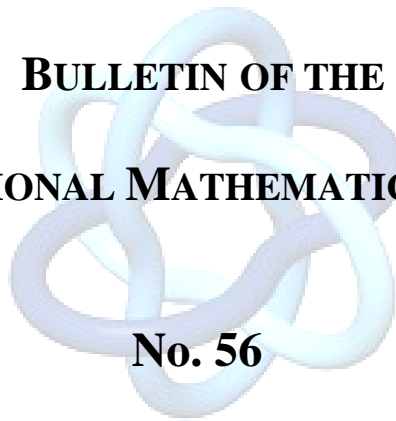


**IMU**

**BULLETIN OF THE  
INTERNATIONAL MATHEMATICAL UNION**



**No. 56**

**December 2008**

**Secretariat:**

*c/o Konrad-Zuse-Zentrum  
Takustr. 7  
D-14195 Berlin, Germany*

*<http://www.mathunion.org>*

## **List of Abbreviations**

<b>CDC</b>	Committee for Developing Countries
<b>CDE</b>	Commission on Development and Exchange
<b>CEIC</b>	Committee on Electronic Information and Communication
<b>DCSG</b>	Developing Countries Strategy Group
<b>ICHM</b>	International Commission on the History of Mathematics
<b>ICMI</b>	International Commission on Mathematical Instruction
<b>ICSU</b>	International Council for Science
<b>IUHPS</b>	International Union of the History and Philosophy of Science

Dear Members of the International Mathematical Union,

The IMU welcomes two new members, Colombia joined the IMU and Kenya is IMU's third Associate Member. Norway upgraded its group adherence from II to III.

The IMU Executive Committee has appointed the selection committees for the IMU prizes to be awarded in August 2010 during the Opening Ceremony of ICM 2010 in Hyderabad, India. The IMU Adhering Organizations have been requested to send nominations to the prize committee chairs.

The Program Committee has continued its work and has chosen the core panels for the ICM 2010 sections. The Adhering Organizations of IMU and the mathematical societies the world over have been invited to nominate invited plenary and sectional speakers.

Another step forward towards the ICM 2010 was the determination of 3 colleagues to belong to the IMU Nominating Committee that is now (together with the IMU president and the committee chair) composed of 5 members and has to be completed by two further members until February 2009.

The ICM 2010 server ([www.icm2010.org.in/](http://www.icm2010.org.in/)) has taken up operation. Those interested can visit the webpage and keep themselves informed on the progress made concerning the organization of the congress. You are invited to spread information on the ICM.

The "Citation Statistics" report, prepared by the joint IMU/ICIAM/IMS committee on "quantitative assessment of research" has been released. The report discusses, in particular, the impact factor, the h-index and variants of these that are often employed to rank not only journals but also individuals, departments, or whole institutions. The report has attracted great interest, a lot of requests to republish the report or make reference to it have been received.

The IMU has received 3 offers to host the ICM 2014. Bidders are Montreal (Canada), Rio de Janeiro (Brazil), and Seoul (Republic of Korea). The IMU EC has formed a site committee that will visit the three places at the beginning of 2009. The EC will discuss the site committee's findings at its meeting in April 2009 and decide on a recommendation concerning ICM 2014 to the IMU General Assembly in August 2010.

Concerning a permanent IMU office several bids to host the office have been received. The process of discussion and decision making is going on. The EC will start to go into more detail and concretize information requested and received.

With respect to 2008 IMU dues payment it has to be reported that the majority of the Adhering Organizations has paid their dues, 14 countries are in arrears for 2008, 6 countries are in arrears for 2007, and 1 country is in arrears for 2006/2005.

A handwritten signature in black ink, appearing to read 'M. Grötschel', written in a cursive style.

Martin Grötschel  
IMU Secretary

## Contents

<b>1. Executive Committee 2007-2010 .....</b>	<b>6</b>
<b>2. Members of the Union .....</b>	<b>7</b>
<b>3. IMU Officers 2007 - 2010 .....</b>	<b>8</b>
<b>4. Approved membership dues 2007 – 2010.....</b>	<b>10</b>
<b>5. Corrected version of the approved IMU budget 2007-2010.....</b>	<b>11</b>
<b>6. Circular Letters of the IMU Secretary to the Adhering Organizations .....</b>	<b>12</b>
<b>7. International Commission on Mathematical Instruction (ICMI) .....</b>	<b>29</b>
<b>8. Commission on Development and Exchanges (CDE) .....</b>	<b>40</b>
<b>9. International Commission on the History of Mathematics (ICHM).....</b>	<b>53</b>
<b>10. Committee on Electronic Information and Communication (CEIC).....</b>	<b>54</b>
<b>11. Independent Auditor’s Report 2008.....</b>	<b>57</b>
<b>12. Special Development Fund.....</b>	<b>84</b>
<b>13. IMU Bank accounts.....</b>	<b>84</b>

## 1. Executive Committee 2007-2010

### INTERNATIONAL MATHEMATICAL UNION

#### Executive Committee

January 1, 2007 – December 31, 2010

<b>President:</b>	László Lovász	(Hungary)
<b>Vice-Presidents:</b>	Zhi-Ming Ma	(China)
	Claudio Procesi	(Italy)
<b>Secretary:</b>	Martin Grötschel	(Germany)
<b>Members-at-Large:</b>	M. Salah Baouendi	(USA)
	Manuel de León	(Spain)
	Ragni Piene	(Norway)
	Cheryl E. Praeger	(Australia)
	Victor A. Vassiliev	(Russia)
	Marcelo Viana	(Brazil)
<b>Ex-officio Member (Past President)</b>	John M. Ball	(United Kingdom)

#### Meetings of the Executive Committee in 2008:

77<sup>th</sup> EC Meeting, Budapest, Hungary, April 20/21, 2008

## 2. Members of the Union

The following 71 countries were members of IMU through December 31, 2008:

<b>Group I</b>	Armenia Cameroon Cuba Greece Indonesia Latvia Nigeria Philippines Serbia Tunisia Venezuela	Bosnia & Herzegovina Colombia Estonia Hong Kong Ivory Coast Lithuania Pakistan Romania Singapore Turkey Vietnam	Bulgaria Croatia Georgia Iceland Kazakhstan New Zealand Peru Saudi Arabia Slovenia Uruguay
<b>Group II</b>	Argentina Denmark Ireland Slovakia	Austria Egypt Mexico South Africa	Chile Finland Portugal Ukraine
<b>Group III</b>	Australia Hungary	Belgium Iran	Czech Republic Norway
<b>Group IV</b>	Brazil Netherlands Sweden	India Poland Switzerland	Republic of Korea Spain
<b>Group V</b>	Canada Germany Japan United States	China Israel Russia	France Italy United Kingdom
<b>Associate Membership</b>	Ecuador	Kenya	Kyrgyzstan

The following 2 organizations were members of IMU through December 31, 2008:

<b>Affiliate Membership</b>	Unión Matemática de América Latina y el Caribe (UMALCA) European Mathematical Society (EMS)
-----------------------------	--

### **3. IMU Officers 2007 - 2010**

#### **COMMISSION ON DEVELOPMENT AND EXCHANGES (CDE)**

January 1, 2007 - December 31, 2010

President: S. Dani (India)  
Secretary: G. Gonzalez-Sprinberg (France)  
Members at Large: G. Boente (Argentina)  
P. Cordaro (Brazil)  
J-P. Gossez (Belgium)  
M. T. Niane (Sénégal)  
M. Sanz-Solé (Spain)  
J. Zhang (China)  
Ex-officio Members: L. Lovász (Hungary)  
M. Grötschel (Germany)

#### **INTERNATIONAL COMMISSION ON THE HISTORY OF MATHEMATICS (ICHM)**

January 1, 2007 - December 31, 2010

IMU Representative C. Houzel (France)  
IMU Representative P. M. Neumann (UK)

#### **INTERNATIONAL COMMISSION ON MATHEMATICAL INSTRUCTION (ICMI)**

January 1, 2007 - December 31, 2009

President: M. Artigue (France)  
Vice Presidents: J. Adler (South Africa)  
B. Barton (New Zealand)  
Secretary-General: B. Hodgson (Canada)  
Members at Large: M. Bartolini Bussi (Italy)  
J. Carvalho e Silva (Portugal)  
C. Hoyles (UK)  
S. Kumaresan (India)  
F. Koon-shing Leung (Hong Kong)



Ex-officio Members: A. Semenov (Russia)  
H. Bass (USA)  
L. Lovász (Hungary)  
M. Grötschel (Germany)

