – 2022
IDM (IMU EC liaison)	Günter M. Ziegler	2019 – 2022
Curator of the IMU archive	Guillermo Curbera	2019 – 2020

1.3. Members of the Union

The following countries were Members of IMU through December 2019:

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

*Associate Member

The following organizations are Affiliate Members of IMU:

- African Mathematical Union (AMU)
- European Mathematical Society (EMS)
- Mathematical Council of the Americas (MCoFA)
- 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 2019–2022

At the IMU General Assembly meeting 2018 in São Paulo, Brazil, the delegates decided on the dues structure for the years 2019-2022, see schedule below.

Associate and Affiliate IMU members do not pay dues.

Approved membership dues 2019 – 2022				
All amounts in EUR				
Year	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
Group I	1,430	1,430	1,430	1,430
Group II	2,860	2,860	2,860	2,860
Group III	5,720	5,720	5,720	5,720
Group IV	11,440	11,440	11,440	11,440
Group V	17,160	17,160	17,160	17,160

2.2. Approved IMU Budget

For the Period 2019–2022

Date: June 27, 2018

International Mathematical Union													
Proposed new Budget for 2019-2022, in Euro (EUR)													
	% of General Income	2019			2020			2021			2022		
		General	Special	Sum	General	Special	Sum	General	Special	Sum	General	Special	Sum
INCOME													
I. General													
I.a Membership Dues		417.560			417.560			417.560			417.560		
Sum General Income		417.560			417.560			417.560			417.560		
II. Special													
II.a Special Development Fund			14.000		14.000			14.000			14.000		
II.b Donations and Grants			80.000		80.000			80.000			80.000		
Sum Special Income from Third Parties			94.000		94.000			94.000			94.000		
II.c Income from IMU bank accounts			100		100			100			100		
II.d Other Income			30.000		30.000			30.000			30.000		
Sum Special Income from Other Sources			30.100		30.100			30.100			30.100		
TOTAL INCOME		417.560	124.100	541.660	417.560	124.100	541.660	417.560	124.100	541.660	417.560	124.100	541.660
EXPENDITURE													
1. Commissions & Committees (C&C)	45,0%												
1.1 CDC	20,0%	83.512	44.000	127.512	83.512	44.000	127.512	83.512	44.000	127.512	83.512	44.000	127.512
1.2 ICM	15,0%	62.634			62.634			62.634			62.634		
1.3 CWM	5,0%	20.878	10.000	30.878	20.878	10.000	30.878	20.878	10.000	30.878	20.878	10.000	30.878
1.4 CEIC	4,0%	16.702	4.176	20.878	16.702	4.176	20.878	16.702	4.176	20.878	16.702	4.176	20.878
1.5 Ad hoc committees	1,0%	4.176	4.176	8.352	4.176	4.176	8.352	4.176	4.176	8.352	4.176	4.176	8.352
1.6 Special support	0,0%	0	26.000	26.000	0	26.000	26.000	0	26.000	26.000	0	26.000	26.000
C&C Expenditure		187.902	88.352	276.254	187.902	88.352	276.254	187.902	88.352	276.254	187.902	88.352	276.254
2. ICM	22,0%												
2.1 Site Committee	1,0%	4.176			4.176			4.176			4.176		
2.2 Program Committee	2,0%	8.351			8.351			8.351			8.351		
2.3 Prize Committees	2,0%	8.351			8.351			8.351			8.351		
2.4 Congress Subvention	5,0%	20.878			20.878			20.878			20.878		
2.5 Travel Grants (Young & Senior)	7,0%	29.229	14.000	43.229	29.229	14.000	43.229	29.229	14.000	43.229	29.229	14.000	43.229
2.6 ICM related admin., outreach	5,0%	20.878			20.878			20.878			20.878		
ICM Expenditure		91.863	14.000	105.863	91.863	14.000	105.863	91.863	14.000	105.863	91.863	14.000	105.863
3. Union Administration	20,0%												
3.1 General Assembly	1,0%	4.176			4.176			4.176			4.176		
3.2 President & Secretary	12,0%	50.107			50.107			50.107			50.107		
3.3 Executive Committee	6,0%	25.054			25.054			25.054			25.054		
3.4 Other	1,0%	4.176			4.176			4.176			4.176		
Union Administration Expenditure		83.512	0	83.512	83.512	0	83.512	83.512	0	83.512	83.512	0	83.512
4. Outreach	6,0%												
4.1 ICSU Union Member Contribution	2,0%	8.351			8.351			8.351			8.351		
4.2 Awards	1,0%	4.176			4.176			4.176			4.176		
4.3 Website Support, Media Relations	2,0%	8.351	4.176	12.527	8.351	4.176	12.527	8.351	4.176	12.527	8.351	4.176	12.527
4.4 Bulletin	0,0%	0			0			0			0		
4.5 Other	1,0%	4.176	5.600	9.776	4.176	5.600	9.776	4.176	5.600	9.776	4.176	5.600	9.776
4.6 Scientific activity support	0,0%	0	6.972	6.972	0	6.972	6.972	0	6.972	6.972	0	6.972	6.972
Outreach Expenditure		25.054	16.748	41.802	25.054	16.748	41.802	25.054	16.748	41.802	25.054	16.748	41.802
5. Overhead	7,0%												
5.1 Office Expenses	1,0%	4.176	1.600	5.776	4.176	1.600	5.776	4.176	1.600	5.776	4.176	1.600	5.776
5.2 Bank Charges	1,0%	4.176	1.000	5.176	4.176	1.000	5.176	4.176	1.000	5.176	4.176	1.000	5.176
5.3 Legal Advice, Audit Fees	2,0%	8.351	1.600	9.951	8.351	1.600	9.951	8.351	1.600	9.951	8.351	1.600	9.951
5.4 Other	3,0%	12.527	800	13.327	12.527	800	13.327	12.527	800	13.327	12.527	800	13.327
Overhead Expenditure		29.229	5.000	34.229	29.229	5.000	34.229	29.229	5.000	34.229	29.229	5.000	34.229
TOTAL EXPENDITURE				541.660			541.660			541.660			541.660
INCOME LESS EXPENSES				0			0			0			0

2.3. Independent Auditor's Report

Audit Report

Annual Financial Statements as at 31 December 2019

International Mathematical Union
Berlin

Mazars GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft
Steuerberatungsgesellschaft

84438/E

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 - Special Engagement Terms
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To the International Mathematical Union, Berlin:

A. AUDIT ENGAGEMENT

We were engaged by the Secretary General of the

International Mathematical Union

Berlin

(hereinafter “IMU”, “Union” or “Association”)

to audit and report on the annual financial statements for the reporting year ending 31 December 2019.

In performing the audit engagement awarded to us by the Secretary General, we conducted our audit of the annual financial statements as at 31 December 2019 together with the accounting system for the 2019 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 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 document is a translation of the German report, which is the solely legally binding version.

This report was prepared by us in accordance with the auditing standards of the Institut der Wirtschaftsprüfer in Deutschland e.V. IDW PS 450 n.v. "Generally Accepted Standards for the Presentation of Long-form Audit Reports for the Audit of Financial Statements".

The performance of our engagement and our responsibility, also towards any third parties, are governed by the Special Engagement Terms for Audits and Audit-related Services of Mazars GmbH & Co. KG Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft from 1 June 2019 as well as 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. 9 of the General Engagement Terms apply.

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 including the bookkeeping system 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.

Pursuant to § 317 (4a) HGB the audit does not extend to whether the ability of the International Mathematical Union to continue as a going concern or the effectiveness and efficiency of its management can be assured.

II. Nature and scope of the audit

Our audit was conducted analogous to § 317 HGB taking into account the German generally accepted accounting standards as promulgated by 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 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 2018. 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 2017) the preparation of a budget for the following four-year-period is anticipated. The budget for the period from 1 January 2019 to 31 December 2022 was approved by the 18th General Assembly in São Paulo/Brazil on 29 and 30 July 2018.

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, with interruptions, from March to September 2020.

Management provided us with the information and documentation we requested. In the written letter of representation provided to us, the management as the legal representative of the Union assured us that the explanations and evidence were complete. Furthermore, it 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 in all material respects. The information extracted from other documents audited was properly reflected in the accounting records and in the annual financial statements in all material respects.

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 2019 to 31 December 2019 have been properly derived from the accounting records and the underlying documents of the Union in all material respects. The enclosed annual financial statements were prepared in analogous application of the regulations of the Third Book of the HGB (§§ 238 et seq.) in all material respects, 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 in all material respects.

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 is No. 70 from December 2018. Printed versions of the Bulletin are provided to members. The electronic documents 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 information of the legal representatives 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 9		2 0 1 8		Change
	k€	%	k€	%	
Revenues	559	100.0	693	100.0	-134
Expenditures for scientific promotion and scientific activities	-239	-42.8	-949	-136.9	710
Administrative expenses	-82	-14.7	-82	-11.8	0
Expenses	-321	-57.4	-1,031	-148.8	710
Operating result	238	42.6	-338	-48.8	576
Interest result	0	0.0	0	0.0	0
Result before taxes on income	238	42.6	-338	-48.8	576
Taxes on income	0	0.0	0	0.0	0
Annual surplus	238	42.6	-338	-48.8	576
Withdrawal from/Allocation to reserves (net)	-238	-42.6	338	48.8	-576
Unallocated cash balance	0	0.0	0	0.0	0

The IMU had **revenues** of k€ 559 in the reporting year, consisting largely of member contributions. In addition, the IMU received donations which usually come from scientific organizations. The higher revenues of the prior year contain reimbursed expenses for the financing of the ICM and of the General Assembly in the amount of k€ 148.

Revenues are composed of the following:

	k€
Member contributions	426
Third-party contributions	110
Other income	<u>23</u>
	<u>559</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	36
FIMU – IMU Breakout Fellowship	60
FIMU – IMU Volunteer Lecturer Program	<u>14</u>
	<u>110</u>

Other income (k€ 23) involves currency rate differences (k€ 11), payments received for written-down receivables (k€ 7), as well as the overhead share of the IMU for the project ICSU Gender Gap (k€ 5).

Expenditures of k€ 321 (prior year: k€ 1,031) are shown in detail in the statement of income and expenditure (Appendix 2) as well as in the Budget Comparison (Appendix 4). In particular, as a result of the ICM held every four years (most recently 2018 in Rio de Janeiro/Brazil), **expenditures for scientific promotion and scientific activities** have decreased significantly by k€ 709.

The decrease largely involves the expenses for the ICM travel expenses assistance (k€ -298), conducting the ICM (k€ -239) as well as the ICMI Commission with k€ -52.

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:

	31.12.2019		31.12.2018		Change
	k€	%	k€	%	k€
ASSETS					
Current assets					
Receivables from member contributions	63	3.5	60	4.1	3
Other assets (including Prepaid expenses)	21	1.2	9	0.6	12
Cash and cash equivalents	1,740	95.4	1,403	95.3	337
	1,824	100.0	1,472	100.0	352
LIABILITIES					
Net assets (own funds)	1,593	87.3	1,355	92.1	238
Borrowed capital					
Provisions	12	0.7	29	2.0	-17
Liabilities from restricted donations	205	11.2	66	4.5	139
Other liabilities (incl. Deferred income)	14	0.8	22	1.5	-8
	231	12.7	117	7.9	114
	1,824	100.0	1,472	100.0	352

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

Country	Year	WD	Amount
		*	€
Algeria	2019		1,430.00
Belgium	2019		5,720.00
Bosnia & Herzegovina	2019	*	1,430.00
Cameroon	2019		1,430.00
Chile	2019		4,557.50
Cuba	2019	*	1,430.00
Egypt	2019		2,860.00
Iran	2019	*	11,440.00
Kenya	2019		1,430.00
Kyrgyzstan	2019		1,430.00
Latvia	2019		1,430.00
Montenegro	2019	*	1,430.00
Morocco	2019		1,430.00
Oman	2019		1,430.00
Peru	2019		1,430.00
Philippines	2019		1,430.00
Tunisia	2019		1,430.00
Venezuela	2019		1,345.00
			44,512.50
Bosnia & Herzegovina	2018	*	1,395.00
Cuba	2018	*	1,395.00
Iran	2018	*	11,160.00
Kyrgyzstan	2018		581.25
Montenegro	2018	*	1,395.00
Morocco	2018		1,046.25
Oman	2018		697.50
Peru	2018		1,395.00
			19,065.00
Bosnia & Herzegovina	2017	*	1,395.00
Cuba	2017	*	1,395.00
Iran	2017	*	4,644.92
Montenegro	2017	*	1,395.00
Peru	2017		1,395.00
			10,224.92
Cuba	2016	*	1,395.00
Montenegro	2016	*	1,395.00
Peru	2016		500.13
			3,290.13
Carry forward:			77,092.55

Country	Year	WD	Amount
		*	€
Carry forward:			77,092.55
Cuba	2015	*	1,395.00
Montenegro	2015	*	1,395.00
			2,790.00
Montenegro	2014	*	1,416.84
			1,416.84
Montenegro	2013	*	1,410.42
			1,410.42
Montenegro	2012	*	1,371.85
			1,371.85
Total receivables			84,081.66
Write-downs 50 % (marked with a *)			-20,735.32
			63,346.34

At the end of 2019 the outstanding member contributions were k€ 84, of which k€ 29 were outstanding 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 50%. 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)		933,312.15
Account in CHF (5113915 01)	CHF 73.864,37	68,046.70
Account in USD (5113915 00)	USD 188.542,33	168,094.00
Account in USD (5113915 06)	USD 184.954,39	164,895.00
Account in € (5113915 00)		60,295.18
Account in € (5113915 05)		186,178.11
Account in € (5113915 04)		157,923.89
Account in € (5113915 01) ITO-Funds		438.19
Cash in €		<u>368.51</u>
		<u><u>1,739,551.73</u></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 (Net assets)		307
Reserves		
- Annual surplus 2007 - 2018	671	
- Annual surplus 2019	238	
- ICMI and CDC (Commission Fund)	<u>377</u>	<u>1,286</u>
		<u>1,593</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 General 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 2022	5
– ICM 2022 in Russia	30
– Project Simons Fellowships	93
ICMI and CDC 2020	377
ICM default reserve	436
Project Breakout Fellowship/FIMU	49
Support CWM 2020	5
IMU Internet site	11
Outreach (IDM 2020 / 100 years IMU)	20
Co-financing the 2016-2019 ICSU project (follow-up expenses)	8
Unrestricted reserves	<u>252</u>
	<u>1,286</u>

Disclosed under ICMI and CDC (Commission Fund) are funds which 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 € 115,818.36 and for CDC to € 261,527.90.

Provisions involve the audit of the annual accounts and the preparation of tax returns for 2018 and 2019.

Liabilities from restricted donations developed as follows:

	€	€
Special Development Fund		
Per 1 Jan 2019		0.00
Allocation for ICM 2022		
- London Mathematical Society (USD 5,000)	4,424.82	
- Mathematical Society of Japan (JPY 150,000)	<u>1,201.32</u>	<u>5,626.14</u>
Per 31 Dec 2019		5,626.14 -----
Simons Foundation Africa		
Per 1 Jan 2019		66,007.94
Contribution Simons Africa Award	50,172.41	
Reimbursement Travel Fellowship 2018 for 1 mathematician	<u>3,500.00</u>	53,672.41
Travel Fellowship for 10 mathematicians		<u>-21,210.87</u>
Per 31 Dec 2019		98,469.48 -----
Commemorative Publication 100 Years IMU		
Per 1 Jan 2019		0.00
Contribution Klaus Tschira Stiftung		<u>100,000.00</u>
Per 31 Dec 2019		100,000.00 -----
		<u>204,095.62</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 funds provided by the Simons Foundation are 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 funds received from the **Klaus Tschira Stiftung (KTS)** are designated for financing a commemorative publication on occasion of the 100th anniversary of the founding of the International Mathematical Union.

Other liabilities of k€ 8 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€ 337 and corresponds to the change in the amount of cash between 1 January 2019 (k€ 1,403) and 31 December 2019 (k€ 1,740).

E. ATTESTATION OF THE ANNUAL FINANCIAL STATEMENTS

We issue the annual financial statements of the International Mathematical Union, Berlin as at 31 December 2019, in the version enclosed in this report as Appendices 1 to 2, the following unqualified attestation:

Attestation of the Auditor

International Mathematical Union, Berlin:

We have audited the annual financial statements of the International Mathematical Union, Berlin, - consisting of the statement of assets and liabilities and the statement of income and expenditures – together with the bookkeeping system, for the financial year from 1 January 2019 to 31 December 2019. The maintenance of the books and records and the preparation of the annual financial statements in accordance with statutory provisions as well as with the supplementary provisions of the Association's Statutes are the responsibility of the legal representatives of the Association. Our responsibility is to express an opinion of the annual financial statements on the basis of the bookkeeping, based on our audit.

We conducted our audit in compliance with the audit standards promulgated by the Institut der Wirtschaftsprüfer in Deutschland (IDW): *Audit of Associations* (IDW PS 750). Those standards require that we plan and perform the audit such that misstatements and violations materially affecting the presentation of the annual financial statements are detected with reasonable assurance. Knowledge of the business activities and the economic and legal environment of the Association and expectations of possible misstatements are taken into account. The effectiveness of the accounting-related 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 with the framework of the audit. 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.

In our opinion, based on our audit, the books and records along with the statement of assets and liabilities and the statement of income and expenditures of the Association comply with the principles of proper accounting and the legal requirements of an association.

F. FINAL REMARKS

Publication or reproduction of the annual financial statements of the International Mathematical Union, Berlin, for the financial year from 1 January 2019 to 31 December 2019 in a form different from the certified form, which is attached as an Appendix to this report, again requires our consent if our attestation is quoted or if reference is made to our audit. We herein refer to § 328 HGB.

Berlin, 30 November 2020

Mazars GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft
Steuerberatungsgesellschaft

In the original German version signed by

Ralf Bierent
Wirtschaftsprüfer
(German Public Auditor)

Jacqueline Kotynski
Wirtschaftsprüfer
(German Public Auditor)

International Mathematical Union, Berlin

STATEMENT OF INCOME AND EXPENDITURE for 2019

	€	€	€	Prior Year €
Revenues			559,368.65	693,070.89
Member contributions	426,497.50			408,967.50
Donations - international	109,917.83			246,078.76
Other income	<u>22,953.32</u>			38,024.63
Expenses for Scientific Promotion and Scientific Activities		-239,737.99		-948,985.41
Promotion of scientific activities	-217,053.48			-687,692.95
Expenditures ICM	<u>-22,684.51</u>			-261,292.46
Administrative expenses		-81,983.03		-82,007.34
Reimbursement personnel expenses	-35,000.00			-29,000.00
Travel expenses	-9,998.10			-23,018.73
Audit fees	-8,700.00			-8,925.00
Member contributions	-3,897.00			-3,821.00
Postage	-402.30			-377.52
Bank fees	-938.02			-753.83
Other	<u>-23,047.61</u>			-16,111.26
Other Expenditures			-321,721.02	-1,030,992.75
Interest and Similar Income			66.10	88.34
<u>Interim Result</u>			237,713.73	-337,833.52
Other Taxes			0.00	-77.87
<u>Annual Deficit/Surplus</u>			237,713.73	-337,911.39
Withdrawals from Reserves			0.00	339,138.91
Allocation to Reserves			-237,713.73	-1,227.52
<u>Unallocated Cash Balance</u>			0.00	0.00

International Mathematical Union, Berlin	
Schedule of Member Contributions 2019	
Country	Amount EUR
Algeria	1,430.00
Argentina	5,720.00
Armenia	1,430.00
Australia	11,440.00
Austria	2,860.00
Belgium	5,720.00
Bosnia & Herzegovina	1,430.00
Brazil	17,160.00
Bulgaria	1,430.00
Cameroon	1,430.00
Canada	17,160.00
Chile	5,720.00
China, CMS Beijing	10,296.00
China, TMS Taipei	6,864.00
Colombia	1,430.00
Croatia	1,430.00
Cuba	1,430.00
Czech Republic	5,720.00
Denmark	2,860.00
Ecuador	1,430.00
Egypt	2,860.00
Estonia	1,430.00
Finland	5,720.00
France	17,160.00
Georgia	1,430.00
Germany	17,160.00
Greece	1,430.00
Hong Kong	1,430.00
Hungary	5,720.00
Iceland	1,430.00
India	11,440.00
Indonesia	1,430.00
Iran	11,440.00
Ireland	2,860.00
Israel	17,160.00
Italy	17,160.00
Ivory Coast	1,430.00
Japan	17,160.00
Kazakhstan	1,430.00
Kenya	1,430.00

International Mathematical Union, Berlin	
Schedule of Member Contributions 2019	
Country	Amount EUR
Korea, Republic of	11,440.00
Kyrgyzstan	1,430.00
Latvia	1,430.00
Lithuania	1,430.00
Luxembourg	1,430.00
Malaysia	1,430.00
Mexico	5,720.00
Montenegro	1,430.00
Morocco	1,430.00
Netherlands	11,440.00
New Zealand	1,430.00
Nigeria	1,430.00
Norway	5,720.00
Oman	1,430.00
Pakistan	1,430.00
Peru	1,430.00
Philippines	1,430.00
Poland	11,440.00
Portugal	5,720.00
Romania	1,430.00
Russia	17,160.00
Saudi Arabia	1,430.00
Senegal	1,430.00
Serbia	1,430.00
Singapore	1,430.00
Slovakia	2,860.00
Slovenia	1,430.00
South Africa	2,860.00
Spain	11,440.00
Sweden	11,440.00
Switzerland	11,440.00
Thailand	1,430.00
Tunisia	1,430.00
Turkey	2,860.00
Ukraine	2,860.00
United Kingdom	17,160.00
Uruguay	1,430.00
USA	17,160.00
Venezuela	1,430.00
Vietnam	1,430.00
Cyprus	357.50
Total	426,497.50

INTERNATIONAL MATHEMATICAL UNION

Budget Comparison 2019

	% of General Income	Budget 2019 EUR			Actual 2019 EUR		
		General	Special	Sum	General	Special	Sum
INCOME							
I. General							
I.a Membership Dues		417,560			426,498		
Sum General Income		417,560			426,498		
II. Special							
II.a Special Development Fund			14,000			0	
II.b Donations			80,000			36,601	
II.c Grants						73,317	
Sum Special Income from Third Parties			94,000			109,918	
II.d Income from IMU bank accounts			100			66	
II.e Other Income			30,000			22,953	
Sum Special Income from Other Sources			30,100			23,019	
TOTAL INCOME		417,560	124,100	541,660	426,498	132,937	559,435
EXPENDITURE							
1. Commissions & Committees (C&C)							
	45.00%						
1.1 CDC	20.00%	83,512	44,000	127,512	65,200	15,931	81,132
1.2 ICMI	15.00%	62,634			52,006		
1.3 CWM	5.00%	20,878	10,000	30,878	20,878	3,485	24,363
1.4 CEIC	4.00%	16,702	4,176	20,878	3,672	0	
1.5 Ad hoc committees	1.00%	4,176	4,176	8,352	0	0	
1.6 Special support	0.00%	0	26,000	26,000	0	53,836	
C&C Expenditure		187,902	88,352	276,254	141,757	73,253	215,010
2. ICM							
	22%						
2.1 Site Committee	1%	4,176			0		
2.2 Program Committee	2%	8,351			18,815		
2.3 Prize Committees	2%	8,351			0		
2.4 Congress Subvention	5%	20,878			0		
2.5 Travel Grants (Young & Senior)	7%	29,229	14,000	43,229	0	0	
2.6 ICM related admin., outreach	5%	20,878			3,869	0	
ICM Expenditure		91,863	14,000	105,863	22,685	0	22,685
3. Union Administration							
	20%						
3.1 General Assembly	1%	4,176			0		
3.2 President & Secretary	12%	50,107			23,000		
3.3 Executive Committee	6%	25,054			3,427		
3.4 Other	1%	4,176			6,571		
Union Administration Expenditure		83,512	0	83,512	32,998	0	32,998
4. Outreach							
	6%						
4.1 ICSU Union Member Contribution	2%	8,351			3,897		
4.2 Awards	1%	4,176			0		
4.3 Website Support, Media Relations	2%	8,351	4,176	12,527	1,868	0	
4.4 Bulletin	0%	0			0		
4.5 Other	1%	4,176	5,600	9,776	0	175	
4.6 Scientific activity support	0%	0	6,972	6,972	0	0	
Outreach Expenditure		25,054	16,748	41,802	5,765	175	5,940

Appendix 4/cont'd

5. Overhead	7%						
5.1 Office Expenses	1%	4,176	1,600	5,776	23,579	1,600	25,179
5.2 Bank Charges	1%	4,176	1,000	5,176	938	0	
5.3 Legal Advice, Audit Fees	2%	8,351	1,600	9,951	8,700	0	
5.4 Other	3%	12,527	800	13,327	10,271	0	
Overhead Expenditure		29,229	5,000	34,229	43,488	1,600	45,088
TOTAL EXPENDITURE				541,660			321,721
Transfer to liabilities from donations not yet spent							0
Interim Result				0			237,714
Draw from Reserves				0			0
Return to Reserves				0			-237,714
Result				0		EUR	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.

Since 1 January 2011 the permanent Secretariat of the Union is located in Berlin/Germany.

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:

- “(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 2019, the IMU had 80 regular members (voting), 9 associate members (non-voting) and 5 affiliate members (non-contributory and non-voting).

Executive Committee, Representatives

As of 1 January 2019, the members of the Executive Committee are the following persons:

- Carlos E. Kenig, USA (President)
- Helge Holden, Norway (Secretary General)
- Nalini Joshi, Australia (Vice-President)
- Loyiso G. Nongxa, South Africa (Vice-President)
- Luigi Ambrosio, Italy (Member-at-Large)
- Andrei Okounkov, Russia (Member-at-Large)
- Paolo Piccione, Brazil (Member-at-Large)
- R. T. Ramadas, India (Member-at-Large)

- Gang Tian, China (Member-at-Large)
- Günter M. Ziegler, Germany (Member-at-Large)
- Shigefumi Mori, Japan (Member of the Executive Committee ex-officio because he was the President of the IMU in the preceding term of office)

Reporting Year

The reporting year corresponds to the calendar year.

Reports to members are made annually through publication on the IMU homepage www.mathunion.org. All members are informed about each new publication via e-mail. A printed version of the Bulletin will be produced and sent upon individual request.

General Assembly

The following was resolved during the last General Assembly in São Paulo/Brazil in July 2018:

- The “Stable Office” of the IMU, established in cooperation between the WIAS and the IMU, should remain permanently in Berlin.
- Adoption of the annual financial statements of 2014 to 2017 and development of financial reserves from the annual surpluses, corresponding to the respective Statement of Income and Expenditures.
- Release from liability of the IMU Executive Committee and IMU Treasurer for the years from 2014 to 2017
- Budget for the time between 2019 and 2022
- Increase in member contributions between 2019 and 2022 to € 1,430.00 per unit (unit contribution)
- Appointments to various committees and commissions
- The next General Assembly will take place in 2022 in Saint Petersburg/Russia.

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 its last notice of exemption for 2015 to 2017, 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 2022. The IMU is entitled to issue donation confirmations.

**Special Engagement Terms
for audits and audit-related
services**
of
**Mazars GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft**
As of June 1, 2019

Preamble

These Special Engagement Terms of Mazars GmbH & Co. KG Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft ("Mazars KG") complement and clarify the General Engagement Terms for Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften [German Public Auditors and Public Audit Firms] issued by the Institut der Wirtschaftsprüfer e. V. [Institute of German Public Auditors, Incorporated Association] in the version enclosed to the engagement letter/proposal and have priority over the General Engagement Terms issued by the Institut der Wirtschaftsprüfer e. V. The Special Engagement Terms apply in a subordinate manner to the engagement letter/proposal. The engagement letter/proposal along with all enclosures form the "Entire Engagement Terms".

A. Supplementary terms for audits of annual financial statements pursuant to § [Article] 317 HGB [German Commercial Code: Handelsgesetzbuch] and comparable audits according to national and international auditing standards

Mazars KG shall perform the audit pursuant to § 317 HGB and with due respect to the German Generally Accepted Auditing Standards ("GAAS") [Grundsätze ordnungsgemäßer Abschlussprüfung] as promulgated by the Institut der Wirtschaftsprüfer e. V. According to these, Mazars KG shall plan and perform the audit in compliance with the German Principles of Proper Professional Conduct [Grundsätze ordnungsgemäßer Berufsausübung] such that misstatements and violations materially affecting the subject of the audit defined by the engagement letter are identified with reasonable assurance.

Mazars KG shall perform all audit procedures which it considers necessary in the circumstances for a proper assessment and examine in which form the audit opinion provided for in § 322 HGB resp. the GAAS can be issued. Mazars KG shall report on the audit of the subject matter to the extent customary in the profession. In order to determine the nature, time and scope of the individual audit procedures in an appropriate manner, Mazars KG shall, where deemed necessary, audit and assess the accounting-related internal control system, in particular as far as it serves to ensure proper accounting. As is customary for the profession, Mazars KG shall perform the audit procedures on the basis of selected samples, so that there remains an unavoidable risk that even material misstatements may not be identified even though the audit has been carried out in accordance with professional standards. Therefore, e.g. acts of misappropriation and other irregularities will not necessarily be identified by the audit. Mazars KG points out that the objective of the audit is not to detect misappropriations or other irregularities that do not affect the compliance of the subject of the audit with the applicable accounting principles. Should Mazars KG, however, identify such facts during the audit, the Engaging Party ("Engaging Party") of Mazars KG shall be informed immediately.

All aforementioned engagement terms regarding objectives and methods of the audit apply to other audits according to national and international auditing standards in analogous manner.

It is the responsibility of the Engaging Party's management to correct material errors in the subject of the audit and to confirm to us in a letter of representation that the impact of any uncorrected errors identified by us during the current engagement are immaterial to the subject of the audit both individually and in the aggregate.

B. Contractual relationship

Under certain circumstances, Mazars KG may be provided, in the context of the engagement and for safeguarding the Engaging Party's economic interests, with documents directly related to the client and having legal relevance. Mazars KG expressly states that it has neither an obligation to provide legal advice or legal review, nor that this engagement includes general legal advice; therefore, the Engaging Party is obliged to submit any sample formulations provided by Mazars KG in connection with the execution of the engagement to its responsible legal advisor for final legal review. The Engaging Party is responsible for all management decisions in connection with the services of Mazars KG as well as for the use of the results of the services and the decision as to whether the services of Mazars KG are suitable for the Engaging Party's own internal purposes.

C. Access to information

It is the responsibility of the Engaging Party's management to grant Mazars KG unlimited access to records, documents and other information required for the engagement. The same applies to the submission of additional information (e.g. annual reports, statements regarding the declaration of compliance pursuant to § 161 AktG [German Stock Corporation Act: Aktiengesetz]) which is published by the Engaging Party together with the financial statements and the associated management report, if any. The Engaging Party shall make this information available in due time before the audit opinion is issued or as soon as it is available. All information made available to Mazars KG by the Engaging Party or on behalf of the Engaging Party must be fully complete ("Engaging Party's Information").

D. Consultation of Mazars members and third parties

Mazars KG shall be entitled to subcontract parts of the services to other members of the worldwide Mazars network ("Mazars members") or to other service providers who may directly contact the Engaging Party. Irrespective of this, Mazars KG will exclusively be held liable for all results of the engagement, the provision of the services and the other obligations towards the Engaging Party resulting from the engagement letter.

The Engaging Party is therefore not entitled to assert contractual claims or initiate proceedings in connection with the services or on the basis of the engagement letter in general against another Mazars members or its subcontractors, members, shareholders, members of the management board, partners or members of staff ("Mazars persons") or Mazars persons of Mazars KG. Consequently, the Engaging Party shall be obliged to assert contractual claims or initiate proceedings exclusively against Mazars KG. Mazars members and Mazars personnel are entitled to refer to this provision.

In accordance with applicable law, Mazars KG shall be entitled for the purpose of

- (a) the provision of the services of Mazars KG,
- (b) compliance with professional standards as well as with regulatory requirements,
- (c) the identification of potential conflicts of interest,
- (d) risk management and quality assurance,
- (e) internal accounting as well as the provision of other administrative or IT support services

(letters (a) – (e) hereinafter referred to as "processing purposes") to disclose the Engaging Party's information to other Mazars members, Mazars persons and to external service providers of Mazars KG, ("Service Providers") who are allowed to collect, use, transmit, save or process data otherwise (hereinafter referred to as "to process") in the various jurisdictions in which they operate. An overview of the locations of all Mazars members is available at www.mazars.com.