**COMMITTEE ON ELECTRONIC INFORMATION AND  
COMMUNICATION (CEIC)**

January 1, 2007 - June 30, 2008

Committee Members: J. M. Borwein, Chair (Canada)  
M. Doob (Canada)  
D. Eisenbud (USA)  
J. Ewing (USA)  
U. Rehmann (Germany)  
A. van der Poorten (Australia)

July 1, 2008 - December 31, 2012

Committee Members: J. Ball, Chair (UK)  
O. Caprotti (Finland)  
J. Davenport (UK)  
M. Doob (Canada)  
C. Hutchins (USA)  
P. Olver (USA)  
U. Rehmann (Germany)

**IMU representative to the  
COMMITTEE ON SPACE RESEARCH (COSPAR)**

A. Bensoussan, until 2010

**IMU representative to the  
Gruber Foundation Cosmology Prize Committee**

R. Penrose, until 2011

#### 4. Approved membership dues 2007 – 2010

<b>International Mathematical Union</b>				
<b>Approved membership dues 2007 – 2010 (Swiss Francs)</b>				
<b>Group</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>I</b>	1386	1455	1528	1605
<b>II</b>	2772	2910	3056	3210
<b>III</b>	5544	5820	6112	6420
<b>IV</b>	11088	11640	12224	12840
<b>V</b>	16632	17460	18336	19260

## 5. Corrected version of the approved IMU budget 2007-2010

International Mathematical Union					
Approved Budget for 2007-2010 (Swiss Francs)					
Expenses	Approved Budgeted for	5% Dues increase	5% Dues increase	5% Dues increase	5% Dues increase
Schedule A:	2003-2006	2007	2008	2009	2010
Secretarial help, IMU office	22.000	22.660	22.660	22.660	22.660
Secretarial help, President	5.000	5.150	5.150	5.150	5.150
Accountant	9.000	9.270	9.270	9.270	9.270
ICMI	11.000	15.450	15.450	15.450	15.450
CDE	6.000	6.180	6.180	6.180	6.180
Office expenses (including postage)	16.000	16.480	16.480	16.480	16.480
Travel expenses of the EC	30.000	30.900	30.900	30.900	30.900
President's and Secretary's expenses	4.000	4.120	4.120	4.120	4.120
Contribution to ICSU	9.500	9.785	9.785	9.785	9.785
IMU Bulletin	5.000	1.500	1.500	1.500	1.500
Audit fee	8.500	8.755	8.755	8.755	8.755
General Assembly	4.000	4.120	4.120	4.120	4.120
World Directory of Mathematicians	20.000	0	0	0	0
Contingencies	2.000	2.060	2.060	2.060	2.060
<b>Subtotal of Schedule A</b>	<b>152.000</b>	<b>136.430</b>	<b>136.430</b>	<b>136.430</b>	<b>136.430</b>
<b>Schedule B:</b>					
IMU non-CDE conference support	90.000	20.000	20.000	20.000	20.000
ICMI scientific activities	29.000	27.810	27.810	27.810	27.810
CDE scientific activities	40.000	115.000	115.000	115.000	115.000
CDE support staff		56.000	56.000	56.000	56.000
CEIC scientific activities	15.000	25.000	25.000	25.000	25.000
Website support		6.253	6.253	6.253	6.253
ICM Site Committee		2.000	2.000	2.000	2.000
Program Committee for ICM	8.000	8.240	8.240	8.240	8.240
Subvention to ICM	28.000	28.840	28.840	28.840	28.840
Prize Committees (subvention)		11.100	11.100	11.100	11.100
Travel grants (young & senior)	40.000	61.000	61.000	61.000	61.000
Media Relations		3.500	3.500	3.500	3.500
<b>Subtotal of Schedule B</b>	<b>210.000</b>	<b>364.743</b>	<b>364.743</b>	<b>364.743</b>	<b>364.743</b>
<b>Total Expenses (A &amp; B)</b>	<b>362.000</b>	<b>501.173</b>	<b>501.173</b>	<b>501.173</b>	<b>501.173</b>
<b>Income</b>					
Membership dues	279.840	336.798	353.565	371.304	390.015
ICSU Grant	10.500	0	0	0	0
Special Development Fund	60.000	32.000	32.000	32.000	32.000
Interest on bank accounts	39.000	16.000	16.000	16.000	16.000
Abel Fund		59.220	59.220	59.220	59.220
Draw from Reserves		57.155	40.388	22.649	3.938
Return to Reserves		0	0	0	0
<b>Total Income</b>	<b>389.340</b>	<b>501.173</b>	<b>501.173</b>	<b>501.173</b>	<b>501.173</b>
<b>Income less Expenses</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Corrections:

Schedule A: ICMI - 11.330 changed into 15.450.

Schedule B: ICMI scientific activities - 29.870 changed into 27.810.

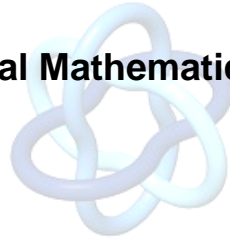
Schedule B: CEIC scientific activities - 15.450 changed into 25.000.

Having changed the varying draw from, and return to Reserves, the total Expenditure/Income of the approved 2007-2010 Budget is amended to 501.173 CHF.

## 6. Circular Letters of the IMU Secretary to the Adhering Organizations

IMU AO Circular Letter 1/2008

### International Mathematical Union



February 1, 2008  
IMU AO Circular Letter 1/2008

To: IMU Adhering Organizations

From: Martin Grötschel, IMU Secretary

- **Colombia became Full Member of IMU**
- **Norway changed from Group II to Group III**
- **Request for revision/update of IMU membership data**
- The vote on Colombia's application for Full Membership yielded a positive result. As of January 2008, Colombia is a Full Member of the IMU. For more information on Colombia's Adhering Organization see <http://www.mathunion.org/Members/america/colombia.html>.
- The vote on Norway's request to change from Group II to Group III yielded a positive result. As of February 2008, Norway adheres to Group III.
- To keep the IMU records and Web site up-to-date you are requested to look at the URL <http://www.mathunion.org/Members/Countries.html> and check whether the information displayed there for your country is correct and complete. Please check especially the information concerning
  - the Adhering Organization (through which your country gains adherence to the IMU)
  - the Committee for Mathematics (to be formed by the Adhering Organization)
  - the Mathematical Society (Societies) in your country
  - the body responsible for the IMU membership dues paymentand verify whether the names, the representatives or contact persons, affiliations, addresses, phone and fax numbers, and in particular e-mail addresses are correct and complete.

Should any change have occurred I ask you to inform me thereof as soon as possible. Please send your information to

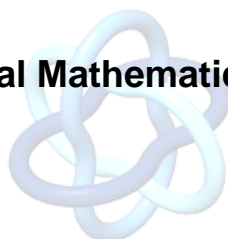
[secretary@mathunion.org](mailto:secretary@mathunion.org) and/or [administrator@mathunion.org](mailto:administrator@mathunion.org).

Sincerely yours,

Martin Grötschel  
IMU Secretary

**IMU AO Circular Letter 2/2008**

**International Mathematical Union**



February 15, 2008  
**IMU AO Circular Letter 2/2008**

To: IMU Adhering Organizations  
From: László Lovász, IMU President  
Martin Grötschel, IMU Secretary

**Bids for ICM 2014**

This letter is about the International Congress of Mathematicians in the year 2014 (ICM 2014). The IMU Guidelines for the Program Committee (PC) and the Organizing Committee (OC) of an ICM begin with:

“International Congresses of Mathematicians are the most important IMU activity and need correspondingly careful preparation. Every ICM should reflect the current activity of mathematics in the world, present the best work being carried out in all mathematical subfields and different regions of the world, and thus, point to the future of mathematics.”

The Executive Committee (EC) of the International Mathematical Union invites the Adhering Organizations (and the mathematical societies in IMU member countries) to place bids for hosting the International Congress of Mathematicians in the year 2014 and the IMU General Assembly prior to this Congress.

To be considered by the Site Committee, these bids must be received by the IMU Secretary

**by November 30, 2008.**

The Site Committee, which is composed of EC members, will review all bids and visit the top candidate sites. After receiving advice from the Site Committee the EC will make its recommendation by May 31, 2009 to be communicated to all Adhering Organizations. The final decision will be taken by the General Assembly to be held August 16-17, 2010 in Bangalore, just prior to ICM 2010 in Hyderabad, India. The General Assembly is free to consider bids placed after November 30, 2008, but the IMU EC considers most advisable that the Adhering Organizations comply with the above procedure.