Mazars KG shall be held liable towards the Engaging Party for assuring confidentiality of Engaging Party's Information, irrespective of who processes this information on behalf of Mazars KG.

E. Oral information

If the Engaging Party intends to make a decision or any other economic disposition on the basis of orally given information and/or advice by Mazars KG to the Engaging Party, the Engaging Party is obliged either (a) to inform Mazars KG in a timely manner prior to such a decision and to ask Mazars KG to confirm in writing the Engaging Party's understanding of such information and/or advice or (b) with regard to the above-mentioned risk of such orally given information and/or advice to make the decision at its own discretion and under its sole responsibility.

F. Draft versions of Mazars KG

The draft versions of the working results are only for internal purposes of Mazars KG and/or for the coordination with the Engaging Party and therefore represent only a preliminary stage of the working results and are neither final nor binding and require further review. Mazars KG is not obliged to update the final working result with regard to circumstances which have come to its knowledge or which occur after the time of completion of the work stated in the working result or in absence of such a deadline since the delivery of the working result.

This shall not apply if Mazars KG is obliged to do so due to the nature of the services.

G. Indemnity and liability

The Engaging Party is obliged to indemnify Mazars KG from all claims by third parties (including affiliated companies) as well as from any resulting obligations, damages, costs and expenses (in particular reasonable external lawyer's fees) resulting from the use of the working results by third parties, insofar the working results have been transferred directly or indirectly by the Engaging Party or at its instigation. This obligation does not exist to the extent Mazars KG has expressly agreed in writing that the third party may rely on the working result.

Regarding the liability for the underlying contractual relationship, number 9 of the General Engagement Terms as well as the statutory limitation of liability pursuant to § 323 Abs. 2 [paragraph 2] HGB shall apply. Should claims arise in connection with the contractual relationship from ancillary services relating to the statutory or voluntary audit or other audit services provided by us, our liability for such ancillary services is limited to € 4 million.

H. Electronic data transmission (e-mails)

The parties are allowed to use electronic media for the exchange and transmission of information and this form of communication as such does not constitute a breach of any confidentiality obligations. The parties are aware that the electronic transmission of information (especially via e-mail) involves risks (e.g. unauthorized access by third parties).

Any amendments to the documents transmitted via electronic media by Mazars KG as well as the disclosure of these documents to third parties via electronic media require the written consent of Mazars KG.

The transfer of personal data is subject to the data protection regulations of Mazars, which are available at www.eng.mazars.de/Data-protection. Mazars KG processes personal data in accordance with the applicable law and professional regulations, in particular in compliance with the German Federal Data Protection Act [Bundesdatenschutzgesetz (BDSG)] and the European data protection regulations. Mazars KG obliges data service providers who process personal data on behalf of Mazars KG to also abide by these regulations.

I. Letter of representation

The letter of representation requested by Mazars KG from the Engaging Party's management may also include the confirmation that the impact of uncorrected false information in the subject of the audit, summarized in an appendix to the representation letter, are immaterial both individually and in the aggregate.

J. Scope of application

The regulations contained in the Entire Engagement Terms, including the liability regulation, also apply to all future engagements placed by the Engaging Party accordingly, unless separate agreements have been made or defined in a framework agreement or unless national or foreign statutory or regulatory requirements which are binding for Mazars KG are opposed to individual regulations in favor of the Engaging Party.

For the services provided by Mazars KG the terms of the Entire Engagement Terms apply exclusively; other terms do not become terms of the agreement if the Engaging Party has not agreed these with Mazars KG in detail expressly in writing. General conditions of purchase, to which reference is made in the context of automated orders, shall not apply, even if Mazars KG does not expressly object to them or if Mazars KG starts to provide the services without reservation.

K. Applicable law / Place of jurisdiction

The professional standards developed and adopted by the relevant German professional organisations (Wirtschaftsprüferkammer [Chamber of Public Accountants], Institut der Wirtschaftsprüfer e. V., Steuerberaterkammer [Chamber of Tax Consultants]) are decisive for the performance of the engagement insofar as they are applicable to the engagement in the individual case.

This contractual relationship and all non-contractual issues or obligations resulting from this contractual relationship or from the provision of services agreed therein shall be governed by German law.

The exclusive place of jurisdiction for all legal disputes arising in connection with the engagement or services provided thereunder shall be the respective location of the contracting branch office or, at the discretion of Mazars KG, (i) the court at which the branch office of Mazars KG primarily responsible for providing the services has its registered office or (ii) the courts at the location at which the Engaging Party has its registered office.

L. Data Protection

For the processing purposes listed under letter D, Mazars KG and other Mazars persons or Service Providers are entitled to process the Engaging Party's Information that can be attributed to specific persons ("*personal data*") in the various jurisdictions in which they operate.

[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.

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(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 (*Steuerberatungvergütungsverordnung*) 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.

2019

London Mathematical Society, UK	4,424.82 EUR
Mathematical Society of Japan, Japan	1,201.32 EUR

2.5. Third-Party Donations (monetary contributions)

2019

American Mathematical Society, US	13,614.21 EUR
FIMU, US	59,702.85 EUR
Klaus Tschira Stiftung	100,000.00 EUR
Niels Henrik Abel Board, Norway	36,162.58 EUR
Simons Foundation, US	50,172.41 EUR
Swiss Mathematical Society	438.19 EUR

2.6. IMU Bank Accounts

International Mathematical Union, Hausvogteiplatz 11A, 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

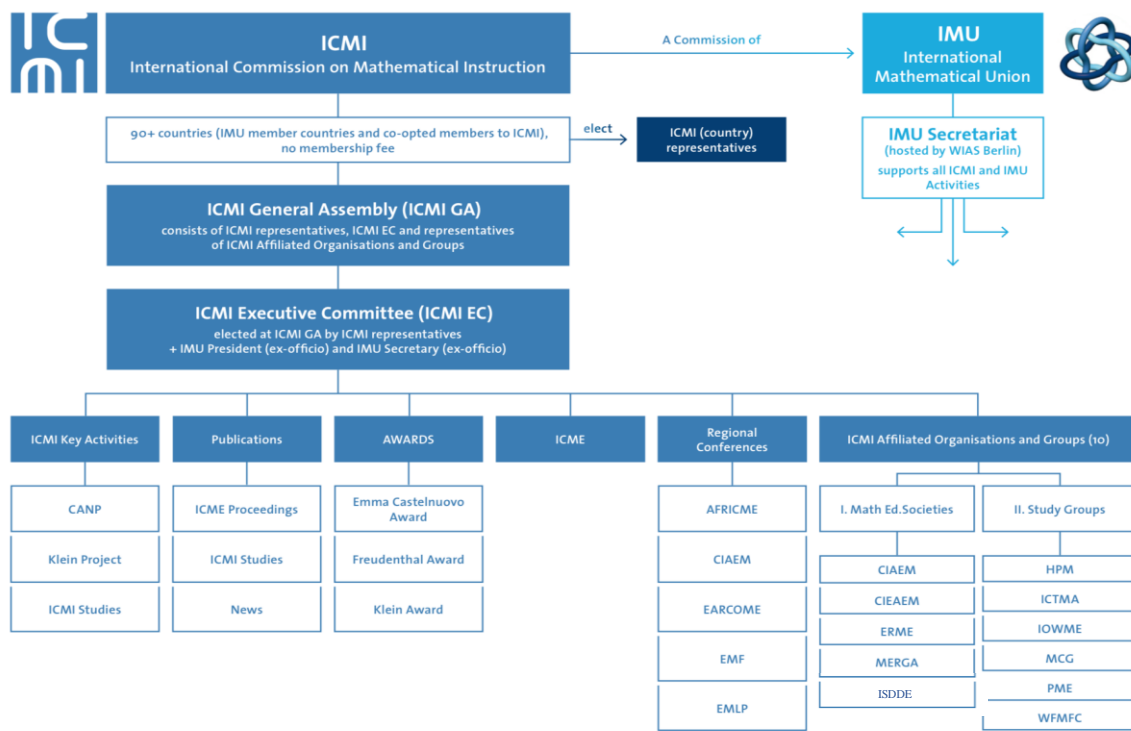
3. Commissions and Committees

3.1. International Commission on Mathematical Instruction (ICMI)

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

Activity Report 2019

Schematic presentation of the ICMI Organization



2019 Key activities and overview:

Administration and Governance

- The ICMI Executive Committee (term in office 2017-2020) held its third annual meeting from May 1st – 3rd, in Montevideo, Uruguay.
- The Nominating Committee for constituting the slate for the election of the ICMI Executive Committee (EC) which will serve during 2020-2024 concluded its work. The slate will be made public towards the beginning of May 2020. The election will take place at the General Assembly, on July 12th, 2020.
- ICMI Member-at-large Jean-Luc Dorier who was appointed as CDC member (2019-22), attended the first CDC meeting.

- With the help of IMU Secretary, the effort to renew the appointments of representatives and/or appoint new ones continued. In 2019, ICMI had 84 member countries.
(See <https://www.mathunion.org/icmi/organisation/our-members/icmi-representatives>)
- ICMI continues to maintain its close relations with its Affiliated Organizations and Study Groups.
(See <https://www.mathunion.org/icmi/organization/affiliated-organizations>)

ICME-14

Preparations for ICME 14 in Shanghai in 2020 are ongoing. The second IPC meeting is planned for March 27-19, 2019, in Shanghai, China.

ICME-15

Three sites submitted a full bid for hosting ICME 15 in 2024: Sydney (Australia), Prague (Czech Republic) and Bangkok (Thailand). In consultation with the EC, the bid by Thailand was declined without conducting a site visit. ICMI President Jill Adler, ICMI Secretary General Abraham Arcavi and Member-at-large Jean-Luc Dorier conducted site visits to Prague and Sydney. Following the report presented to the EC, it was decided to accept the bid by Sydney.

ICM 2022

ICMI President Jill Adler and Martin Hairer, Chair of the ICM 2022 Program Committee met to start the preparation of Section 19 on Mathematical Education and Popularization of Mathematics (2 base lecture slots + 3 panels).

ICMI Studies

- Following the ICMI Study 24 ("School Mathematics Curriculum Reforms: Challenges, Changes, Opportunities") conference held on November 25-30, 2018, the International Program Committee was involved in the writing of the Study Volume, which is expected to be launched during ICME14 in July 2020.
- The IPC for ICMI Study 25 ("Mathematics Teachers Working and Learning in Collaborative groups") met in the IMU Secretariat in Berlin, Germany. The Study Conference in Lisbon will be held in February 2020.
- A comprehensive evaluation study of the last ICMI Studies has started in 2019 and is expected to yield a report on Phase 1 at the 4th EC meeting in July 2020. This report will guide the current EC in whether to continue with Phase 2 in the remaining half of 2020. The outcome of the study progress will guide the new EC in its decisions regarding the launching of new Studies.

ICMI Awards

The 2020 ICMI Awards were announced and will be presented during the opening ceremony at ICME14. For details see below.

Outreach to Developing Countries

Following the Taiwan workshop with representatives from the 5 CANPs and the subsequent decision of the EC, the new stage of the CANP Project has started. All the CANPs submitted proposals for follow-up projects, for activities and related funding for the years 2019 – 2021. Upon corrections requests from the EC, each has received a first tranche of funding and has started to implement their proposals. Reports on 2019 activity (including finance) are due on 31 January 2020.

Klein Project

Hans-Georg Weigand submitted a working plan which includes holding a workshop at ICME14 to disseminate the project activities and expand it further accordingly.

Outreach, Dissemination of Information, Archiving and Reporting

- ICMI Newsletter
- ICMI Website
- ICMI Facebook
- 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
- ICMI Digitization Program

AMOR (Awardees Multimedia Online Resources Project)

Development of the AMOR Project is ongoing both in France/Switzerland and in Israel. Jean-Luc Dorier, the Project Head, will present the work done so far at the ICMI GA in July 2020.

A detailed description of the 2019 ICMI activities

Administration and Governance

ICMI Executive Committee

The current EC composition is as follows:

Position	Name	Country
President	Jill Adler	S. Africa
Secretary-General	Abraham Arcavi	Israel
Vice Presidents	Merrilyn Goos	Ireland
	Luis Radford	Canada
Members-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
	Carlos Kenig, President of IMU	USA
	Helge Holden, Secretary of IMU	Norway
IMU Liaison Person	Paolo Piccione	Brazil

The ICMI Executive Committee held its third annual meeting on May 1-3, in Montevideo, Uruguay. The committee discussed, made decisions and established item actions on the main following topics: the future of CANPs, finances, ICMI Studies, future ICMEs, the Klein Project, the Database Project, the archives and more. In the following, some of these items will be described in detail and others can be found in the minutes (available to IMU EC members upon request). As it is tradition, the fourth and last EC meeting is held around an ICME, this time it will be on July 10-11 and July 19, 2020 in Shanghai, China.

ICMI Nominating Committee

According to the ICMI statutes (see <https://www.mathunion.org/icmi/organizationicmi-executive-committee/nomination-members-icmi-ec-2021-2024>), the Nominating Committee (NC) initiated and concluded its work. The composition of the slate will be presented two and a half months before the election of the ICMI EC (which will serve in 2021-2024) at the ICMI General Assembly on July 12th, 2020 (one day before the beginning of ICME14) in Shanghai. The Chair of the NC is Michèle Artigue, past President of ICMI. The two other core members of the NC are Jill Adler, ICMI President and Carlos Kenig, IMU President. The names of the remaining four members of the NC remain undisclosed.

ICMI Member Countries

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 Administrative Manager, support its member countries and IMU adhering organizations to re-elect ICMI representatives after their 8-year tenure. The ICMI Representatives are informed about ICMI activities and developments via a mailing list. Guidelines describing the role of ICMI representatives (representing their countries in ICMI, especially in the GA and representing ICMI in their countries) can be found on page 9, March 1, 2017 issue of the ICMI News, https://www.mathunion.org/fileadmin/ICMI/files/News/ICMI_Newsletter_March_2017.pdf

ICMI Affiliate Organizations and Study Groups

ICMI's organizational outreach includes eleven multi-national organizations and international study groups in mathematics education, which have obtained affiliation with ICMI. These organizations are independent and self-financed. They collaborate with ICMI on specific activities, such as the ICMI Studies or CANP. The Affiliate Organizations present activity reports to the General Assembly of ICMI.

The following organizations are currently affiliated with 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 with ICMI:

- **HPM**: The International Study Group on Relations between the History and Pedagogy of Mathematics (since 1976) <http://www.clab.edc.uoc.gr/HPM/>
- **ICTMA**: The International Study Group for Mathematical Modelling and Applications (since 2003) <http://www.ictma15.edu.au>
- **IOWME**: The International Organization of Women and Mathematics Education (since 1987) <https://www.mathunion.org/icmi/organisation/affiliated-organisations/iowme>
- **MCG**: The International Group for Mathematical Creativity and Giftedness (since 2011) <http://www.igmcg.org/>
- **PME**: The International Group for the Psychology of Mathematics Education (since 1976) <http://igpme.org/>
- **WFNMC**: The World Federation of National Mathematics Competitions (since 1994) <http://www.wfnmc.org>

For further details see:

<https://www.mathunion.org/icmi/organisation/affiliated-organizations>

ICMI Regional Conferences

EMeLP (groups the mathematics education communities of the Portuguese speaking countries) held its second meeting in Mozambique in October, 2019. Its status as an ICMI Regional Conference is still being considered by the EC

ICME 14

The 14th International Congress on Mathematical Education will be held in Shanghai, China on July 12th-19th, 2020 (see <http://www.icme14.org>). The major components of the program have been organized, with all the invitations already issued and accepted (invited plenary speakers, panelists, chairs of Topic Study Groups). The second IPC meeting took place in Shanghai on March 27-29, 2019 to finalize the details and to launch the second announcement.

ICME 15

By November 1, 2018, the deadline for bids submissions, three full bids were submitted to host ICME 15 in 2024: in Sydney (Australia), Prague (Czech Republic) and Bangkok (Thailand). Two of them fulfilled the required criteria for a bid (Sydney and Prague) and one (Bangkok) was turned down. ICMI President, Jill Adler, ICMI Secretary General, Abraham Arcavi, ICMI Member-at-Large Jean Luc Dorier and ICMI Administrative Manager Lena Koch conducted site visits (Prague, February 14-15, 2019 and Sydney, April 1 and 2, 2019). During the site visits both academic strengths and logistics and infrastructure were inspected and discussed with the local hosts. Both sites presented advantages and disadvantages, which were thoroughly presented by ICMI President during the third EC meeting and discussed. The final decision was to grant the bid to Sydney, Australia.

ICMI Studies

A major ICMI program 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 (the international Program Committee - IPC) selected by the ICMI EC. Built around an international conference, an ICMI Study is directed towards the preparation of a published volume to promote discussion and action at the international, regional and/or institutional level. 23 volumes have been published between 1986 and 2018. The series editors 2017-2020 are the ICMI President and the Secretary General. The ICMI Studies Guidelines (recently updated) are aimed at potential proposers of a study as well as acting IPCs. For details see https://www.mathunion.org/fileadmin/ICMI/ICMI%20studies/ICMI_Studies_Revised_Jan2018.pdf

The following were the main activities regarding ICMI Studies during 2019:

- **ICMI Study 23 “Building the Foundation: Whole Numbers in the Primary Grades”**
was published by Springer as open access in order to make it available to all at no cost. Printed copies can be ordered at a discounted price. See <https://www.springer.com/gp/book/9783319635545>. ICMI granted permission to translate the volume into Chinese under ICMI supervision and provided it will be published as open access as well.
- **ICMI Study 24 “School Mathematics Curriculum Reforms: Challenges and Changes”**
Following the 24th ICMI Study Conference which took place at the University of Tsukuba, Japan (26-30.11.2018), details can be found at <http://www.human.tsukuba.ac.jp/~icmi24/> The writing of the volume has started on the basis of the discussions and conclusions by the Working Groups during the conference. It is expected that the volume will be ready for presentation at ICME14 in Shanghai. ICMI is currently updating the Database Project to serve as a resource for the ICMI Study (<https://www.mathunion.org/icmi/activities/icmi-database-project>).
- **ICMI Study 25 “Mathematics Teachers Working and Learning in Collaborative Groups”**
The IPC meeting was held February 11-13, 2019 in the IMU Secretariat. The ICMI Study Conference will be held in Lisbon on February 3-7, 2020 (see <http://icmistudy25.ie.ulisboa.pt/>) with the expected attendance of about 100 invited participants from all over the world.
- **Future Studies**
The EC decided not to undertake additional new ICMI Studies during the present term of office. The main reason for this decision is demands of the production process and for resources which are very difficult to allocate when two studies are currently in process. In addition, it was decided

that the themes and times for new studies will be based on the now undergoing comprehensive survey being conducted by President Jill Adler and Vice President Merrilyn Goos, with the assistance of ICMI staff at the Berlin headquarters.

ICMI Awards

ICMI honors outstanding scholars in mathematics education with three awards:

- The Felix Klein Award for life-time achievement in mathematics education research, <https://www.mathunion.org/icmi/awards/felix-klein-award-life-time-achievement-mathematics-education-research>
- The Hans Freudenthal Award for outstanding contributions of an individual's theoretically well-conceived and highly coherent research program, <https://www.mathunion.org/icmi/awards/hans-freudenthal-award-outstanding-contributions-individuals-theoretically-well>
- The Emma Castelnuovo Award for excellence in the practice of mathematics education <https://www.mathunion.org/icmi/awards/icmi-emma-castelnuovo-award-excellence-practice-mathematics-education>

Anna Sfard (Israel), an ICMI awardee herself (recipient of the 2007 Hans Freudenthal Award) is the present chair of the Awards Committee in charge of both the Hans Freudenthal and the Felix Klein Awards. Konrad Krainer (Austria) chairs the Emma Castelnuovo Award Committee. The names of the members of these committees remain undisclosed as long as they are in office.

The names of the awardees were announced in the ICMI Newsletter (November 1, 2019), as follows:

- Tommy Dreyfus (Tel Aviv University) – Felix Klein Award for Lifetime Achievements.
- Gert Schubring (University of Bielefeld) – Hans Freudenthal Award for Outstanding Contributions of an Individual's Theoretically Well-Conceived and Highly Coherent Research Programme.
- The National Council of Teachers of Mathematics (NCTM) – The Emma Castelnuovo Award for Excellence in the Practice of Mathematics Education.

For the full citations, see

https://www.mathunion.org/fileadmin/ICMI/News/2019/ICMI%20Newsletter_November%201,2019.pdf

Outreach to Developing Countries

Capacity and Networking Project (CANP)

Following the running of five successful CANPs across under-represented regions of the world (2011 – 2016), and an evaluation report on this success, the current EC considered a next phase. There was sufficient funding remaining for either a 6th CANP (each cost in the region of 50000 Euros), or working further with the CANPs 1 – 5. To this end, the EC held in 2018 a workshop in Taiwan with selected representatives from the 5 CANPs to reflect with them on their own progress and the future of CANP

overall. The subsequent decision of the EC in 2018, was for a ‘consolidation and expansion’ stage and so Phase 2 of the CANP Project, supporting each of CANPs 1 – 5 for a further three years. Each CANP, with the support of an EC liaison person) was required to submit a proposal for follow-up activities and a related budget not exceeding 10000 Euros for the years 2019 – 2021. As was evident in the 2018 workshop, each CANP has developed in its own way, a function of the specificities of the region in which it is operating. Thus each proposal has a different set of activities, though all towards consolidating specific activities and working on expansion of these. Proposals were reviewed and refined and during 2019, each has received a first tranche of funding and has started to implement their proposals. Interim reports for 2019 activity have been received. These confirm that there is progress with activities in each region, notwithstanding continuing challenges related to building infrastructure, and working across countries in all regions, though in different ways. Full reports (including finance) are due on 31 January 2020. The EC is currently developing a proposal for further funding of the CANP project overall, and intends to have made progress with raising funds for the new EC to be able to continue CANP activity.

The Klein Project

The Klein Project aims to present contemporary mathematics for secondary school teachers. The Klein Project materials are intended:

- To enhance the mathematical content knowledge of teachers (in several directions, i.e. introducing cutting edge mathematical topics in an accessible way, embed school mathematics in a wide mathematical context, and the like).
- To establish fruitful communications between teachers and mathematicians, for example when teachers read and comment a vignette written by a mathematician and provide feedback about its intelligibility, possibly nudging the writer to be more explicit and understandable.
- To encourage teachers to read scholarly articles in mathematics.

The materials should be designed such that they entertain and feed enthusiasm.

The heart of the project are *Klein Vignettes*. A *Klein Vignette* is a short piece of writing about a single mathematical topic. It assumes some undergraduate mathematical knowledge, and willingness to engage with mathematical reading. Klein Vignettes contain significant mathematics intended to give teachers a sense of connectedness between the mathematics of the teachers’ world and contemporary research and applications in the mathematical sciences and is likely to be new to most secondary teachers. They start with something with which the teacher is familiar and move towards a greater understanding of the subject through a piece of interesting mathematics. It will ultimately illustrate a key principle of mathematics. The vignette must be written in a way to complete this journey. For more information, see “[What is a Klein Vignette?](#)”

The Klein-Group at the moment is led by Hans-Georg Weigand (Germany) and its members are Michelle Artigue (France), Ferdinando Arzarello (Italy), Yuriko Baldin (Brazil), Bill McCallum (Arizona, USA) and Samuel Bengmark (Sweden). Bill Barton withdrew himself after his retirement last year, but he still acts as an advisor of the Klein-Project.

The Klein-blog: Bill McCallum runs the Klein-blog: <http://blog.kleinproject.org/>. There are 23 Klein-Vignettes in English and translations into 8 different languages:

French: 14 vignettes

German: 19 vignettes

Italian: 11 vignettes

Spanish: 8 vignettes

Portuguese: 7 vignettes

Chinese: 1 vignette

Khmer: 14 vignettes

The Klein Project intends to expand the group of leading members and further disseminate its activities through a workshop at ICME14.

Outreach, Dissemination of Information, Archiving and Reporting

- **ICMI Newsletter**

Like in previous years, three issues of the ICMI Newsletter were published and distributed (March 1, July 1st and November 1). The Editors are Abraham Arcavi, Merrilyn Goos and Lena Koch. Ramona Fischer has been responsible for the graphic design and the dissemination. See <https://www.mathunion.org/icmi/publications/icmi-newsletter/icmi-newsletter-archive-starting-july-2014>

- **ICMI Website**

The new ICMI website <https://www.mathunion.org/icmi> is fully operational since December 2017. The editors were Jaime Carvalho e Silva (former ICMI Secretary General) and Ramona Fischer (replacement for Lena Koch during her parental leave). Occasional “bugs” are being fixed as they emerge during the use of the site. They receive technical support from the IMU technician Frank Kloeppe.

- **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), Lena Koch and Ramona Fischer. See <https://www.facebook.com/icmi.math.edu/>

- **L'Enseignement Mathématique and the Newsletter of the EMS (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).

- **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 (and the corresponding Discussion Documents), ICMI Bulletins, proceedings of various meetings and conferences and other relevant documents are available for perusal and free download from <https://www.mathunion.org/icmi/publications/icmi-digital-library-project>

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. In 2014 ICMI EC member-at-large Jean-Luc Dorier 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. Currently there are draft versions of part of at least three series of lectures by awardees from France and Israel.

Financial Summary

ICMI’s principal source of income is the annual grant from the International Mathematical Union (IMU). Another key source of financial support for ICMI activities comes from academic institutions all over the world that support their faculty members to attend ICMI meetings and organize ICMI activities (EC meetings, ICME and all related costs, ICMI Studies IPC meetings and conferences, ICMI Regional Conferences, CANPs etc.).

ICMI Administrative Manager and ICMI Secretary General prepare the budget annually 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 2019.

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 Administrative Manager, IMU Secretariat

February 2020.

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, 2019 –December 31, 2019

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 2019-2022 are:

- Dipendra Prasad (India) - CDC President
- Olga Gil Medrano (Spain) - CDC Secretary for Policy
- Alf Onshuus (Colombia) - CDC Secretary for Grant Selection
- Mama Foupouagnigni (Cameroon) - African Member
- Jose Maria P. Balmaceda (Philippines) - Asian Member
- Andrea Solotar (Argentina)- Latin American Member
- Galina Ruso (Moldova) - CDC member appointed by the IMU Executive Committee
- Michel Waldschmidt (France)- CDC member appointed by the IMU Executive Committee
- Jean-Luc Dorier (Switzerland)- CDC member appointed by the ICMI Executive Committee
- Carlos Kenig (USA) - IMU President (2019-2022) and Ex-officio CDC Member

Luigi Ambrosio (Italy) is the CDC liaison Executive Committee (EC) member.

The applications to the various CDC grant programs are evaluated and selected by CDC and additional committees including members external to 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. The programs IMU Breakout Graduate Fellowships (BGF) and Graduate Research Assistantships in Developing Countries (GRAID) are mainly administrated outside the IMU Secretariat, but receive support by staff members of the IMU Secretariat.

Definition of Developing Countries

The CDC has been commissioned by the EC to make a proposal for the revision of the definition of Developing Countries to be used by IMU during the next 4-year period. The CDC proposal has been endorsed by the IMU Executive Committee in October 2019. The list consists of all the countries classified by the World Bank (WB) in the categories: *Low income* (<USD 1.025), *Lower middle income* (USD 1.026 – 3.995), and *Upper middle income* (USD 3.996 – 12.375) in accordance with the WB Database by July 2019. These are all countries with Gross National Income (GNI) per capita in USD, not exceeding USD 12.375, with the WB data of 2018. See <https://data.worldbank.org/indicator/NY.GNP.PCAP.CD>

As in the previous term, the following subdivision in priority groups has been established, for different purposes:

- Priority 1 (WB *Low income*) - GNI per capita in USD below 1.025
- Priority 2 (WB *Lower middle income*) - GNI per capita in USD 1.026 – 3.995
- Priority 3 (WB *Upper middle income, A*) - GNI per capita in USD 3.996 – 6.785
- Priority 4 (WB *Upper middle income, B*) - GNI per capita in USD 6.786 – 9.575
- Priority 5 (WB *Upper middle income, C*) - GNI per capita in USD 9.576 – 12.375

At any moment, IMU member countries can ask the IMU to consider inclusion/exclusion as a Developing Country. The application should be motivated and, on the basis of the evidences presented by the country, CDC would make a recommendation to EC for a case-by-case decision. If a country's

World Bank status as a Developing Country has changed between the data used to decide on developing countries and the time of the request, this information should be included as part of the evidence.

The list of Developing Countries, in alphabetical order can be found in: <https://www.mathunion.org/cdc/about-cdc/definition-developing-countries>

CDC Programs

During 2019 the Commission for Developing Countries (CDC) has continued to use the funds it receives from the International Mathematical Union (IMU) and various donors to support mathematics research and advanced mathematical teaching in developing countries, 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 2019 for the following purposes:

Conferences and Projects

A) Conference Support Program (CSP)

The Conference Support Program gives partial support to conferences organized in developing and economically disadvantaged countries. The **maximum amount** that is awarded is EUR 4,000. In case the funds are granted they are usually in the range of **EUR 1,000 - EUR 3,500**. The Program also supports a few major international conferences occurring in developed countries. The 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. 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; it is an eight member committee, chosen and supervised by the CDC and chaired by the CDC Secretary for Grants Selection. Five of its eight members are not CDC members.

B) Project Support Program (PSP)

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.

Lecturing and Mentoring

C) Volunteer Lecturer Program (VLP)

The goal of this program is to offer universities in the developing world lecturers for intensive 3-4 week courses in mathematics at the advanced undergraduate or master's level. The **maximum amount** that is awarded for each visit is EUR 4,400. The program is partially supported by the American

Mathematical Society (AMS) and the Niels Henrik Abel Board (Norway). A five members CDC-subcommittee, chaired by the CDC Secretary for Policy, evaluates the applications.

D) African Diaspora Mathematicians Program (ADMP)

In 2016 the CDC initiated and 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 EUR 1,000 per year can be spend by the Diaspora Mathematician to cover the cost of educational material such as books, software, journals and other learning material.

Individual Research Visits

E) Abel Visiting Scholar Program (AVSP)

The Niels Henrik Abel Board gives an annual grant of USD 15,000 to support mathematicians professionally based in developing countries to visit an international research collaborator for a period of one month. The **maximum amount** that is awarded for each visit is USD 5,000 and the period is extendable for up to three months in the case of matching support from the host institution. The program 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 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.

F) IMU-Simons African Fellowship Program (SAFP)

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 receives 50.000 USD per year from the Simons Foundation, NY (USA). All travel and living expenses of the grantees are covered by the fellowship up to USD 5.000. The CDC Grant Selection Committee (GSC) described in A) selects the grant recipients.

G) Individual Research Travel Program (IRTP)

The program supports travel costs for research visits (minimum stay is four weeks) by mathematicians based in developing countries to an international centre of excellence. The CDC Grant Selection Committee (GSC) selects the grant recipients.

Graduate Support Programs

H) IMU Breakout Graduate Fellowship Program (BGFP)

In 2016 IMU has launched a new Program funded by the generous donations of all the winners of the Breakthrough Prizes in Mathematics. This fellowship program aims 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 developed with the assistance of the Friends of IMU (FIMU) and The World Academy of Sciences (TWAS). The Breakout Selection Committee that consists of five voting members and is chaired by the CDC Secretary for Policy, evaluates the applications. The program has been mainly administered by TWAS, supported by the Breakout Selection Committee and the IMU Secretariat.

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

The Program was launched in 2017 and 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 (PhD or Master Students), thereby fostering the growth of a mathematics community. The GRAID Program is funded by voluntary donations from mathematicians or mathematical institutions worldwide. Applications are evaluated and recipients selected by the GRAID Selection Committee that consists of six members, three of them are not CDC members. The Committee is chaired by a CDC member and its Secretary is proposed by the AMS. The program is administrated by the GRAID Selection Committee, supported by the AMS.

Other activities

J) 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. 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. The shipments are organised by the donors of the mathematical materials.

K) CDC Website

The CDC website is hosted by WIAS Berlin and maintained by IMU Staff. All updates, programs and information about all CDC programs can be found on the CDC website: www.mathunion.org/cdc

CDC Activities in 2019 in Detail

Conferences and Projects

A) Conference Support Program.