While it is impossible to spell out precisely all factors that will influence the final recommendation of the EC, it will take into account the mathematical ambience, the infrastructure and the economic conditions offered by each bidder, as well as the accessibility of the proposed site and the geographical distribution of places where ICMs took place in the past. All countries interested in making a bid are strongly encouraged to do so.

In the Appendix below, please find information about items that need to be considered for a bid. A few figures showing the scheduled size and finance of ICM 2014 are:

ICM 2014:

Expected participants:	3,000 - 4,000 persons
Plenary speakers:	~ 20 persons
Invited speakers:	~ 160 persons
Budget:	~ 2,000,000 US dollars
Subvention from IMU:	~ 90,000 US dollars

General Assembly 2014:

Expected participants:	200 persons
Budget:	~ 180,000 US dollars
Subvention from IMU:	~ 18,000 US dollars

Best regards

László Lovász  
Martin Grötschel

## APPENDIX

Among other relevant information that each potential host country may want to supply, the Site Committee wishes to know about the following items:

### I. Finances

Clearly, costs may vary considerably from country to country. According to the reports of recent ICMs, a potential host country may consider a budget of at least 2 million US dollars, of which about 0.5 to 0.9 million US dollars might be raised through registration fees (such fees should be at most about 300 US dollars). Again, these numbers vary subject to local costs and facilities. According to the reports of the organizers of the last ICMs, soliciting support from public authorities was the most important factor for financing the Congress.

In considering the ICM 2014 budget, production costs of the Proceedings and other material (posters, announcements, summary of invited lectures, ...) as well as mailing, deserve special attention. The host country should be prepared to cover the local costs of about 120 young research mathematicians from developing countries, selected by IMU; they get their trips paid by IMU through its Special Development Fund and possibly other sources. Also, in special cases, invited speakers are expected to receive some financial support for attending the meeting when other funds to cover their expenses are not available. Registration fees are waived for invited speakers and the above young research mathematicians from developing countries. On the other hand, it is to be noted that there is an IMU subvention to ICM 2014 as well as some provision in its budget to defray costs of the General Assembly meeting that takes place just before the Congress; These sums amount to 100,000 Swiss Francs and 20,000 Swiss Francs, respectively. (Currently 1 Swiss Franc is equivalent to 0.91 US dollar.)

## II. Infrastructure

It is important that good facilities to hold the Congress are available. All lectures should take place in sizable, well equipped, pleasant and audible rooms. Special attention should be paid to the plenary talks. There will be about 20 plenary lectures (with no other parallel activities) and about 160 invited lectures with 6-8 sessions in parallel. It should be feasible to commute between lecture halls during short breaks.

## III. Accessibility

The city and site of the Congress should be easily accessible. That is, flight connections from all over the world should be easily available, as well as transportation to the site of the Congress. Lodging facilities constitute an important item.

## IV. Participation (Principle of Universality)

IMU subscribes to the Principle of the Universality of Science as defined in ICSU's statute 5. In accordance with this principle, all scientists should have the possibility to participate, without discrimination and on an equitable basis, in IMU's activities. This implies, in particular, that the host country should guarantee that all mathematicians intending to participate in ICM 2014 should be able to receive a visa.

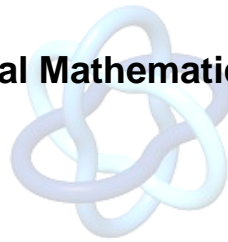
## V. Engagement of the Local Mathematical Community

Finally, it is expected that the local mathematical community gets involved in the preparations of the Congress, so as to create a nice ambiance during the meeting. Moreover, as the previous Congresses have shown, in order to stay within the budget (which is relatively modest for a Congress of this size) it is necessary that the local mathematical community contributes a good deal of voluntary work.

It has become a custom in the recent years that each bidder prepares a bid booklet that provides the details of the bid in comprehensive form. Touristic information about the host city and country may be included.

All countries wishing to make a bid for ICM 2014 are recommended to contact the IMU Secretary prior to making the bid in order to discuss the formalities of the application procedure and to obtain some hints about how to apply appropriately.

**International Mathematical Union**



February 18, 2008  
**IMU AO Circular Letter 3/2008**

To: IMU Adhering Organizations  
Mathematical Societies

From: Martin Grötschel, IMU Secretary

**Nomination of invited plenary and sectional speakers for ICM 2010**

The Program Committee for the International Congress of Mathematicians 2010 in Hyderabad, India, August 19-27, 2010 has been set up. According to the PC/OC Guidelines the Program Committee has chosen the core panels for the ICM 2010 sections. At this moment in time the Adhering Organizations of IMU and the mathematical societies the world over are invited to nominate invited plenary and sectional speakers.

Attached to this circular letter please find the list of the ICM 2010 sections. When you make nominations for speakers please specify whether you suggest them as plenary speakers or section speakers. In case of proposals of section speakers please indicate to which sections you would like the persons to be invited.

All communication concerning the scientific program of ICM 2010 is handled by the Chair of the Program Committee. Please direct all your mail with proposals for invited plenary and sectional speakers to Prof. Hendrik W. Lenstra, and please use the special e-mail address for this purpose

[hwlicm@math.leidenuniv.nl](mailto:hwlicm@math.leidenuniv.nl).

Sincerely

Martin Grötschel

Encl.

**Attachment to IMU AO Circular Letter 3/2008 of February 18, 2008**



**Description and definitions of the ICM 2010 sections,  
as well as the number of lectures to be given in each section.**

Total number of lectures (including panel discussions): 150-176.

**1. Logic and foundations** (4-5 lectures)

Model theory. Set theory. Recursion theory. Proof theory. Applications.  
Connections with sections 2, 3, 14, 15.

**2. Algebra** (6-7 lectures)

Groups and their representations (except as specified in 5 and 7). Rings, algebras and modules (except as specified in 7). Algebraic K-theory. Category theory. Computational algebra and applications.  
Connections with sections 1, 3, 4, 5, 6, 7, 14, 15.

**3. Number theory** (10-12 lectures)

Analytic and algebraic number theory. Local and global fields and their Galois groups. Zeta and L-functions. Diophantine equations. Arithmetic on algebraic varieties. Diophantine approximation, transcendental number theory and geometry of numbers. Modular and automorphic forms, modular curves and Shimura varieties. Langlands program. p-adic analysis. Number theory and physics. Computational number theory and applications, notably to cryptography.  
Connections with sections 1, 2, 4, 7, 12, 14, 15.

**4. Algebraic and complex geometry** (9-11 lectures)

Algebraic varieties, their cycles, cohomologies and motives (including positive characteristics). Schemes. Commutative algebra. Low dimensional varieties. Singularities and classification. Birational geometry. Moduli spaces. Abelian varieties and p-divisible groups. Derived categories. Transcendental methods, topology of algebraic varieties. Complex differential geometry, Kahler manifolds and Hodge theory. Relations with mathematical physics and representation theory. Real algebraic and analytic sets. Rigid and p-adic analytic spaces. Tropical geometry.  
Connections with sections 2, 3, 5, 6, 7, 8, 14, 15.

**5. Geometry** (10-12 lectures)

Local and global differential geometry. Geometric PDE and geometric flows. Geometric structures on manifolds. Riemannian and metric geometry. Geometric aspects of group theory. Convex geometry. Discrete geometry. Geometric rigidity.  
Connections with sections 2, 4, 6, 7, 8, 9, 10, 11, 12.

**6. Topology** (10-12 lectures)

Algebraic, differential and geometric topology. Floer and gauge theories. Low-dimensional including knot theory and connections with Kleinian groups and Teichmüller theory. Symplectic and contact manifolds. Topological quantum field theories.  
Connections with sections 2, 4, 5, 7, 8, 9, 12.

**7. Lie theory and generalizations (8-10 lectures)**

Algebraic and arithmetic groups. Structure, geometry and representations of Lie groups and Lie algebras. Related geometric and algebraic objects, e.g. symmetric spaces, buildings, vertex operator algebras, quantum groups. Non-commutative harmonic analysis. Geometric methods in representation theory. Discrete subgroups of Lie groups. Lie groups and dynamics, including applications to number theory. Connections with sections 2, 3, 4, 5, 6, 8, 9, 10, 12, 13, 14.

**8. Analysis (7-8 lectures)**

Classical analysis. Special functions. Harmonic analysis. Complex analysis in one and several variables, potential theory, geometric function theory (including quasi-conformal mappings), geometric measure theory. Applications. Connections with sections 5, 6, 7, 9, 10, 11, 12, 16.