During 2019 **27 conferences** taking place in the following developing countries received a conference grant award:

Country	Name/ Duration	Amount (Euro)
Algeria	CIMPA School, 04.04.2020-16.04.2020	3,500.00
Argentina	CIMPA School: Hopf Algebras and Tensor categories, 29.07.2019-09.08.2019	2,000.00
Bangladesh	CIMPA Research School, 10.06.2019-21.06.2019	2,000.00
Brazil	XXXIX Congresso Nacional de Matematica Aplicada e Computacional-CNMAC, 16.09.2019-20.09.2019	1,500.00
Brazil	CIMPA Research School: Syzygies, from Theory to Applications, 04.11.2019-13.11.2019	3,000.00

Brazil	CIMPA Research School "Singularities and Applications", 13.07.2020-25.07.2020	3,500.00
Cameroon	CIMPA Research School: Algebraic Geometry, Number Theory and Application in Cryptography and Robot Kinematics, 02.07.2019-13.07.2019	2,000.00
Costa Rica	EMALCA COSTA RICA 2019, 22.07.2019-02.08.2019	1,500.00
Cuba	CIMPA Research Summer School, 11.06.2019-22.06.2019	2,000.00
Cuba	CIMPA Research Summer School, 04.05.2020-15.05.2020	3,500.00
India	West Asia Mathematical School (WAMS), 29.08.2019-03.09.2019	1,500.00
India	16 th Discussion meeting in Harmonic Analysis, 16.12.2019-19.12.2019	1,500.00
India	International Conference on Class Groups of Number Fields and Related Topics 2019, 16.10.2019-19.10.2019	1,500.00
India	CIMPA School on Finsler Geometry and Applications, 05.12.2019-15.12.2019	3,000.00
Indonesia	8 th SEAMS-UGM 2019: International Conference on Mathematics and its Applications, 29.07.2019-01.08.2019	1,000.00
Indonesia	The 5 th Biennial International Group Theory Conference, 01.07.2019-04.07.2019	1,000.00
Indonesia	The 7 th Symposium on Biomathematics 25.09.2019-28.09.2019	1,500.00
Indonesia	CIMPA: Groups Actions in Arithmetic and Geometry, 17.02.2020-28.02.2020	3,000.00
Laos	12 th International Conference on Mathematics and Mathematics Education in Developing Countries, 01.11.2019-03.11.2019	1,500.00
Morocco	CIMPA School: Analyse Numerique & Optimisation, Controle et Problemes Inverse, 25.03.2020-03.04.2020	1,500.00
Nepal	Applications of Mathematics to Nonlinear Sciences (AMNS-2019), 27.06.2019-30.06.2019	1,500.00
Peru	Random Media and Random Structures in Lima, 06.01.2020-10.01.2020	2,000.00
Philippines	CIMPA School: Numeration and Fractals	2,500.00

Philippines	SEAMS: Modern Tools for Mathematical Modeling of Ecosystems, 19.08.2020-28.08.2020	1,500.00
South Africa	CIMPA: Functional Analysis and Applications, 13.01.2020-24.01.2020	2,500.00
South Africa	African Mathematical Workshop on Optimization 2019, 11.11.2019-15.11.2019	1,500.00
Turkey	WAMS Izmir 2019: Mathematics and Their Applications, 27.10.2019-03.11.2019	2,500.00
Total	27	55,500.00

B) Project Support Program

No new call has been opened during 2019.

Lecturing and Mentoring Program

C) Volunteer Lecturer Program (VLP)

During 2019 a total of 6 courses in 5 countries were supported.

Year	Volunteer	University Visited
2019	Jose Antonio Carrillo (UK)	University of La Habana (Cuba)
2019	Calistus Ngonghala (USA)	IMSP (Benin)
2019	Roger Wiegand (USA)	Tribhuvan University in Kirtipur (Nepal)
2019	Michel Waldschmidt (France)	Tribhuvan University in Kirtipur (Nepal)
2019	Brigitte Lucquin (France)	National University (Laos)
2019	Christopher Thron (USA)	Alzaiem Alazhari University (Sudan)

D) African Diaspora Mathematicians Program (ADMP)

Three projects were awarded in April 2017 for the period 2017-2019 and have completed their activities during 2019. The program is now pending of evaluation.

Programs to support Individual Research Visits

E) Abel Visiting Scholar Program

The funds for the Abel Visiting Scholar Program (USD 15,000 per year) are not included in the general CDC budget, but kept as a separate budget. Three (3) fellowships were granted in 2019.

Name, Institution, Country	Host, Host Institution, Country
Herry Pribawanto Suryawan, Sanata Dharma University in Yogyakarta, Indonesia	Jose Luis da Silva, University of Madeira, Portugal
Umamaheswaran Arunachalama, Harish-Chandra Research Institute (HRI) in Allahabad, India	Bernhard Keller, Universite Paris Diderot, France

Mina Bigdeli, Institute for Research in Fundamental Sciences, Tehran, Iran	Sara Faridi, Department of Mathematics and Statistics, Dalhousie University at Halifax, Canada
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F) IMU-Simons African Fellowship Program (duration 2017-2021)

The funds for the IMU-Simons African Program (USD 50,000 per year) are not included in the general CDC budget, but kept as a separate budget. Eight (8) fellowships were granted in 2019.

Name, Institution, Country	Host, Host Institution, Country
Amadou Tall, Université Cheikh Anta Diop de Dakar, Senegal	Michael A. Bennet, University of British Columbia, Vancouver, Canada
Josephine Kagunda, University of Nairobi, Kenya	Calistus Ngonghala, University of Florida, United States
Fredrick Nyamwala, Moi University, Kenya	Eugene Shargorodsky, King's College London, United Kingdom
Patrick Tcheppo, Arba Minch University, Ethiopia	Ludovic Rifford, CIMPA, Nice, France
Jean Baptiste Gatsinzi, Botswana International University of Science and Technology, Palapye, Botswana	Pascal Lambrechts, Université Catholique de Louvain, Louvain-la-Neuve, Belgium
Hamoudy Kamal Ould Bouh, Institut Supérieur de Comptabilité et d'Administration d'Entreprises, Nouakchott, Mauritania	Mohameden Ahmedou, Giessen University, Giessen, Germany
Richard Opaka Awichi, Busitema University, Tororo, Uganda	Marting Singull, Linköping University, Linköping, Sweden
Diogene Vianney Pongui Ngoma, Marien Ngouabi University, Brazzaville, Congo	Vincent Jacquemet, Centre de Recherche Hospital du Sacre-coeur de Montreal, Quebec, Canada

G) Individual Research Travel Program

In 2019 five (5) mathematicians received support through this program.

Name, Institution, Country	Host, Host Institution, Country
Alisher Yakhshimuratov, Urgench State University, Urgench, Uzbekistan	Michal Feckan, Comenius University, Bratislava, Slovakia
Manoj Changat, University of Kerala, Kerala, India	Peter Stadler at the Max Planck Institute, Leipzig, Germany
Mohammad Reza Darafsheh, University of Tehran, Tehran, Iran	Manouchehr Misaghian, Prairie View A&M University, Texas, United States
Jinjing Qiao, Hebei University, Hebei, China	Saminathan Ponnusamy, Indian Institute of Technology, Madras, India
Uygun Jamilov, Uzbekistan Academy of Sciences, Tashkent, Uzbekistan	Manuel Ladra Gonzales, University of Santiago de Compostela, Santiago de Compostela, Spain

Graduate Support Programs

H) IMU Breakout Graduate Fellowship Program

The funds for the IMU Breakout Fellowship Program are not included in the general CDC budget, but kept as a separate budget.

2016 Call awardees updates:

Do Thai Duong provided his second annual report in April 2019 and Maria Alejandra Ramírez-Luna provided her third annual report in October 2019. Both reports have been considered positive by the BGF Committee.

2019 Call:

The program has received 28 nominations and awarded three (3) students.

Phan Thanh Hong. A Vietnamese PhD student at the Institute of Mathematics of the Vietnam Academy of Science and Technology nominated by her advisor Professor Luu Hoang Duc from the same institution. She will be funded for up to two years, subject to positive evaluation of annual reports. The funding is USD 6,000 per year.

Darya Sukhoresbka. An Ukrainian PhD student at B. Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine, nominated by her advisor Professor Alexander Borisenko from the same institution. She will be funded for up to four years, subject to positive evaluation of annual reports. The funding is USD 3,600 per year.

Adeolu Taiwo. A Nigerian PhD student at the University of KwaZulu-Natal of South Africa, nominated by his advisor Professor Temitope Mewomo from the same institution. He will be funded for up to two years, subject to positive evaluation of annual reports. The funding is USD 7,900 per year.

Donation:

Alex Eskin (USA) has been awarded the 2019 Breakthrough Prize and as previous winners he has donated the amount of USD 100,000 for the program.

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

The funds are not budgeted to the general CDC budget, but kept in the FIMU account and are transferred by the American Mathematical Society to the grantees.

The GRAID Program received 5 applications for the deadline of March 15, 2019 and granted support to two of them. One the teams supported is led by Principal Investigator Idrissa Kabore (Université Nazi Boni in Burkina Faso) and International Partner Nicolas Bedaride (Université d'Aix-Marseille in France). One Ph.D. student (Boubacar Ouédraogo) will be funded for up to four years, subject to positive evaluation of annual reports. The funding is USD 1700 per year.

The other team supported is led by Principal Investigator Sarfraz Ahmad (COMSATS University, Lahore Campus) and International Partner Volkmar Welker (Philipps-Universität Marburg, Germany). One PhD Student (Hafiz Muhammad Bilal) and two master's students (Arooj Jamil and Safdar Ali) will be funded. The funding for the PhD student is USD 3,472 per year and USD 3,066 per year for the master's students.

Based on the reports of the seven students who were awarded support in 2017 and 2018 and the recommendations from principal investigators and international partners, the four students from

Cameroon and Uganda received continuing support and support was discontinued for the three students from Morocco. Among the students for whom support was discontinued, Arij Benkhadra is continuing her research in France, Dirar Benkhadra had a planned dissertation defense in December 2019 and Adnan Roudi had personal reasons that prevented from continuing his studies.

Other activities

J) Library Assistance Scheme

In 2019 CDC has received one book donation proposal.

Administrative Costs

Administrative costs are kept to less than 10% of the CDC operating budget. The administrative costs for CDC consisted primarily bank transfer cost. Most of the administrative work was paid by various institutions: The CDC Administration was managed (part-time) by Ramona Fischer, a staff member from the IMU Secretariat (WIAS Berlin) and was supported (part-time) by the IMU project assistant (Imren Karci). The financial transactions were carried out by the IMU Accountant. Additional support came for the IMU Secretariat Manager (Sylwia Markwardt) and the IMU Technician (Frank Klöppel). The salaries of the IMU Secretariat staff are covered from the grant the Secretariat receives from the City of Berlin and the German Ministry of Education and Research. The IMU Secretariat is hosted by the *Weierstrass Institute for Applied Analysis and Stochastics* (WIAS) in Berlin, Germany. The IMU staff members are employed at WIAS. The costs of the website and all technical costs are mainly covered by the IMU Secretariat funds (WIAS). The IMU Secretariat has received from the Simons Foundation USD 5,000 in 2019 to cover basic administrative costs of the IMU-Simons African Fellowship program. The GRAID program is administrated by the GRAID Selection Committee, supported by AMS and FIMU. The Breakout Fellowship Program is supported by IMU Secretariat and TWAS (The World Academy for Science). TWAS has received in 2019 USD 10,350 from FIMU.

CDC Income 2019

Many of the CDC programs are funded by the generous donations of individual mathematicians and organizations, as it has been described above. Apart from these donations, CDC's principal source of 'core' income is an annual grant from the International Mathematical Union (IMU). IMU in turn receives its financial support from IMU member countries. The Income part of the Financial Statement attached includes besides the IMU year grants to CDC, the support (additional to the grant for the Abel Visiting Scholar Program) received during 2019 from Niels Henrik Abel Board, the donations from the American Mathematical Society (AMS), the Japanese Mathematical Society and the Swiss Mathematical Society.

The Commission for Developing Countries would like to express its profound thanks to all institutions and individuals supporting CDC and its activities. Furthermore CDC would like to extend its thankfulness to all volunteers. We are truly appreciative of those individuals who dedicate their time to support all CDC activities: as members of evaluation committees, as Volunteer Lecturers, as donors of mathematical materials and as organizers of CDC activities and who help current and future generations both at home and within the mathematical community abroad. CDC is looking forward to future collaboration with all its supporters, cooperation partners and volunteers.

More information about CDC and its activities can be found on the website: www.mathunion.org/CDC

Olga Gil Medrano, CDC Secretary for Policy.

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

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

Report of the ICHM to the IMU 2019

by June Barrow-Green (Chair)

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 Milan, Italy) niccolo.guicciardini@unimi.it

Secretary

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

Treasurer

Martina Schneider (University of Mainz, Germany) mschneider@mathematik.uni-mainz.de
(from 18 May 2019)

Henrik Kragh Sørensen (University of Copenhagen, Denmark) henrik.kragh@ind.ku.dk (to 18 May 2019)

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

Isobel Falconer (School of Mathematics and Statistics, University of St Andrews, Scotland)
ijf3@st-andrews.ac.uk

Catherine Goldstein (Institut de mathématiques de Jussieu-Paris Rive gauche, Paris, France)
catherine.goldstein@imj-prg.fr

Ex-Officio

Craig Fraser (University of Toronto, Canada) craig.fraser@utoronto.ca (immediate past chair)
Reinhard Siegmund-Schultze (University of Agder, Norway) reinhard.siegmund-schultze@uia.no (editor *Historia Mathematica*)
Nathan Sidoli (Waseda University, Japan) sidoli@waseda.jp (editor *Historia Mathematica*)

The Executive Committee of the ICHM has one ‘listening member’, Kathleen Clark (USA), who represents the International Study Group on the Relations between the History and Pedagogy of Mathematics (HPM) which is an affiliate of the IMU.

The Executive Committee of the ICHM had four electronic meetings (E-meetings) in 2019.

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

N/A

c. Details of membership of the Commission

There are 43 National Members of the ICHM: Algeria, Australia, Austria, Belgium, 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, Tunisia, Turkey, United Kingdom, USA.

Individuals are listed at <http://www.mathunion.org/ichm/about-us/members>

d. URL of Commission website

<http://www.mathunion.org/ichm>. It is updated whenever necessary, e.g. to include changes in membership, reports of meetings, etc.

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* (baltimore, Maryland, USA, January 16-19, 2019).

ICHM Co-sponsored 30th Novembertagung on the History of Mathematics (Institut de Recherche Mathématique Avancée (IRMA) of the University of Strasbourg, France, October 31– November 2, 2019). This meeting is for, and organised by, young scholars in history of mathematics.

ICHM Co-sponsored The Mathematical Book Trade in the Early Modern Period, a research symposium held in Oxford, UK, December 19–20, 2019.

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. Activities supported in the last year.

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 Treasurer of the ICHM, Henrik Kragh Sørensen, resigned last year. The Commission is very grateful to him for all the work he has done on the Commission's behalf since his election as Treasurer in 2012. His replacement, Martina Schneider, was elected (in a competitive election) by the Executive Committee of the ICHM in May 2020. The ICHM is in the process of moving its bank account (from Denmark) permanently to Berlin to the same bank as the one used by the IMU. Martina Schneider is in communication with the IMU Treasurer, Alexander Mielke, about this.

3. Future plans

a. Activities planned for the next year.

ICHM Co-Sponsored *AMS-MAA Special Sessions on History of Mathematics* (Colorado, USA, January 14-18, 2020). No financial aid is requested.

Funds have been allocated to young scholars organizing symposia and speaking at the joint [BSHM/CSHPM conference](#), St Andrews, Scotland, 6–8 July 2020. So far, four symposia have each been allocated 1500 Euros towards travel and accommodation.

Funds will be made available to support the 2020 Novembertagung, the meeting for young scholars in history of mathematics, to be held at the Humboldt University Berlin, Germany.

A call has gone out to the membership of the ICHM for organisers of symposia at the 26th ICHST in Prague 2021. At past Congresses, the ICHM has sponsored three or four symposia, and provided funding for several early-career scholars. We expect to do the same for Prague.

4. Financial report

Expenditure for 2019: *Novembertagung* 2019: 2534 Euros; *Mathematical Book Trade in the Early Modern Period*: £500.

Income for 2019: DHST grant US\$1668; 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. A summary of how the funds are used together with scans of receipts are required.

The ICHM has reserves built up from previous years and the EC has agreed, in line with the ICHM's priority for supporting young scholars, that additional funds should be made available to support young scholars at the joint BSHM/CSHPM Conference at St Andrews in July 2020 (see above). Thus for 2020

we are budgeting for US\$300 (administrative costs relating to the transfer of the ICHM bank account to Berlin) and US\$9500 (conference support). The conference support will be for the BSHM/CSHPM Conference to be held in St Andrews in July 2020 and the Novembertagung to be held in Berlin in November 2020. In addition to this, there may be other conferences in 2020 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 2019

CEIC met in October, 2019 at the IMU office in Berlin. At this meeting, we welcomed new CEIC members Marie Farge, Rajeeva Karandikar, and Mila Runnwerth, as well as Nalini Joshi, our new liaison to the IMU Executive Committee. After some minor edits to the CEIC terms of reference and website (as well as discussion of using social media for CEIC outreach, which we decided could be valuable but was not a priority for implementation), we dealt with the following main topics:

1 Global Digital Mathematics Library (GDML)

Patrick Ion gave a presentation on the history and status of the GDML, as well as the International Mathematical Knowledge Trust (IMKT). Having a uniform and open way to access as much of the mathematical literature as is reasonably possible is an important goal of the IMU, but progress has been frustratingly slow. In particular, there has been little success in obtaining access to back issues, and instead much of the activity has been devoted to tools for dealing with mathematical information. This is of real value, but it does not directly help get past the fi hurdle in creating the GDML. In the CEIC meeting, we discussed what would be required to bring this about, potential budgets, and ways the IMU Executive Committee could help move the process along.

2 Existing digital libraries

We also discussed a number of existing libraries that have some coverage of mathematics, including the following:

1. EuDML, <https://eudml.org/>
2. Réseau National des Bibliothèques de Mathématiques, <https://www.rnbnm.org/>
3. HathiTrust, <https://www.hathitrust.org/>
4. Göttinger Digitalisierungszentrum, <https://gdz.sub.uni-goettingen.de/>
5. ISTEEX, <https://www.istex.fr/>

6. SciELO, <http://www.scielo.br/>
7. Digital Mathematics Registry, <https://mathscinet.ams.org/dmr/>
8. Dissemin, <https://dissem.in/>

Sci-Hub is another obvious example, but of course there are legal issues with its approach.

3 CEIC recommendations and best practices

Some CEIC recommendations are out of date, including those on copyright and journal best practices. They are not wrong, but they need to be updated to reflect contemporary issues:

- The copyright recommendations should include background for mathematicians on copyright, discussion of open access and different licenses, best practices for copyright agreements that do not use an open license, and institutional open access policies. They should also discuss research data and software, which typically require different sorts of licenses.
- The journal best practices document should address predatory journals, falsely listed editors, ownership of journals, transparency for payments, written policy documents for editors accepting this position, best practices for journals without institutional support, and avoiding reviewer fraud.

CEIC is working on updates. Potential CEIC documents for the future include:

- Call to make research data available.
- Recommendations on metadata for papers and journals, archiving.
- Open access funding models.
- Computer-assisted proofs and formal proofs.
- Metrics and altmetrics.

However, bringing the existing documents up to date is a higher priority.

4 Citation statistics

This is a tough issue: citation statistics are easy to abuse and difficult to use in a helpful or responsible way, but some applications are certainly much worse than others. Is it possible for the IMU to give some guidance here and draw distinctions, without seeming to endorse practices that, even in their best form, still cause serious concern? For example, can we communicate the message that unnormalized metrics are worse than normalized metrics, without seeming to endorse the use of normalized metrics? CEIC has not yet reached consensus on this topic. Important issues include openness of tools and data, legibility of algorithms, and the fact that behavior can adapt to evaluation methods and thereby ruin the quality of the evaluation.

5 Open access funding models

This is another contentious issue. Funding models include article processing charges and read/publish agreements, as well as more traditional approaches such as subscriptions (or subsidization in other ways). It would not make sense for the CEIC to make specific recommendations for funding models, before the community gets more experience with how these approaches play out in practice, but it would be useful to have a best practices document laying out basic principles such as transparency or fee waivers. That is currently a second priority, behind the revisions discussed above.

6 ICM Structure Committee

There are about 180 talks at each ICM. How should they be distributed among different subfields? Current practice is more or less to repeat the same distribution, which suggests math hasn't changed over the years. On the other hand, any changes need to be well thought out and defensible. The ICM Structure Committee was tasked by the IMU with looking into this issue. At the CEIC meeting, we discussed data that could help the Structure Committee, particularly from Mathematical Reviews and zbMATH.

7 International Science Council Committee on Data (CODATA)

As IMU delegate, Henry Cohn attended the CODATA General Assembly. Most CODATA activities have little need for direct IMU involvement, but CODATA did request an IMU contact person for their Digital Representation of Units of Measure project. IMU Secretary General Helge Holden nominated Johan Hoffman to play this role.

3.5. Committee for Women in Mathematics (CWM)

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

Report of the IMU Committee for Women in Mathematics in 2019

Committee Members

The composition of CWM 2019-2022 is as follows

- Marie-Françoise Roy (MFR), Université de Rennes 1, France, Chair
- Carolina Araujo (CA), IMPA, Rio de Janeiro, Brazil, Vice Chair
- Alejandro Adem (AA), University of British Columbia, Canada
- Petra Bonfert-Taylor, (PBT) Dartmouth College, USA (web management)
- Tony Ezome (TE), USTM, Franceville, Gabon
- Josephine Kagunda (JK), University of Nairobi, Kenya
- Neela Nataraj (NN), IIT Bombay, India (grant management)
- Mokoto Kotani (MK), Tohoku University, Japan
- Ekin Ozman (EO), Bogazici University, Turkey (CWM Newsletter management)
- Cheryl Praeger (CP), University of Western Australia, Australia (reports management)

The liaison person between CWM and IMU EC is Carlos Kenig (CK), University of Chicago, USA

CWM has moreover two special contacts:

- Betül Tanbay (BT), Bogazici University, Turkey (link to International Day of Mathematics).
- Julia Pevtsova (JP), University of Washington (link with ICM 2022 local organizing committee)

Activities supported by CWM 2019 call

The CWM 2019 call for Networks and Schools received 40 applications that could be classified in the categories Networks, Projects, Schools, Individual support and Workshops. CWM decided to support 7 of them that included 6 Networks and 1 School. The total amount that was funded for these activities is 15000 euros. The *Network Activities* were in Indonesia, Argentina, South Africa, India, Dominican Republic and Cameroon, the *School* was in Tunisia. A total of about 500 people attended, with at least 2/3 women.

For more information on the activities supported by CWM 2019 call, see Annex A.

CWM meeting at ICTP

The first meeting of the 2019-2022 CWM took place on 9-10 November 2019 at ICTP, immediately after the final conference of the Gender Gap in Science project.

Eight members, as well as CK, EC liaison for CWM attended and the two other members have prepared actively through skype meetings with MFR and/or CA. JP was invited in connection to (WM)² and ICM2020 and Claudio Arezzo, head of ICTP Math Group participated to a session.

The program was as follows

- presentation of CWM members and group picture
- description of CWM's past activities since 2015
- discussion about the Gender Gap Project and how to implement its recommendations inside MU
- discussion about CWM future activities, including CWM call for activities in 2020
- discussion about (WM)² in Saint Petersburg as satellite to ICM 2022

For a detailed report of the CWM Meeting see Annex B.

CWM Newsletter

CWM decided to have CWM Newsletter twice a year, EO is in charge.

The Newsletter is sent electronically to CWM ambassadors who distribute it through their mailing lists, posted on CWM website and advertised in IMU-Net. Moreover, it is sent to various mathematical centers (MSRI, MFO, CIRM, etc.) which are encouraged to make it available.

- First issue on May 2019. Content: Editorial, Interview with a CWM member (MFR), News from CWM (i.e. results of 2019 call), data from previous CWM calls, News and Announcements, Conference, Meeting announcements, Book Review: Proceedings of (WM)² CA.
- Second issue end on November 2019. Content: Editorial, Interview with a CWM member (PBT), News from CWM (announcement of 2020 call, summary/conclusions of CWM meeting at

ICTP), highlighting some CMW initiatives such as CWM ambassadors, article about final meeting of Gender Gap project, other news and announcements, conference and meeting announcements, article about database of good practices by Merrilyn Goos (which was a part of the Gender Gap in Science project).

See Annexes C and D.

(WM)² book

The book World Women in Mathematics 2018

Proceedings of the First World Meeting for Women in Mathematics (WM)² , Vol. 20

C. Araujo, G. Benkart, C. Praeger, B. Tanbay (Eds.)

was published at the end of 2019 in the Association for Women in Mathematics Series (Springer)

Presentation: The first World Meeting for Women in Mathematics - (WM)² - was a satellite event of the International Congress of Mathematicians (ICM) 2018 in Rio de Janeiro. With a focus on Latin America, the first (WM)² brought together mathematicians from all over the world to celebrate women mathematicians, and also to reflect on gender issues in mathematics, challenges, initiatives, and perspectives for the future. Its activities were complemented by a panel discussion organized by the Committee for Women in Mathematics (CWM) of the International Mathematical Union (IMU) inside the ICM 2018 entitled "The gender gap in mathematical and natural sciences from a historical perspective".

This historical proceedings book, organized by CWM in coordination with the Association for Women in Mathematics, records the first (WM)² and the CWM panel discussion at ICM 2018. The first part of the volume includes a report of activities with pictures of the first (WM)² and a tribute to Maryam Mirzakhani, the first woman to be awarded the Fields medal. It also comprises survey research papers from invited lecturers, which provide panoramic views of different fields in pure and applied mathematics. The second part of the book contains articles from the panelists of the CWM panel discussion, which consider the historical context of the gender gap in mathematics. It includes an analysis of women lecturers in the ICM since its inception.

This book is dedicated to the memory of Maryam Mirzakhani.

CWM call in 2020

The CWM 2020 call invited application aimed at either:

- a) Establishing or supporting networks for women in mathematics, preferably at the continental or regional level, and with priority given to networks in developing or emerging countries.
- b) Organizing a mathematical school open to all with all women speakers and mainly women organizers.
- c) Organizing research workshops geared towards establishing research networks for women by fostering research collaborations during the event.
- d) Other ideas for researching and/or addressing issues encountered by women in mathematics

The call received 34 applications. Due to the date of the CWM meeting at ICTP the call was launched at the end of November, with a deadline on January 15 2010 and the selection process is on-going.

For the text of the CWM 2020 call, see Annex E.

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?*" led by the IMU and the International Union of Pure and Applied Chemistry (IUPAC), was funded by ISC during the period 2017-2019 (with a budget of €100 000 per year in 2017, 2018 and 2019). The budget was completed by contributions of the partners.

Year 2019 was devoted to analyzing the results from the Global Survey of Scientists and the Joint data-backed Study on Publication Patterns, and to formulate recommendations to be proposed for implementation to the partners of the project. More information can be found at <https://gender-gap-in-science.org/>

The final conference of the project took place on November 4- 8 2019. ICTP Trieste had agreed to host a jointly sponsored conference, with the following programme:

- Report on the findings and achievements of the project.
- Discussion and evaluation of the results of the project.
- Formulation of recommendations and discussion of new initiatives.

More information can be found at <http://indico.ictp.it/event/8731/>

A book, illustrated by original cartoons of Lea Castor, is presenting the methodology, results, activities and recommendations of the project, with the following chapters.

- A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: Results and Recommendations by Marie-Françoise Roy, Colette Guillopé, Mark Cesa
- Measuring and Analyzing the Gender Gap in Science through the Global Survey of Scientistst by Rachel Ivie and Susan White
- Measuring and Analyzing the Gender Gap in Science through the Joint Data-backed Study on Publication Patterns by Helena Mihaljević, Lucía Santamaría
- Some initiatives for Reducing the Gender Gap in Science: a Database of Good Practices by Merrilyn Goos and Regina Kelly
- Impact of the Gender Gap in Science Project in Africa, Asia and Latin America by Silvina Ponce-Dawson, Ile Gledhill, Mei-Hung Chiu
- Report of the Final Conference of the Gender Gap in Science Project, on 4-8 November 2019 at ICTP

Colette Guillopé, Marie-Françoise Roy,

The Gender Gap in Science book can be found in a preliminary form at https://gendergapinscience.files.wordpress.com/2020/02/final_report_20200204.pdf

Two issues should be discussed at the end of these three years

a) How to disseminate and implement the recommendations of the Gender Gap in Science Project (GGSP) inside IMU?

The recommendations in the report have been kept short and direct on purpose. They have been discussed and approved unanimously and enthusiastically by CWM. They are going to be widely distributed by CWM, in particular through the 140 CWM ambassadors. The first two parts of the

recommendations, for instructors and parents and for local organizations, have been inserted in IMU-Net 99. For lack of space and because of the readership of IMU-Net, the last part which consists of recommendations for the unions such as IMU have not be included. Would it be possible to distribute them to the Adhering Organizations of IMU as an information? Is there a method for them to be discussed inside IMU and (hopefully) transformed in official recommendations of IMU? And more generally what can be done by IMU to help implement also the first two parts of the recommendations?

b) How to keep the GGSP alive?

All union and organization representatives in the project wish the project results and its associated tools to remain available well beyond the end of the 2017-2019 period during which it received funding from the ISC. Dissemination of our results and coordination towards the implementation of our recommendations is essential and research questions raised by the tasks of the project are numerous. The GGSP is moreover eager to participate in the scoping workshop planned by ISC for the "Gender- transformative science" ISC objective (which should take place on June 1 2019 in Paris).

Our minimal plans for the future are the following:

- to use current technology ("data suppression technique") in order to provide access to the data collected through the Global Survey of Scientists to all participating unions and partners of the project, as well as to other research groups upon approval by an ad-hoc committee, while protecting the privacy of the respondents to the survey;
- to organize the long-term availability and maintenance of the tools of the project for the analysis of Publication Patterns and the Data Base of Good Practices.

We have contacted Simons Foundation and received a negative answer from Yuri Tshinkel "We met with Jim yesterday afternoon. He decided that this project falls outside the scope of MPS." There are probably other foundations that we could contact but it will take some time to approach them.

So we asked IMU to renew its 20 000 euros funding during 2020, for a fourth year. This would very likely have the effect of convincing the other partners of the project to renew their funding as well and we would then have a 50 000 euros budget available making us able to implement our minimal plans and organize a coordination meeting of the partners in 2020.

See Annex F for the short report sent to ISC.

Remember Maryam Mirzakhani

As a tribute to Maryam Mirzakhani, CWM created the *Remember Maryam Mirzakhani Memorial Exhibition* with 18 original A0 posters portraying Maryam Mirzakhani. The exhibition was created by Thaís Jordão (curator) and Rafael Meireles Barroso (designer). It was inaugurated at the (WM)² and remained open during the ICM 2018.

Rules for further displays of the exhibition have been agreed (see

<https://www.mathunion.org/fileadmin/CWM/Initiatives/HostingRememberMaryamMirzakhani.pdf>)

A poster and flyer describing the exhibition are available in english and other languages (French, Persian and Turkish).

In 2019, CWM has an agreement with the following institutions:

- Canadian Mathematics Society's Winter Meeting hosted by York University, December 6 to 9, 2019.
- Fields Day @ Queen's, Canada, on November 19, 2019.
- INMOST, a science museum affiliated with the Ministry of Science, Research and Technology in

Iran. INMOST will run a permanent exhibition on the scientific achievements of Maryam Mirzakhani at the beginning of September 2019 for about 5 years, including the exhibition "Remember Maryam Mirzakhani".

- University of Rennes, France, October 14 to December 15.
- II Festival da Matemática (II Mathematics Festival) in Federal University of Rio Grande do Sul (UFRGS), Porto Alegre, in Brasil, from August 7 to 10.
- The Stanford Mathematics Department, USA, May 13-May 24.
- MSRI, Berkeley, USA, May 12 to end of August.
- The Fields Institute, Canada, May 10-17, 2019.
- Nesin Mathematical College, Turkey from May 15 to 29
- Istanbul Mathematics Festival, Turkey, on May 4-5 2019 on Galatasaray University Ortaköy campus.
- University of L'Aquila & Gran Sasso Science Institute, L'Aquila, Italy, May 9 to May 23.
- Lund University, Sweden May 8 to May 15.
- University of Sao Paulo, Brasil, May 1 to May 31.
- The Association for Women in Mathematics (AWM), US, Research Symposium April 6- 7.