**9. Functional analysis and applications (5-6 lectures)**

Operator algebras. Non-commutative geometry, spectra of random matrices. K-theory of  $C^*$ -algebras, structure of factors and their automorphism groups, operator-algebraic aspects of quantum field theory, linear and non-linear functional analysis, geometry of Banach spaces, Asymptotic geometric analysis. Connections to ergodic theory. Connections with sections 5, 6, 7, 8, 10, 11, 12, 13.

**10. Dynamical systems and ordinary differential equations (9-11 lectures)**

Topological and symbolic dynamics. Geometric and qualitative theory of ODE and smooth dynamical systems, bifurcations and singularities. Hamiltonian systems and dynamical systems of geometric origin. One-dimensional and holomorphic dynamics. Multidimensional actions and rigidity in dynamics. Ergodic theory including applications to combinatorics and combinatorial number theory. Connections with sections 5, 7, 8, 9, 11, 12, 13, 14, 16, 17.

**11. Partial differential equations (9-10 lectures)**

Solvability, regularity, stability and other qualitative properties of linear and non-linear equations and systems. Asymptotics. Spectral theory, scattering, inverse problems. Variational methods and calculus of variations. Optimal transportation. Homogenization and multiscale problems. Relations to continuous media and control. Modeling through PDEs. Connections with sections 5, 8, 9, 10, 12, 16, 17, 18.

**12. Mathematical physics (10-12 lectures)**

Quantum mechanics. Quantum field theory. General relativity. Statistical mechanics and random media. Integrable systems. Electromagnetism, String theory, condensed matter, fluid dynamics, multifield physics (e.g. fluid/waves, fluid/solids, etc.). Connections with sections 4, 5, 6, 7, 8, 9, 10, 11, 13.

**13. Probability and Statistics (12-13 lectures)**

Classical probability theory, limit theorems and large deviations. Combinatorial probability. Random walks. Interacting particle systems. Stochastic networks. Stochastic geometry. Stochastic analysis. Random fields. Random matrices and free probability. Statistical inference. High-dimensional data analysis. Sequential methods. Spatial statistics. Applications. Connections with sections 3, 5, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18.

**14. Combinatorics (7-8 lectures)**

Combinatorial structures. Enumeration: exact and asymptotic. Graph theory. Probabilistic and extremal combinatorics. Designs and finite geometries. Relations with linear algebra, representation theory and commutative algebra. Topological and analytical techniques in combinatorics. Combinatorial geometry. Combinatorial number theory. Polyhedral combinatorics and combinatorial optimization. Connections with sections 1, 2, 3, 4, 7, 10, 13, 15.

**15. Mathematical aspects of computer science (6-7 lectures)**

Complexity theory and design and analysis of algorithms. Formal languages. Computational learning. Algorithmic game theory. Cryptography. Coding theory. Semantics and verification of programs. Symbolic computation. Quantum computing. Computational geometry, computer vision. Connections with sections 1, 2, 3, 4, 13, 14, 16.

**16. Numerical analysis and scientific computing (5-6 lectures)**

Design of numerical algorithms and analysis of their accuracy, stability and complexity. Approximation theory. Applied and computational aspects of harmonic analysis. Numerical solution of algebraic, functional, differential, and integral equations. Grid generation and adaptivity. Connections with sections 8, 10, 11, 13, 15, 17, 18.

**17. Control theory and optimization (6-7 lectures)**

Minimization problems. Controllability, observability, stability. Robotics. Stochastic systems and control. Optimal control. Optimal design, shape design. Linear, non-linear, integer, and stochastic programming. Applications. Connections with sections 10, 11, 13, 16, 18.

**18. Mathematics in science and technology (8-10 lectures)**

Mathematics applied to the physical sciences, engineering sciences, life sciences, social and economic sciences, and technology. Bioinformatics. Mathematics in interdisciplinary research. The interplay of mathematical modeling, mathematical analysis and scientific computation, and its impact on the understanding of scientific phenomena and on the solution of real life problems. Connections with sections 11, 13, 16, 17.

**19. Mathematics education and popularization of mathematics**

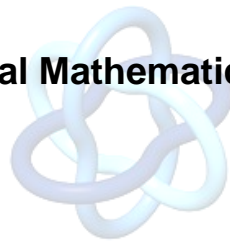
(3 lectures + 3 panel discussions)

All aspects of mathematics education, from elementary school to higher education. Mathematical literacy and popularization of mathematics. Ethnomathematics.

**20. History of Mathematics (3 lectures)**

Historical studies of all of the mathematical sciences in all periods and cultural settings.

**International Mathematical Union**



June 10, 2008  
**IMU AO Circular Letter 4/2008**

To: IMU Adhering Organizations

From: Martin Grötschel, IMU Secretary

**Nominations for IMU prizes 2010**

The Executive Committee of the International Mathematical Union has appointed the selection committees for the IMU prizes to be awarded in August 2010 during the Opening Ceremony of ICM 2010 in Hyderabad, India. The chairs of the prize committees are as follows:

**Fields Medals:**

László Lovász  
Eötvös Loránd Tudományegyetem  
Számítógéptudományi Tanszék  
Pázmány Péter sétány 1/C  
H-1117 Budapest  
Hungary  
e-mail: [lovasz@cs.elte.hu](mailto:lovasz@cs.elte.hu)

**Rolf Nevanlinna Prize:**

Ravindran Kannan  
Microsoft Research Labs  
196/36 2nd Main  
Sadashivanagar  
Bangalore 560080  
India  
e-mail: [kannan@microsoft.com](mailto:kannan@microsoft.com)

**Carl Friedrich Gauss Prize:**

Wolfgang Dahmen  
Templergraben 55  
D-52056 Aachen  
Germany  
e-mail: [dahmen@igpm.rwth-aachen.de](mailto:dahmen@igpm.rwth-aachen.de)

Information about the 3 prizes and the type of work for which they are given can be found on the IMU Web site at:

<http://www.mathunion.org/general/prizes/>.

The guidelines for nominations are specified at the Web page:

<http://www.mathunion.org/general/prizes/nomination-guidelines/>.

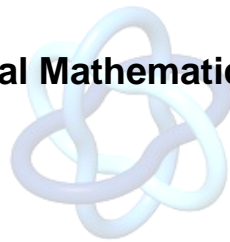
Nominations should ideally be sent by December 15, 2008 to the prize committee chairs. Please distribute this information within your mathematical communities so that as many good candidates as possible are nominated for these important prizes.

Sincerely

Martin Grötschel

**IMU AO Circular Letter 5/2008**

**International Mathematical Union**



June 11, 2008

**IMU AO Circular Letter 5/2008**

To: IMU Adhering Organizations

From: László Lovász, IMU President

**"Citation Statistics"**  
**a report analyzing impact factors and similar statistics based on citations**

Dear colleagues,

Today the IMU releases an important document, called "Citation Statistics", which we want to bring to your attention.

In summer 2007 a committee on "Quantitative assessment of research" was created (announced through IMU-Net 24, July 2007), that was asked to investigate various aspects of impact factors and similar statistics based on citations. The committee was appointed jointly by the Executive Committees of the International Mathematical Union (IMU), the International Council for Industrial and Applied Mathematics (ICIAM), and the Institute of Mathematical Statistics (IMS). It consisted of:

- John Ewing (Providence, USA), chair, appointed by IMU
- Robert Adler (Haifa, Israel), appointed by IMS
- Peter Taylor (Melbourne, Australia), appointed by ICIAM.

The terms of reference given to the committee can be found at:

<http://www.mathunion.org/Publications/2007/Charge-ComOnQuantAssessmRes070521.pdf>.

The committee has addressed this charge by reviewing and discussing current practices along with an extensive literature on the use of citations to evaluate research. Its report, written from the perspective of mathematical scientists, was submitted to the Executive Committees of IMU, ICIAM, and IMS, and all three endorsed the report. The 3 organizations are making the report "Citation Statistics" public today.

The report can be found at the following URL:

<http://www.mathunion.org/Publications/Report/CitationStatistics>.

The report is also released by IMU-Net, in its special issue IMU-Net 29b, June 2008, please look at

<http://www.mathunion.org/imu-net/archive/2008/imu-net-29b/>.

For your information, the report is attached to this circular letter as a PDF file.

This effort was triggered by numerous requests from IMU member countries, mathematical societies, important mathematical institutions, and individuals who reported the increasing use (and misuse) of impact factors and similarly of other citation-based indicators to measure the quality of research of individuals, departments, or whole institutions.

IMU suggests that you not only read the report but also distribute it to administrators and decision-makers who are involved in the assessment of research quality, in order to give them a mathematical science perspective. IMU, ICIAM, and IMS have agreed that, in order to assure as wide distribution as possible, journals, newsletters and similar publications that are interested in publishing this report will have the non-exclusive right to publish it in one of their issues. Please contact the newsletters/journals you are connected with and suggest publication of the report "Citation Statistics".

All 3 organizations, representing the world community of pure, applied, and industrial mathematics and statistics, hope that the careful analysis and recommendations in this report will be considered by decision-makers who are making use of citation data in research assessment.

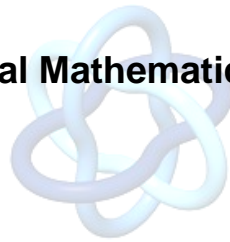
Sincerely

László Lovász

Encl.

**IMU AO Circular Letter 6/2008**

**International Mathematical Union**



July 25, 2008

**IMU AO Circular Letter 6/2008**

To: IMU Adhering Organizations  
(Adhering Organizations of Associate Members receive this letter for information)

From: Martin Grötschel, IMU Secretary

**- Postal Ballot 01/08 Kenya's Application for Associate Membership**

- Kenya has applied for associate membership of the IMU. The Executive Committee of the IMU recommends to favor the application. The enclosed application document gives evidence of the mathematical activities (mathematical societies and organizations, universities, journals, publications) in Kenya.

Please vote on the request of Kenya through the enclosed postal ballot and return the ballot  
by mail or fax

**by September 30, 2008**

to the address indicated on the ballot form.

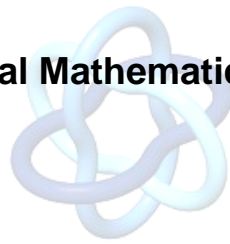
Sincerely yours,

Martin Grötschel  
IMU Secretary

Encl.

## IMU AO Circular Letter 7/2008

# International Mathematical Union



August 25, 2008

## IMU AO Circular Letter 7/2008

To: IMU Adhering Organizations  
(Adhering Organizations of Associate Members receive this letter for information)

From: Martin Grötschel, IMU Secretary

### Call for nominations to the Nominating Committee of IMU

The IMU General Assembly in Santiago de Compostela adopted in August 2006 new procedures for the election of the IMU Executive Committee, the IMU Commission on Development and Exchanges (to be replaced in 2011 by the Committee for Developing Countries), and the International Commission on the History of Mathematics, as well as the Executive Committee of the International Commission on Mathematical Instruction, see <http://www.mathunion.org/organization/ec/procedures-for-election/>.

The IMU Executive Committee is currently starting to form the Nominating Committee with the purpose of presenting slates of nominations to the Adhering Organizations in preparation for the elections at the General Assembly in Bangalore, August 2010.

The IMU President László Lovász will be a member of the Nominating Committee, and he has chosen the Chair of this Committee, David Mumford, IMU President from 1995 to 1998. Three persons are chosen at random from nominations to be made by the Adhering Organizations. In addition to these five members, the IMU President and the Chair of the Nominating Committee will choose two further persons with IMU experience to serve on the committee.

The 3 persons nominated by the Adhering Organizations must not be current members of the IMU Executive Committee, they need to be willing to serve if selected, and they must not work in the same country as the Chair of the Nominating Committee and the President of IMU, namely the United States of America and Hungary.

One person is to be chosen from nominations submitted by Groups I and II, one person chosen from nominations submitted by Groups III and IV and one person chosen from nominations submitted by Group V. Each Adhering Organization may submit one name of a person who is willing to serve. If there are no nominations in one of these three categories, then a person will be chosen at random from the other two categories.

All submissions are to be sent via e-mail, post or fax to IMU. All e-mail submissions must be sent from the official e-mail address of the Adhering Organization.

All candidates should be willing to serve.



No member of the Nominating Committee will be eligible to hold an office for 2011-2014 on EC, CDC or ICHM.

Duties of the IMU Nominating Committee

- a) Nomination slates will be formed for the IMU Executive Committee (EC), IMU Committee for Developing Countries (CDC), and the International Commission on the History of Mathematics (ICHM).
- b) The slates for the commissions will be formed taking advice from the current officers of these commissions, but this advice is not binding on the IMU Nominating Committee.
- c) The IMU Nominating Committee will nominate one name for the position of President of IMU, Secretary of IMU, Chair of CDC, and Secretary of CDC and one name for each of the two Vice Presidents of IMU. The IMU Nominating Committee will nominate at least two more names than the number of Members-at-Large of IMU and CDC, and for the ICHM representatives.

Schedule -- By September 1, 2008, the Chair of the IMU Nominating Committee accepts post. By February 1, 2009, the Committee is complete.

A separate ICMI Nominating Committee will form slates for the International Commission on Mathematical Instruction.

The deadline for receipt of nominations, from which a random selection will be made is

**December 1, 2008.**

Please send your nominations to the address of the IMU Secretary

Martin Groetschel  
International Mathematical Union  
Zuse Institute Berlin  
Takustr. 7  
D-14195 Berlin  
Germany

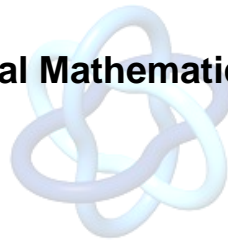
Fax: +49 30 84185 - 269  
E-mail: [secretary@mathunion.org](mailto:secretary@mathunion.org)

Sincerely yours,

Martin Grötschel  
IMU Secretary

**IMU AO Circular Letter 8/2008**

**International Mathematical Union**



October 10, 2008  
**IMU AO Circular Letter 8/2008**

To: IMU Adhering Organizations  
From: Martin Grötschel, IMU Secretary

**- Postal Ballot 01/08 Kenya's Application for Associate Membership**

Dear colleagues,

- The vote on Kenya's application for Associate Membership yielded a positive result. As of October 2008, Kenya is an Associate Member of the IMU. For more information on Kenya's Adhering Organization see <http://www.mathunion.org/members/countries/kenya/>.

Sincerely,

Martin Grötschel  
IMU Secretary

## IMU AO Circular Letter 9/2008

To all Adhering Organizations of the  
International Mathematical Union (IMU)

Dear colleagues,

The last Circular Letter to the IMU Adhering Organizations (AOs) in the year 2008 provides three pieces of information related to the previous Circular Letters 7/2008, 2/2008, and 6/2007.

### 1. IMU Nominating Committee

=====

Recall that all AOs were asked to nominate persons for the IMU Nominating Committee, see <http://www.mathunion.org/Publications/CircularLetters/2008-07.pdf> Five persons were nominated by IMU members in groups I and II, three persons by group III and IV members, and six persons by group V members. A random draw was executed on December 1 and 2 jointly by IMU President L. Lovasz, IMU Past President J. Ball and me. This resulted in the choice of the following persons:

From groups I and II:

Nigeria - Anthony Afuwape, [aafuwape@gmail.com](mailto:aafuwape@gmail.com)

From groups III and IV

Australia - Ian Sloan, [sloan@maths.unsw.edu.au](mailto:sloan@maths.unsw.edu.au)

From group V

UK - Nigel Hitchin, [hitchin@maths.ox.ac.uk](mailto:hitchin@maths.ox.ac.uk)

All three colleagues have confirmed that they are willing to serve on the Nominating Committee.

Now the IMU President L. Lovasz and the Chair of the Nominating Committee D. Mumford will have to choose by February 1, 2009 two further persons so that the Nominating Committee will consist of 7 persons and be complete then.

### 2. ICM 2014 Bids

=====

The deadline for bids to host ICM 2014 was the end of November 2008, see <http://www.mathunion.org/Publications/CircularLetters/2008-02.pdf> IMU received three excellent offers (in alphabetic order) from

- Montreal, Canada
- Rio de Janeiro, Brazil
- Seoul, Republic of Korea

The IMU Executive Committee has formed a Site Committee that will visit all three places during the first three months of 2009. The findings of this Committee will be discussed at the EC meeting on April 19 and 20, 2009 in Fuzhou, China. The final decision has to be made by the IMU General Assembly in August 2010.

### 3. IMU stable Office

=====

In 2007 IMU has asked all AOs for considering to host the IMU office in the future permanently, see <http://www.mathunion.org/Publications/CircularLetters/2007-06.pdf>  
After a first round of letters of intent bids have been requested by the end of December 2008. I am happy to be able to report that there was considerable interest and that there will be several very strong offers.