May 12, Celebrating Women in Mathematics

The idea of celebrating women in mathematics on Maryam Mirzakhani's birthday, May 12, was proposed by the Women's Committee of the Iranian Mathematical Society at the World Meeting for Women in Mathematics (WM)² in 2018. After being approved by hundreds of attendees at the meeting, the "May 12 Initiative," often referred to simply as "May 12," rose to a global and inclusive call to action, uniting several national and continental women-in-mathematics organizations worldwide (European Women in Mathematics, Association for Women in Mathematics, African Women in Mathematics Association, Colectivo de Mujeres Matemáticas en Chile, Women's Committee of the Iranian Mathematics Society, Indian Women in Mathematics). The fact that the original idea sparked an overwhelming response, resulting in more than one hundred events being organized in its inaugural year, showcases that the initiative fulfills a strong need.

Several CWM members were active members in the coordination group of May 12 initiative (MFR, CA, PBT) on an individual basis. Indeed IMU was at the same time involved in an intense diplomatic campaign to have March 14 (Pi day) recognized as International Day of Mathematics by UNESCO, to be launched in 2020, and the IMU President and General Secretary feared that another international initiative involving IMU would create confusion.

See Annex G

May 12: Celebrating Women in Mathematics From One Idea to One Hundred Events Nikita Agarwal, Carolina Araujo, Petra Bonfert-Taylor, Mojgan Mahmoudi, Marie Françoise Ouedraogo, Olga Paris-Romaskevich, Marie-Françoise Roy, Elisabetta Strickland, and Andrea Vera Gajardo
Notices of the AMS, December 2019.

International Day of Mathematics

CWM was active in promoting the project of IDM before its approval. This is reflected in the list of international and regional organizations supporting IDM, which includes the Organization for Women in Science for the Developing World (OWSD), the African Women in Mathematics Association (AWMA) and the European Women in Mathematics (EWM)). Betül Tanbay has been nominated by CWM and is a member of the IDM Governing Board (IDMGB).

Now that IDM is approved, it will be important to keep in mind the objective of gender balance and visibility of girls and women in IDM activities.

Electronic CWM meeting

It is planned on Friday September 25. MFR and CA will be together in Rennes to lead the meeting.

CWM ambassadors

CWM has compiled and contacted a list of more than 140 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.

Having in mind to make sure that the dissemination of information through the ambassadors is active in both directions, MFR and CA are in charge of preparing a questionnaire for the ambassadors. If an ambassador is not active, a more active one will be looked for to replace her.

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

CWM website and publicity

The CWM website <http://www.mathunion.org/cwm/> has been updated on a regular basis, mainly by PBT but also by MFR, with input from CWM members and ambassadors. In particular details of relevant events are posted.

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.

CWM flyer, poster

CWM posters and flyers have been updated and slightly redesigned. Organizers of CWM funded events are encouraged to post and distribute them.

See <https://www.mathunion.org/cwm/initiatives/cwm-initiatives>

CWM operation mode and Liaison with EC

With the exception of the meeting described above, most of CWM's work has been done by email. Skype and phone calls have also been used. The liaison with EC through CK has been regular and very positive. We would like to thank Sylwia Markwardt and all the other members of the IMU office staff who have consistently been very helpful.

Report by Marie-Françoise Roy and Carolina Araujo, Chair and Vice Chair of CWM

Annexes

A) Report of the CWM call 2019

- B) Report of the CWM meeting
- C) CWM Newsletter 1
- D) CWM Newsletter 2
- E) CWM Call 2020
- F) Report to ISC 3 years of Gender Gap project
- G) May 12 Notices AMS
- H) List of CWM ambassadors

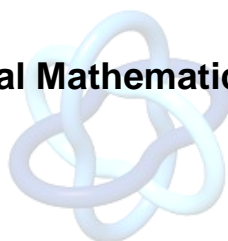
CWM Expenditure 2019

expenses		
CWM funded activities	15 219,30 €	
CWM meeting at ICTP	6 990,06 €	
Late reimbursement related to Rio	326,55 €	
communication (flyer, website)	634,89 €	
Total expenses	23 170,80 €	
income		
Remainder from 2018	-165,50 €	
IMU CWM 2019	25 878,00 €	
Total income	25 712,50 €	

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

IMU AO Circular Letter 1/2019

International Mathematical Union



January, 2019
IMU AO Circular Letter 1/2019

To: The Adhering Organizations of the International Mathematical Union (IMU)
From: Helge Holden, IMU Secretary

Updated Contact Information

Dear colleagues,

I will shortly send out individual emails to all IMU members regarding your country's contact information for the IMU.

The most recent contact information regarding the IMU members can be found at <https://www.mathunion.org/membership/imu-members>.

We will send you the email addresses that we use when we contact your country. Please take time to check if you want us to update them.

Please reply to me with Cc to manager@mathunion.org
– Confirming that the information above is correct, or
– Sending corrected/updated information.

In order to establish and maintain reliable and sustainable connections with the IMU, the following steps are recommended:

1. Create generic addresses like "president@mathsociety.country", which will remain unchanged. Emails to a generic address can be forwarded to the person(s) holding the office.
2. Emails sent from the IMU should be received by at least two different recipients. I frequently receive automatic replies saying "I am away from my email", often covering long time periods of absence.
3. Give us at least two different email addresses, preferably using different mail servers. If we have only one email address for a country, and that address ceases to work, we will be unable to discover that you did not receive our email, and, thus, we will lose contact with your country.

4. Please try to maintain the email addresses you give us and send us updates if necessary. We reserve the right to remove addresses that constantly bounce.

5. Please create a stable URL for your Adhering Organization.

Thank you.

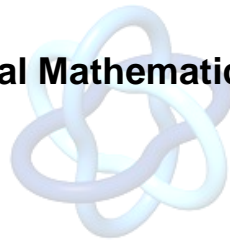
Sincerely

Helge Holden

Secretary General of the International Mathematical Union

IMU AO Circular Letter 2/2019

International Mathematical Union



January 10, 2019

IMU AO Circular Letter 2/2019

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

From: Helge Holden, IMU Secretary

The IMU-Net

Dear colleagues,

The IMU has since 2003 published an electronic newsletter aiming to improve communication between IMU and the worldwide mathematical community, by reporting decisions and recommendations of IMU, and highlighting issues that are under discussion.

In addition, IMU-Net will report on major international mathematical events and developments, and on other topics of general mathematical interest. Martin Raussen of Aalborg University, Denmark is the editor of the IMU-Net. His email address is imu-net-editor@mathunion.org.

Due to the GDPR (General Data Protection Regulation) directive introduced by the European Union in 2018 in order to protect personal privacy, we had to cancel all current subscriptions. You will have to re-subscribe to the IMU-Net in order to continue receiving it. Please go to

<https://www.mathunion.org/organization/imu-net>

and resubscribe today! If you received the *IMU-Net 92: November 2018*, you have already re-subscribed, and no further action is required.

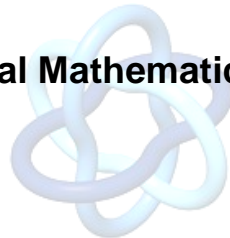
Please distribute this information in the mathematical community in your country.

Thanks.

Regards
Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 3/2019

International Mathematical Union



January 10, 2019

IMU AO Circular Letter 3/2019

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

From: Helge Holden, IMU Secretary

The ICM Structure Committee

Dear colleagues,

At the 2018 General Assembly of the IMU in São Paulo it was decided on the recommendation of the Executive Committee to establish the ICM Structure Committee (SC).

Let me first give you the background. Up to ICM 2018, the responsibility to determine the scientific program (sections and the number of talks in each section), appoint panel members who recommend the speakers as well as decide all speakers for the forthcoming ICM, has resided with the omnipotent Program Committee (PC). It is a fact that the sections have varied very little over time. The aim now is to keep pace with and reflect the development of all fields of mathematics in order to make the ICM a showcase of modern mathematics.

The ICM Structure Committee will be responsible for the scientific program of the next ICM in St Petersburg, while leaving the selection of the speakers with the PC. Former IMU President László Lovász is the Chair of the SC.

Membership of the ICM Structure Committee is as follows:

László Lovász [Chair]
Carlos Kenig [IMU President, ex officio]
Nalini Anantharaman
Alexei Borodin
Annalisa Buffa
Irene Fonseca
János Kollár
Terry Lyons
Stephane Mallat
Hiraku Nakajima
Terence Tao
Éva Tardos
Peter Teichner
Akshay Venkatesh
Anna Wienhard

The ICM Structure Committee is encouraged to interact with the mathematical community worldwide.

The Chair László Lovász can be contacted at <chair@sc22.mathunion.org>.

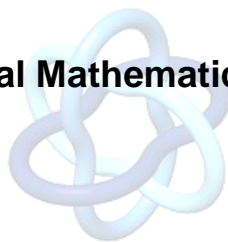
Regards

Helge Holden
Secretary of the International Mathematical Union

Encl.

IMU AO Circular Letter 4/2019

International Mathematical Union



January 31, 2019
IMU AO Circular Letter 4/2019

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

From: Helge Holden, IMU Secretary

Program Committee for the ICM 2022

Dear colleagues,

One of the important tasks of the Executive Committee of the IMU is to establish the Program Committee (PC) for the International Congress of Mathematicians (ICM). The next ICM will take place in St Petersburg in 2022.

The PC is responsible for the selection of all speakers at the ICM in 2022. You are hereby invited to propose members for the PC. Members of the PC cannot speak themselves at the ICM.

Please note that members of recent Program Committees are not eligible (a list of all former PCs can be found at <https://www.mathunion.org/icm/past-icms>).

Your proposal should include a brief letter of recommendation as well as a CV of the candidates [pdf-format only]. Candidates should not be contacted prior to the nomination, as the composition of the PC (except its chair) will only be made public at the ICM 2022.

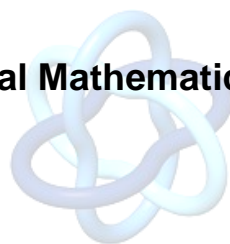
The **deadline is 20 February 2019**, and proposals should be sent to me at secretary@mathunion.org.

Sincerely

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 5/2019

International Mathematical Union



February 18, 2019
IMU AO Circular Letter 5/2019

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

From: Helge Holden, IMU Secretary

Changes in the ICM Structure Committee

Dear colleagues,

I refer to Circular Letter 3/2019 regarding the ICM Structure Committee (SC).

The chair of the SC, László Lovász, has asked, citing the workload of the job as President of the Hungarian Academy of Sciences, to step down as chair of the committee, and continue as member-at-large of the SC. The IMU President, Carlos Kenig, has on the recommendation of Lovász, asked Terence Tao to take over as chair, and Tao has accepted the task.

Thus, membership of the ICM Structure Committee is as follows:

Terence Tao [chair]
Carlos Kenig [IMU President, ex officio]
Nalini Anantharaman
Alexei Borodin
Annalisa Buffa
Irene Fonseca
János Kollár
László Lovász
Terry Lyons
Stephane Mallat
Hiraku Nakajima
Éva Tardos
Peter Teichner
Akshay Venkatesh
Anna Wienhard

The Chair Terence Tao can still be contacted at <chair@sc22.mathunion.org>.

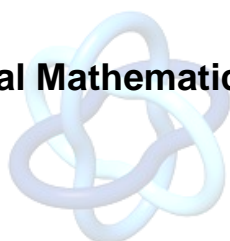
We would also like to point your attention to the blog
<https://terrytao.wordpress.com/2019/02/05/request-for-comments-from-the-icm-structure-committee/>
where everyone is invited to participate.

Regards

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 6/2019

International Mathematical Union



February 20, 2019
IMU AO Circular Letter 6/2019

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

From: Helge Holden, IMU Secretary

Nominations for the ICMI Executive Committee

Dear colleagues,

I refer to Circular Letter 21/2018 regarding the upcoming election to the ICMI Executive Committee for the term 2021–2024.

Please see the attached letter from Abraham Arcavi, Secretary General of the International Commission on Mathematical Instruction (ICMI), regarding this election. This is a very important issue for ICMI and the IMU, and we look forward to your active involvement in the process.

Regards

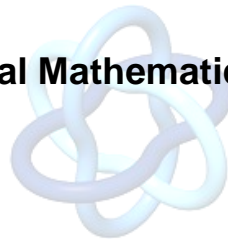
Helge Holden
Secretary General of the International Mathematical Union

Encl.

Final call for Nominations for EC 2021-24

IMU AO Circular Letter 7/2019

International Mathematical Union



March 5, 2019
IMU AO Circular Letter 7/2019

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

From: Helge Holden, IMU Secretary

Do you have old ICM proceedings?

Dear colleagues,

As you know, the IMU Archive is located in the IMU Secretariat in Berlin. It is our goal to collect all IMU related material in the IMU Archive.

While we have scanned copies of all proceedings of all the ICMs starting from 1893, we do not possess all hardcopies of all proceedings.

Thus we would like to inquire our members if you have a physical copy of the proceedings of some of the early ICMs, and if you would be willing to donate them to us. We can cover the shipping expenses.

The missing proceedings are:

1893	Chicago	
1893	The Evanston Colloquium	
1897	Zurich	
1900	Paris	
1904	Heidelberg	
1912	Cambridge (UK)	
1920	Strasbourg	
1924	Toronto	
1928	Bologna	
1932	Zurich	
1936	Oslo	
1962	Stockholm	[vols. 2-4 missing]
1966	Moscow	[vols. 2-4 missing]

For further inquiries, please contact the IMU Archivist, Ms Birgit Seeliger <archivist@mathunion.org>.

Scanned copies of all ICM proceedings can be found at <https://www.mathunion.org/icm/proceedings>.

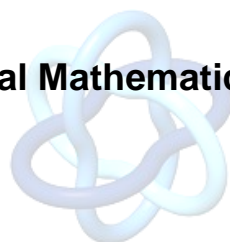
Thank you for your help in this matter.

Regards

Helge Holden
Secretary General of the International Mathematical Union

IMU AO Circular Letter 8/2019

International Mathematical Union



March 15, 2019
IMU AO Circular Letter 8/2019

To: The Adhering Organizations of the International Mathematical Union (IMU)
From: Helge Holden, IMU Secretary

Call for Themes for the International Day of Mathematics 2020

Dear colleagues,

As you know (see Circular Letters 7/2017 and 19-20/2018), the IMU is leading the project to have UNESCO proclaim March 14 (“Pi day”) as the International Day of Mathematics (IDM). Following the adoption of the project by the Executive Board of UNESCO in October 2018, the proclamation by UNESCO of March 14 as the International Day of Mathematics is on the agenda of the 40th General Conference of UNESCO in November 2019. Hence we have already started the preparations for an official launch on March 14, 2020, of the first IDM.

At its recent meeting, the Executive Committee (EC) of IMU decided the Terms of Reference and membership of the first Governing Board for the International Day of Mathematics. The Governing Board is chaired by Christiane Rousseau. The EC also decided to accept the bid submitted by IMAGINARY (<https://imaginary.org>) for building and running the IDM website.

Each year, the IDM Governing Board will propose a non-mandatory theme for the celebration of the IDM, and the Governing Board will choose this theme in consultation with the IMU Adhering Organizations and supporting organizations.

A call for proposals of the theme of IDM 2020 is open with deadline

April 30, 2019.

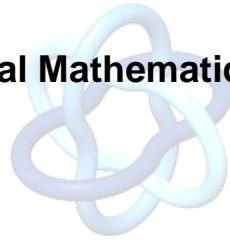
Please send suggestions for a theme, together with a short justification, by email to Christiane Rousseau at <ids@mathunion.org>.

Regards

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 9/2019

International Mathematical Union



March 26, 2019

IMU AO Circular Letter 9/2019

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

From: Helge Holden, IMU Secretary

Support sought for the new IMU Abacus Medal

Dear colleagues,

As you may remember, the 2018 IMU General Assembly charged the IMU Executive Committee with the responsibility (Resolution 7)

“...to determine and set up statutes for a prize continuing and with the same purpose and scope as the Nevanlinna Prize but with a new name and appropriate funding to be secured.”