Sincerely yours  
and Season's Greetings

Martin Groetschel  
IMU Secretary

## 7. International Commission on Mathematical Instruction (ICMI)

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

### Report on ICMI activities in 2008 prepared by Bernard R. Hodgson, Secretary-General

#### 1. Organisation

The 2007-2009 **Executive Committee (EC)** of the International Commission on Mathematical Instruction (ICMI) had its second and third meetings in 2008. The EC met in Rome on March 4 and 9 on the occasion of the symposium celebrating the ICMI Centennial. On the first day of the meeting, László Lovász and Claudio Procesi, respectively President and Vice-President of the International Mathematical Union (IMU), were present. The EC also met in Monterrey on the occasion of ICME-11, on July 4-5 and 13. Two members of the IMU EC, Manuel de León and Cheryl Praeger, attended the first two days of that meeting. The regular presence of members of the IMU EC at the ICMI EC meetings is a clear reflection of the strengthening of the links between the two bodies. Moreover the Presidents and Secretaries (-General) of both Executive Committees have been throughout the year in regular email contact on various issues related to ICMI. Besides these two meetings, the work of the EC during 2008 was conducted by electronic communication under the direction of the President and the Secretary-General of ICMI.

Two countries have joined IMU in 2008, and thus became *de facto* members of ICMI. As of January 2008, Colombia became a full member of IMU, while Kenya acquired as of October 2008 the recently created status of “Associate member” of IMU. The number of **countries members of ICMI** at the end of 2008 was thus 85, including 14 countries that are not members of IMU. During 2008, a total of sixteen collective e-mail messages were sent by the Secretary-General to the ICMI Representatives, most of these asking for the collaboration of the Representatives in dissemination of information about ICMI and its activities.

The **General Assembly of ICMI** was held in Monterrey on July 6, 2008, on the day prior to the opening of ICME-11. The costs for hosting the General Assembly were generously supported by the ICME-11 organisers. For the first time, this General Assembly was responsible for the election of the ICMI Executive Committee. The Chair of the ICMI Nominating Committee for this election, Jeremy Kilpatrick, also attended the General Assembly in order to present the slate of candidates proposed by the Committee. The **new ICMI Executive Committee** then elected is composed of:

President:	William (Bill) Barton	(New Zealand)
Vice-Presidents:	Angel Ruiz	(Costa Rica)
	Mina Teicher	(Israel)
Secretary-General:	Jaime Carvalho e Silva	(Portugal)
Members at Large:	Maria G. (Mariolina) Bartolini Bussi	(Italy)
	Sung Je Cho	(Korea)

Roger Howe	(USA)
Renuka Vithal	(South Africa)
Zhang Yingbo	(China)

As a consequence of the shift in the ICMI EC election from the IMU GA to the ICMI GA, the term of this next EC is for three years, starting on January 1, 2010 and ending on December 31, 2012.

## 2. ICMEs

The 11th International Congress on Mathematical Education, **ICME-11**, was held in Monterrey, México, from July 6-13, 2008. It was attended by 2526 participants from 88 different countries, plus 180 accompanying persons. As the tradition has it since ICME-8, the ICME-11 organisers had made the commitment of devoting at least 10% of the registration fees to the ICME Solidarity Fund. This provided for an amount of 177 300 USD which, combined to a grant of 35 000 USD received from NCTM (USA), allowed to offer partial support to more than 150 participants from 41 non-affluent countries. The distribution of the money generated for the Fund was made by a Grant Committee, jointly appointed by the congress organisers and the ICMI Executive Committee, which, as is customary, worked autonomously and anonymously in order to minimize potential problems of pressure. The ICME-11 Congress, held for the first time in Latin America and in a country from the periphery, was a very successful event both from a scientific and social point of view.

At the opening ceremony of ICME-11, the 2005 and 2007 Felix Klein and Hans Freudenthal Medals were presented to the awardees: Ubiratan D'Ambrosio (Brazil) and Jeremy Kilpatrick (USA) — Felix Klein Medal; Paul Cobb (USA) and Anna Sfard (Israel) — Hans Freudenthal Medal.

The 12th International Congress on Mathematical Education, **ICME-12**, will be held in Seoul, Korea, from July 8 to 15, 2012. The International Programme Committee is chaired by Professor Professor Sung Je Cho, from the Department of Mathematics Education of Seoul National University. The composition of the IPC was finalised by the end of 2008. This Committee is expected to hold its first meeting in June 2009.

A call for bids for **ICME-13**, to be held in 2016, was made by the Secretary-General at the closing ceremony of ICME-11 and reproduced in the *ICMI Bulletin*. Potential bidders are invited to announce their intention by November 1, 2009, and formal bids should be submitted by November 1, 2010. The decision about the site of ICME-13 will be announced by the end of 2011.

## 3. ICMI Studies

No new ICMI Study volume has appeared in 2008. However progress was made on the editorial work for two Studies (Study 15: *The Professional Education and Development of Teachers of Mathematics*, and Study 16: *Challenging Mathematics In and Beyond the Classroom*). The resulting books have appeared early in 2009 in the **New ICMI Study Series**, published by Springer. The volume resulting from Study 17 (*Digital Technologies and Mathematics Teaching and Learning: Rethinking the Terrain*) is expected to appear by the end of 2009.

The Conference for **Study 18** on *Statistics Education in School Mathematics: Challenges for Teaching and Teacher Education* was held just prior to ICME-11, at the Instituto Tecnológico

y de Estudios Superiores de Monterrey (ITESM). As this Study is organised jointly with the International Association for Statistical Education (IASE), the conference also had the status of an IASE Round Table. Its International Programme Committee is chaired by Carmen Batanero. The conference was attended by more than 100 participants from 25 different countries.

The International Programme Committee for the **19th ICMI Study** on *Proof and Proving in Mathematics Education* met for a second time in November 2008 to finalise the programme of the Study conference. This conference will be held in May 2009 in Taipei, at National Taiwan Normal University.

The Executive Committee of ICMI has decided in 2008 the launching of two new Studies. The theme of the **20th ICMI Study** is *Educational Interfaces between Mathematics and Industry*. This Study is organised jointly with the International Council for Industrial and Applied Mathematics (ICIAM), so that the composition of the International Programme Committee reflects this partnership. The IPC is co-chaired by Alain Damlamian (Université Paris-Est) and Rudolf Straßer (Justus-Liebig-Universität Gießen). José Francisco Rodrigues (Universidade de Lisboa) acts as the Local Organiser and the Study Conference is planned to take place in Lisbon in April 2010. The IPC met in October 2008 and the Discussion Document was available early in 2009. The aim is to launch the Study volume during the 7th International Congress on Industrial and Applied Mathematics (ICIAM 2011), to be held in July 2011, in Vancouver, Canada.

The ICMI EC also decided in 2008 the launching of the **21st Study**, with tentative title *(Re)sourcing the teaching and learning of mathematics in multilingual contexts*. The EC has appointed as co-chairs of the International Programme Committee Mamokgethi Setati (University of Pretoria) and Maria do Carmo Domite (Universidade de São Paulo). The first meeting of the IPC has been scheduled for February 2009.

The ICMI EC completed successfully in 2008 a round of negotiation with Springer as regard the renewal of the **contract for the NISS series**, the previous contract going back to 2000. Among the objectives to be achieved in this new contract, besides maintaining current conditions such as the 60 % discount available to members of the ICMI community for personal purchases of NISS volumes, was an increase in the royalties (previously at 6 %). But more important was the issue of obtaining permission to post the content of the NISS volumes freely accessible on ICMI website, subject to a delay of a certain number of years after the publication of the book. The ICMI EC is satisfied to have reached agreement with Springer on a new contract meeting these objectives — the final discussion steps with Springer Education editor took place in Monterrey during ICME-11. The support of the IMU Executive Committee at various stages of the negotiation with Springer was highly appreciated.

#### 4. ICMI Regional Conferences

No ICMI Regional Conference was held in 2008, as this was the year of both the ICMI Centennial celebration and of ICME-11. However the **ICMI-EARCOME-5** conference (the *Fifth ICMI East Asia Regional Conference in Mathematics Education*) was approved by the ICMI EC as an ICMI Regional Conference. It will be held in Tokyo in August 2010. The EC is represented on the International Programme Committee of this conference by Frederick Leung.

Progress has been made in the preparation of two ICMI Regional Conferences, **EMF 2009** (Espace Mathématique Francophone), to be held in Dakar, Senegal, on April 6-10, 2009, as well as **AFRICME 3** (the *Third Africa Regional Congress of ICMI on Mathematical Education*), which will take place in Gaborone, Botswana, on May 18-21, 2010. The ICMI EC sees very positively the development of such mathematics education networks both in the English- and French-speaking countries of Africa.