Further details can be found in the attachment. We also attach the statutes for the Nevanlinna Prize.

We are now seeking support for the new prize, and the deadline is **1 October 2019**.

Regards

Helge Holden

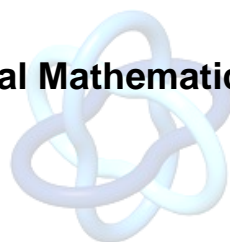
Secretary General of the International Mathematical Union

Encl.

- Call
- Statutes for the Nevanlinna Prize

IMU AO Circular Letter 10/2019

International Mathematical Union



May 10, 2019
IMU AO Circular Letter 10/2019

To: The Adhering Organizations of the International Mathematical Union (IMU)
From: Helge Holden, IMU Secretary

An invitation to write a monograph on the occasion of the centennial of the IMU

Dear colleagues,

The IMU was founded in 1920, and on the occasion of the upcoming centennial, the IMU EC proudly announces an invitation to write a monograph. The invitation is open for all. Please see the attachment for further details.

The deadline for submitting a bid is **1 August 2019**.

The project is generously funded by the Klaus Tschira Foundation in Heidelberg, Germany.

Regards

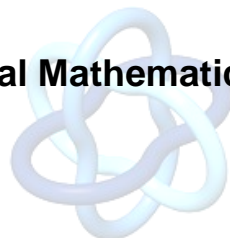
Helge Holden
Secretary General of the International Mathematical Union

PS: The IMU is also planning an event to celebrate its centennial. Further details will follow when available.

Encl.
– [Details regarding writing the monograph](#)

IMU AO Circular Letter 11/2019

International Mathematical Union



July 3, 2019

IMU AO Circular Letter 11/2019

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

From: Helge Holden, IMU Secretary

Postal ballot on application from Cyprus

Dear colleagues,

Cyprus has applied for full membership in group I of the IMU. The Executive Committee of the IMU unanimously recommends the application. The enclosed document which was submitted by the University of Cyprus, reports about the state of mathematics in Cyprus.

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

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

by **20 September 2019**

to the address indicated on the ballot form.

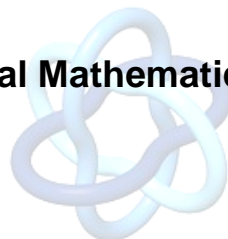
[Ballots are sent by regular mail only, as ballots sent out by email (with possibly multiple recipients) could lead to conflicting votes of one member country.]

Sincerely

Helge Holden
Secretary of the International Mathematical Union

IMU AO Circular Letter 12/2019

International Mathematical Union



July 4, 2019

IMU AO Circular Letter 12/2019

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

From: Helge Holden, IMU Secretary

Dates for the ICM 2022 and the 19th General Assembly

Dear colleagues,

Please note the following important information regarding the next International Congress of Mathematicians, the ICM 2022:

The ICM 2022 will take place 6–14 July 2022 in St. Petersburg, Russia.

The 19th General Assembly of the IMU will be held in St. Petersburg, on 3–4 July 2022.

The official website of the Congress is

<https://icm2022.org>

Please circulate this information in your community!

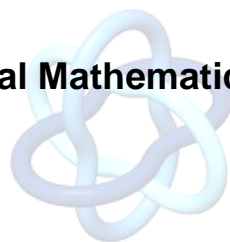
I hope to see you all at the ICM 2022!

Thanks

Helge Holden
Secretary General of the International Mathematical Union

IMU AO Circular Letter 13/2019

International Mathematical Union



July 25, 2019

IMU AO Circular Letter 13/2019

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 is sending out false emails in the name of IMU President Carlos Kenig.

Here is an example:

++++
From: "Carlos Kenig" <cek@math.uchicago.edu>
To: XXXX
Sent: Tuesday, 23 July, 2019 21:15:47
Subject: IMU - International Mathematical Union

Hi XXX,

How are you? Are you available or on holiday? I need your help with the International Mathematical Union (IMU) regarding logistical support payment for the Summer Research for Women in Mathematics program ..

I'll be waiting for your reply email soon.

Best regards,

Carlos Kenig

++++

A follow-up may look like this:

++++
From: "Carlos Kenig" <cek@math.uchicago.edu>
To: XXXX
Sent: Wednesday, 24 July, 2019 01:31:59
Subject: RE: IMU - International Mathematical Union

Dear XXX,

Thanks for the reply. The IMU has an urgent payment of € 2.963 to send to IMU Spanish delegate for logistical support payment for the Summer Research for Women in Mathematics program.

The IMU treasurer is unavailable due to a recent family emergency and will return to the office next week Monday.

As the IMU President, it is my duty to make this payment as soon as possible. However, due to some problems in modernizing my bank, I can not send an international fund until my bank has completed their upgrading. Knowing you are from European region and it will be easy for you to make a SEPA payment, I would like to ask you for a support to help pay the amount

*as we reimburse you on later.
We will have the amount reimbursed back to you as soon as the treasurer returns.
Please confirm that i forward to you the bank details for the payment if this is convenient for
you help make this payment?
I will really count on you on this one.*

I'll be waiting for your reply email soon.

Best regards,

Carlos Kenig

+++++

This is a fraud. Do not respond to it. Please note that all IMU email addresses have the format **<name>@mathunion.org**, and this applies in particular to the Reply-To address.

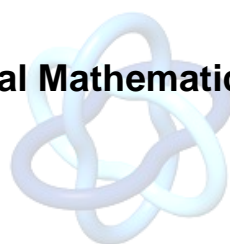
We apologize, and we will investigate it further.
Please let us know if you have been contacted similarly, as we would like to see the extent of this attempted fraud.

Regards

Helge Holden
Secretary General of the International Mathematical Union

IMU AO Circular Letter 14/2019

International Mathematical Union



August 31, 2019
IMU AO Circular Letter 14/2019

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

From: Helge Holden, IMU Secretary

Report from the ICM Structure Committee

Dear colleagues,

As you may recall, the 2018 General Assembly decided to create an ICM Structure Committee (SC) charged with the task to propose the structure for the ICMs. The decision of the actual speakers is left with the Program Committee (PC).

Terence Tao chaired the committee, whose membership is public. The SC has now finalized its report (attached). The IMU is very grateful to the members of the SC for their thorough job within the given tight timeframe.

The IMU Executive Committee (EC) has discussed the report and made the following decisions:

For the ICM 2022:

1. The EC endorses the proposal of creating:
 - i. A new Section 17 (Statistics and Data Analysis) which replaces the old Section 17 (Mathematics in Science and Technology), and which also incorporates the Statistics part of the old Section 12 (Probability and Statistics), which now becomes Section 12 (Probability).
 - ii. A new Section 18 (Stochastic and Differential Modeling), which expands on aspects of the old Section 17 (Mathematics in Science and Technology).

The rationale for these changes is to start the process of enhancing the representation of applied mathematics in the ICM, and to keep up with recent ground-breaking developments in applied mathematics.

2. The EC endorses the given Sections with its descriptors and with the given base lecture slots.
3. The EC endorses the proposal to leave 20 sectional talks to the discretion of the PC, as described in the SC report.
4. The EC endorses the proposal to leave 2–3 plenary for “special plenary lectures” as described in the SC report.
5. The EC recommends that the opening ceremony be streamed, while the recording of other lectures should be made available later to the mathematical community by the organizers in a timely fashion. Videos are to be stored at the IMU Secretariat.
6. The EC asks that local organizers conduct an exit survey for ICM participants in order to guide subsequent SCs in their work.

For ICMs past 2022:

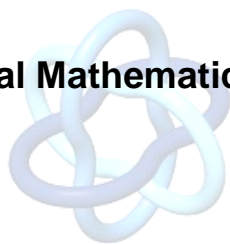
7. The EC asks that the SC proposes a dynamic mechanism on how the size of each Section can reflect the activity in the various subfields of mathematics. This can be applied for the ICM 2026.

Sincerely

Helge Holden
Secretary General of the International Mathematical Union

IMU AO Circular Letter 15/2019

International Mathematical Union



September 16, 2019
IMU AO Circular Letter 15/2019

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

From: Helge Holden, IMU Secretary

Call for bids for the ICM 2026

Dear colleagues,

This letter is about the International Congress of Mathematicians to be held in the year 2026 (ICM 2026).

One of the objectives of the International Mathematical Union defined in the IMU Statutes is

“... To support and assist the International Congress of Mathematicians ...”,

The IMU Executive Committee (EC) cordially invites all Adhering Organizations and national mathematical societies in IMU members to submit bids for hosting the International Congress of Mathematicians in the year 2026 and the IMU General Assembly meeting prior to this Congress.

Only electronic submissions are accepted. Submissions should be sent to secretary@mathunion.org.

For a bid to be considered by the Site Selection Committee it must be received no later than

30 November 2021.

The Site Selection Committee will evaluate all bids received, taking into account, but not restricted to, the mathematical ambience, the infrastructure and the economic conditions offered by each bidder, as well as the accessibility of the proposed site, the involvement of the local mathematical community, and the geographical distribution of places where ICMs took place in the past.

The IMU EC will prepare a recommendation based on the SSC's advice and refer this recommendation to the 19th IMU General Assembly (GA), which will take place in St. Petersburg, Russia, on 3–4 July 2022 prior to the ICM.

The GA will make the final decision on the location of ICM 2026.

Attached hereto are the ICM Bidding Guidelines endorsed by the IMU General Assembly 2018, and updated by the EC, providing advice and instructions to potential bidders. Please read the guidelines carefully. The IMU has secured the web site icm2026.org to be used for the ICM 2026.

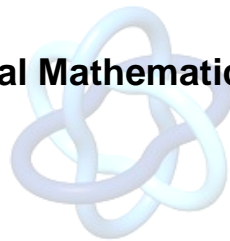
Every country interested in making a bid for ICM 2026 is strongly encouraged to do so.

Sincerely

Helge Holden
Secretary General of the International Mathematical Union

IMU AO Circular Letter 16/2019

International Mathematical Union



September 26, 2019
IMU AO Circular Letter 16/2019

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

From: Helge Holden, IMU Secretary

Result on application from Cyprus

Dear colleagues,

I am happy to report about the outcome of the postal ballot on the application for full membership from Cyprus, see IMU AO Circular Letter 11/2019.

The vote on the application for IMU Membership yielded a positive result.

As of October 2019, Cyprus is a Member in Group I of the IMU.

Thank you for your contribution.

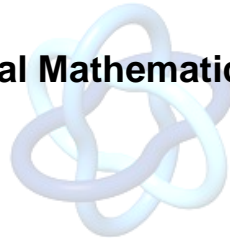
Regards

Helge Holden

Secretary General of the International Mathematical Union

IMU AO Circular Letter 17/2019

International Mathematical Union



July 10, 2019

IMU AO Circular Letter 17/2019

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

From: Helge Holden, IMU Secretary

UNESCO proclaims March 14 as the International Day of Mathematics

Dear colleagues,

For the last years, IMU has led the project to have UNESCO proclaim March 14 (Pi Day) as the International Day of Mathematics (IDM).

The IMU is pleased to announce that today the 40th General Conference of UNESCO approved the Proclamation by UNESCO of March 14 as the International Day of Mathematics.

Official launch of the IDM

Since March 14, 2020 is a Saturday, the international official launch will take place on Friday March 13, 2020. There will be two parallel international events: the first one in Paris at the UNESCO Headquarters, and the second one, an African launch, as a plenary event at the Next Einstein Forum 2020 (March 10–13, 2020) in Nairobi, Kenya.

Website of the IDM

The IDM website is www.idm314.org. Countries and organizations are invited to announce their celebrations. A media page, very soon to be online, will contain material to be used by the organizers (logo and flyers in different languages). Open Source material related to the theme will also be available.

IDM theme for 2020

The theme for IDM 2020 is *Mathematics is everywhere*. Descriptions in several languages can be found on the website www.idm314.org.

Invitation to celebrate

We invite your Adhering Organization to spread the word in your country and invite your community to celebrate at different levels: schools, public, media or national celebrations. Invitations to celebrate in several languages can be found in the media page on the website as soon as it is online.

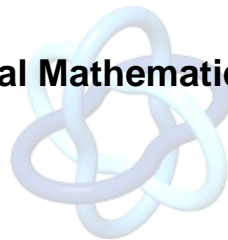
The IMU is deeply grateful to Christiane Rousseau for taking the initiative to create the IDM, for leading the process all the way to the successful proclamation by UNESCO, as well as agreeing to chair the IDM Governing Board.

Regards

Helge Holden
Secretary General of the International Mathematical Union

IMU AO Circular Letter 18/2019

International Mathematical Union



December 13, 2019
IMU AO Circular Letter 18/2019

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

From: Helge Holden, IMU Secretary

ICM Proceedings from 1893, 1897, 1900, and 1904

Dear colleagues,

I refer to my IMU Circular Letter 7/2019, see
https://www.mathunion.org/fileadmin/IMU/Publications/CircularLetters/2019-2020/IMU%20AO%20CL%207_2019.pdf

I would like to thank all who responded to our request. We received many of the proceedings where we did not have hardcopies. Thanks a lot!

Currently, the ICM proceedings where we do not have hardcopies in the IMU Archive are

1893 Chicago
1893 The Evanston Colloquium
1897 Zurich
1900 Paris

1904 Heidelberg

If you have a physical copy of any of these proceedings and are willing to donate them to the IMU Archive, we would appreciate if you contacted the IMU Archivist, Ms Birgit Seeliger <archivist@mathunion.org>.

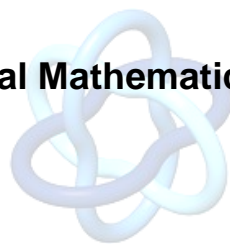
Scanned copies of all ICM proceedings can be found at <https://www.mathunion.org/icm/proceedings>.

Regards

Helge Holden
Secretary General of the International Mathematical Union

IMU AO Circular Letter 19/2019

International Mathematical Union



December 13, 2019
IMU AO Circular Letter 19/2019

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

From: Helge Holden, IMU Secretary

IMU Bulletin No. 69 (for 2017)

Dear colleagues,

The IMU Bulletin No. 69, reporting about the IMU activities in 2017, is available on the IMU Web server at <https://www.mathunion.org/membership/imu-bulletins>

This year we do not intend to send out printed versions. However, printed versions will be sent out on request.

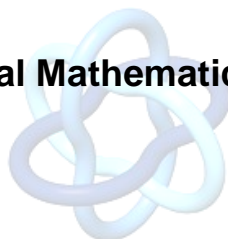
I apologize sincerely for the unreasonably delayed publication.

Regards

Helge Holden
Secretary General of the International Mathematical Union

IMU AO Circular Letter 20/2019

International Mathematical Union



December 13, 2019
IMU AO Circular Letter 20/2019

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

From: Helge Holden, IMU Secretary

IMU Bulletin No. 70 (for 2018)

Dear colleagues,

The IMU Bulletin No. 70, reporting about the IMU activities in 2018, is available on the IMU Web server at
<https://www.mathunion.org/membership/imu-bulletins>

This year we do not intend to send out printed versions. However, printed versions will be sent out on request.

Regards

Helge Holden
Secretary General of the International Mathematical Union

5. The IMU Secretariat

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>) since January 2011. Following a positive evaluation of the work of the IMU Secretariat between 2011-2018, an unlimited Cooperation Agreement with WIAS was signed in 2018 (as approved at the 18th IMU General Assembly).

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.



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 (on leave)/Ramona Fischer: ICMI/CDC Administration (✉ icmi.cdc.administrator@mathunion.org)

Nicole Kärgel: IMU Accountant (✉ accountant@mathunion.org)

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

Frank Klöppel: IT and Technical Support (✉ technician@mathunion.org)

Imren Karci: Project Assistant (✉ assistant@mathunion.org)

IMU Secretary General:

Helge Holden (✉ secretary@mathunion.org)

In 2019, the IMU Secretariat concerned itself with ensuring appropriate measures were in place for the upcoming change in personnel. With Sylwia Markwardt due to retire as Manager in 2020 following a long and distinguished service to the IMU, the search for a successor was launched. By the end of 2019, Scott Jung had been successfully recruited for the position with a view to starting in early 2020.

Address of the IMU Secretariat:
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Hausvogteiplatz 11a
10117 Berlin, Germany
Phone: +49 30 20372-430
Fax: +49 30 20372-439
E-mail: office@mathunion.org

6. Impressum

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