## 5. ICMI Centennial

The year 2008 marks the **centennial of ICMI**, as the Commission was established during the Fourth International Congress on Mathematical Education. On this occasion, an international symposium, entitled “The First Century of the International Commission on Mathematical Instruction: Reflecting and Shaping the World of Mathematics Education”, was held in Rome, on March 5-8, 2008 (<http://www.unige.ch/math/EnsMath/Rome2008/>). The symposium was supported by special grants from UNESCO and IMU. The International Programme Committee was chaired by Ferdinando Arzarello, while Marta Menghini represented the Organising Committee within the IPC. Palazzo Corsini, home of the Accademia Nazionale dei Lincei and the very birth place of ICMI, and Palazzo Mattei di Paganica, home of the Enciclopedia Italiana, were the splendid venues for the symposium. Some 200 participants from 43 countries took part in the congress.

Taking as a point of departure the themes connected to ICMI activities over the course of its hundred year history (reforms in teaching of the sciences, preparation of teachers, relationships between mathematicians and researchers of teaching, etc.), the symposium sought to identify the future directions of research in didactics and possible initiatives for improving the level of mathematical culture in the various countries. The symposium was subdivided into ten plenary talks, eight parallel talks, five working groups, and an afternoon reserved for Italian teachers, with lectures by scholars from Italy and abroad. The talks on the “Italian afternoon” were broadcast via videoconference to fifty schools throughout Italy. The symposium ended with an excursion which, like a hundred years ago, took participants to visit the Villa d’Este at Tivoli and Hadrian’s Villa, both rich in historical grandeur.

On the occasion of the congress a website dedicated to the history of ICMI was created under the direction of Fulvia Furinghetti and Livia Giacardi (<http://www.icmihistory.unito.it/>). It delineates the most significant events and key figures through documents, images and interviews. The site is divided into six sections: Timeline; Portrait Gallery; Documents; The Affiliated Study Groups; The International Congresses on Mathematical Education; Interviews and Film Clips.

The symposium proceedings have appeared just before the end of 2008 and were published by the Enciclopedia Italiana, in their book series entitled *Scienze e Filosofia*. The talks of the Italian afternoon have been published in the journal *Progetto Alice*.

As expressed by one of the participants, attending the Centenary conference was a very special experience, as one was moved by the ambience of the symposium, the warmth and lofty spirit of the Italian team, and the fullness and intimacy of the immersion into the rich and complex history of ICMI that captivated everyone present there.

## 6. UNESCO/ICMI Exhibition



Over the last years, ICMI has been sponsoring, jointly with UNESCO and other bodies, the development of a mathematical exhibition entitled “**Experiencing mathematics**”, whose aim is to improve the image of mathematics among the general public. Three copies of the exhibition are now available and are being circulated internationally under UNESCO and ICMI auspices. During 2008, the first set of the exhibition travelled in Latin America. The travel started in Chile in October 2007, and pursued with Colombia (Bogotá), México (Mexico City and Monterrey, including the period of ICME-11), Paraguay (San Lorenzo, Villarica, Asunción) and Argentina (Buenos Aires, Tandil, Rosario, Tucuman). The number of visitors is estimated at 150 000 for this travel, which is going on in 2009 in Brazil. The second set travelled in Asia, including India, Pakistan, and the Philippines, and has reached Korea in November 2008. The third set of the exhibition travelled for six months in Portugal. To this must be added the development of a virtual exhibition in four different languages, connected to the one existing physically and aimed at secondary school mathematics teachers. This development was completed during the first months of 2008 and the official opening of this additional component took place in Angola in March 2008, with a specific training workshop for teachers sponsored by UNESCO and the Ministry of Education.

## 7. Developing Countries

ICMI has maintained in 2008 its actions for **developing countries**. Beyond the actions mentioned in the preceding section, in collaboration with UNESCO, ICMI contributed to the work undertaken by the Developing Countries Strategy Group of IMU in order to identify mathematical resources in Africa. Under the supervision of Jill Adler, Vice-President of ICMI, a report on the state of mathematics education in some selected countries with particular interest in possibilities for identifying and supporting talented or gifted mathematics students in the 10-18 years age group was produced. The countries involved were Burkina Faso, the Democratic Republic of the Congo, Ghana, Kenya, Lesotho, Malawi, Mozambique, Nigeria, Rwanda, South Africa, Swaziland, Tanzania, Tunisia, Uganda, Zambia, and Zimbabwe.

Also regarding Africa, ICMI was involved together with its French sub-commission (CFEM) in the preparation of the fourth Conference of the Francophone Mathematics Space (*Espace mathématique francophone* — EMF 2009) to be held in Dakar in April 2009 (see section 4 above). In addition, the President was invited to the second *Pan African Space on Mathematics* conference, devoted to education, held in Hammamet, Tunisia, in November 2008, where she presented ICMI activities with specific focus on developing countries and renewed the links with the African Mathematical Union. As a consequence of these contacts, it was agreed that the AMU Executive will be represented at EMF 2009, and that ICMI will be represented at the 7th PACOM to be held in Yamoussoukro, Ivory Coast, in August 2009.

The ICMI President was also invited to a conference on higher education and research in developing countries organised in Oslo in February 2008 by the Niels Henrik Abel Memorial Fund and the Oslo Center for Peace and Human Rights.

Moreover, two specific meetings were organized during ICME-11 for ICMI representatives from African countries on the one hand, and South and West Asia on the other hand, with the aim of reinforcing regional connections.

## 8. IMU Concerns about Mathematics Students

Progress on the “**Pipeline Project**” was pursued in 2008, partly in connection with the work of the Survey Team appearing on the programme of ICME-11 under the title “Recruitment, entrance and retention of students to university mathematics studies in different countries”. However the members of this team had attempted to collect relevant data and had difficulty even collecting data from their own countries.

A meeting of a project team (including Derek Holton, in charge of the ICME-11 Survey Team) was held in Rome in March 2008 on the occasion of the ICMI Centennial symposium. It was then agreed that a Case Study approach was the only one feasible. At that meeting it was decided to focus around four transition points using data from eight pilot countries. The Survey Team not only reported at Monterrey in July, but most of its findings were collected together into a Special Issue of the *International Journal of Mathematical Education in Science and Technology* 40(1), published in January, 2009.

One of the main problems for the Pipeline Project is the size of the task. The data mining that is necessary to obtain consistent, long-term data of a standard that enables it to be analysed for trends even within one country, let alone internationally, requires a very large investment of time. Each of the participating pilot countries was requested to find people who would be able to work on the project. It was only in August 2008 that any full-time person became available. Louise Sheryn, a post-doctoral researcher at the University of Auckland, was employed to work on the New Zealand Pipeline data. No other countries have managed to find or fund a Pipeline Researcher. As a result, the directorship of the project shifted to New Zealand, where Bill Barton agreed to direct the project to the end of its Pilot Phase, involving the eight pilot countries: Australia, Finland, France, Korea, New Zealand, Portugal, United Kingdom and USA.

## **9. The Klein Project**

The Klein Project was first mentioned during the June 2007 Executive Meeting of ICMI in the context of a discussion about worthwhile projects that would bind the mathematicians and mathematics educators communities. The basic idea of this project is to revisit the vision of Felix Klein presented in his book *Elementary Mathematics from an Advanced Standpoint*, first published a century ago. Klein’s aim was to provide prospective senior secondary teachers with a book that would lay out the connections between the curricula they would be teaching and research mathematics. It was intended as a stimulus for new teachers, so to help them connect their university mathematics education with school mathematics, and also aimed to present mathematics as a connected and living discipline. It was neither a textbook, nor a prescription for how mathematics should be taught in schools.

The reflections of the ICMI EC on this project were pursued at its two meetings of 2008 and also in conjunction with the IMU EC. It was decided to form a Design Team of 8-9 people who would be responsible for the project. This team may not be the actual writers of the resulting work, but would act as an editorial team for any production. The composition of this team, chaired by Bill Barton, was decided by the end of 2008.

The project will have three outputs: a book simultaneously published in several languages, a resource DVD for teachers, and a website. The book will be a presentation of the field of mathematics in relation to school curricula and its intended audience is senior secondary teachers. It will be accessibly written, stimulating, and have a wide coverage (“mathematics” in this context is to be broadly conceived to include statistics, applied mathematics, aspects of computer science and engineering science). Accompanying the book will be a DVD of

resources intended to assist teachers who wish to bring some of the ideas to realisation in their classes. Finally the website is intended to be a vehicle for the many people who wish to contribute to the project in an on-going way. It will be wiki-based so that it may be continually updated.

The Klein Design Team will have its first meeting in May 2009.

### 10. ICMI Affiliated Study Groups

ICMI continues to have five Affiliated Study Groups, namely (in the chronological order of their affiliation to ICMI) **HPM** (The International Study Group on the Relations Between the History and Pedagogy of Mathematics) and **PME** (The International Group for the Psychology of Mathematics Education) — 1976, **IOWME** (The International Organization of Women and Mathematics Education) — 1987, **WFNMC** (The World Federation of National Mathematics Competitions) — 1994 and **ICTMA** (The International Study Group for Mathematical Modelling and Applications) — 2003.

All the ICMI ASGs had specific slots on the programme of ICME-11. During the Congress, both the President and Secretary-General of ICMI were invited to one of the WFNMC sessions, where the Paul Erdős Medal awarded by this Affiliated Study Group were delivered by the ICMI President to Hans-Dietrich Gronau from Germany, Bruce Henry from Australia, Leou Shian from Taiwan, and Ali Rejali from Iran.

Moreover, two of the ASGs held conferences as satellite meetings of ICME-11. HPM 2008 took place in the Centro Cultural del México Contemporáneo, Mexico City, México, on July 14-18, while PME 32 was held jointly with PME-NA XXX in Morelia, México, on July 17-21. These two conferences welcomed respectively about 150 and 450 participants.

### 11. IMU/ICMI Digitisation Programme

Progress was made in 2008 on the digitisation of the ICMI material to be included in the **ICMI Digital Library**. During the last year, the digitisation of all issues of the *ICMI Bulletin* was completed and work on the ICMI Study volumes began. This digitisation process is being conducted at Bielefeld University with IMU support. Simultaneously negotiations were pursued with the copyright owners on that material so to obtain permission of making the material freely available through the ICMI website. While the case of the more recent Study volumes was positively resolved during the negotiations for the renewal of the NISS series contract with Springer (see section 3 above), matters are still pending, at the time of this report, as regards Cambridge University Press, the copyright owner for the first five ICMI Study volumes.

### 12. Information and Communication

The launching of **ICMI News**, the electronic newsletter whose first issued appeared in December 2007, met with considerable success, as it has passed the barrier of 1000 subscriptions in 2008 — including more than 200 to the Portuguese version of *ICMI News*. Six issues of *ICMI News* have appeared in 2008.

Work on the new version of the **ICMI website** was almost completed in 2008. The last steps included the re-programming of the site using the TYPO3 Web Content Management System as the environment for the website, so to allow for easier maintenance and updating of its

content, as several persons (with a proper access authorisation) will be entitled to edit the contents of the site separately and independently from the webmaster. This modification also provided an opportunity for bringing the website design up to more recent standards as regards the size and format of the window in which the webpages are shown.

The two issues of the *ICMI Bulletin* for the year 2008 underwent delays in publication.

**ICMI Financial Report 2008**  
**prepared by Bernard R. Hodgson, Secretary-General**

**ACCOUNTS**

**For the year ended December 31, 2008**

**ICMI Accounts 2008**

**1 January – 31 December**

**BALANCE AS OF JANUARY 1:**

<b>ICMI</b>	<b>• Canadian Dollars</b>	<b>53 185,49</b>
	<b>• US Dollars</b>	<b>42 740,21</b>
	<b>• Euros</b>	<b>33 931,15</b>
<b>Solidarity Fund (US Dollars)</b>		<b>38 175,26</b>

**Canadian Dollars Account:**

<b>Income:</b>		
balance 2007		53 185,49

interest	2 060,26
transfer from USD account (corresponding to 20 000,00 USD) <sup>1)</sup>	25 200,00
total	<u>80 445,75</u>

**Expenditure:**

ICMI Study 18: conference, Monterrey (June 2008)	175,08
ICMI Study 19: IPC meeting, Paris (November 2008) <sup>2)</sup>	3 515,07
ICMI Study 20: IPC meeting, Obidos (October 2008) <sup>3)</sup>	3 883,49
ICMI EC meeting, Rome (March 2008)	4 209,69
ICMI EC meeting, Monterrey (July 2008)	13 629,59
ICMI Centennial: interviews	1 183,71
ICMI Centennial symposium	5 978,09
travel expenses of ICMI President <sup>4)</sup>	1 429,84
EMF 2009: meeting with organisers in Dakar, travel and expenses of Secretary-General	1 822,29
ICMI website (programming and migration to TYPO3)	4 000,00
Klein and Freudenthal ICMI Awards: certificates and medals	538,98
secretariat expenses	190,16
transfer to USD account (corresponding to 1 083,00 USD)	1 113,00
transfer to EUR account (corresponding to 50,64 EUR)	72,00
bank charges (checks and foreign transfers)	57,00

**ICMI balance 2008 (CAD account) 38 647,76**

total 80 445,75

**US Dollars Account:****Income:**

ICMI balance 2007	42 740,21
grant from UNESCO: ICMI Centennial Symposium	5 000,00
reimbursement of loan from the ICMI Centennial Symposium <sup>5)</sup>	5 000,00
transfer from CAD account (corresponding to 1 113,00 CAD)	1 083,00
ICMI interest	1 323,72

**Solidarity Fund balance 2007 <sup>6)</sup> 38 175,26**  
**Solidarity Fund interest 1 026,94**

total 94 349,13

**Expenditure:**

ICMI Study 17: editorial work <sup>7)</sup>	5 500,00
ICMI Study 18: conference, Monterrey (June 2008)	960,00
ICMI Study 19: IPC meeting, Paris (November 2008) <sup>2)</sup>	1 911,03
ICMI EC meeting, Rome (March 2008)	1 825,11



2. The second meeting of the International Programme Committee for the nineteenth ICMI Study on *Proof and proving in mathematics education* took place at the Centre International d'Études Pédagogiques in Sèvres, France, in November 2008. This meeting was supported by two grants received from French institutions (350 € from the Laboratoire d'Étude du Phénomène Scientifique (LEPS – EA4148), Université de Lyon, and 150 € from the IREM of Université Paris 7) to cover part of the local accommodations, meals and meeting rooms.
3. The International Programme Committee for the twentieth ICMI Study on *Education Interfaces between Mathematics and Industry* met in Óbidos, Portugal, in October 2008. The costs of this meeting were substantially reduced by a generous grant of 2 519,50 € from the CIM (*Centro Internacional de Matemática*) to cover local accommodations, meals and meeting rooms. Moreover ICMI and ICIAM shared the costs of part of the meals.
4. This amount corresponds to two invitations received in 2008 by the President of ICMI to represent the Commission for which ICMI had to cover part of the expenses: a conference on higher education and research in developing countries organised in Oslo in February 2008 by the Niels Henrik Abel Memorial Fund and the Oslo Center for Peace and Human Rights; and the second *Pan African Space on Mathematics* conference, devoted to education, held in Hammamet, Tunisia, in November 2008.
5. Reimbursement of an interest-free loan of 5 000 USD made in 2007 to the organising committee of ICMI Centennial Symposium, held in Rome in March 2008.
6. The assets of the **ICMI Solidarity Fund**, established in 1992, are kept, on the ICMI accounts, separately from ICMI's general resources.
7. From the private sponsorships received for Study 17 (see the ICMI 2006 financial report), a sum of 5 500 USD had been set aside for covering part of the costs of the editorial work, done under contract at the Freudenthal Institute for Science and Mathematics Education in Utrecht, Netherlands.
8. Support to cover part of the travel and local costs of the person in charge of the presentation of the UNESCO/ICMI mathematics exhibition during ICME-11.
9. Financial support to the organization of ICME-11: grant of 7 500 USD. The Mexican organisers did not request the interest-free loan of 7 500 USD also made available to them.
10. Transfer to ICME-11 of the IMU grant (received in 2007).
11. This annual financial report provides information on the assets of ICMI, as well as on the income and expenditure of the Commission during the year 2008 as reflected in its bank accounts. But it does not represent the whole financial situation of ICMI.

For instance, as indicated above, in addition to the IMU annual grant, other substantial supports for specific activities were received from UNESCO, from the LEPS laboratory, Université de Lyon, and from the IREM of Université Paris 7 (see Note 2), as well as from the CIM (see Note 3). Also, the organisers of the ICME-11 congress held in Monterrey generously supported the costs (rooms and meals) for hosting the ICMI General Assembly (5 500 USD) as well as the costs of meeting rooms for the ICMI EC (810 USD).

The ICMI Executive Committee wishes to stress other sources of support which are essential to the financial health of the Commission and without which it could not face its duties. Substantial external support was obtained on an individual basis by members of the Executive Committee as well as by many individuals involved in the programme committees of ICMI activities, their home institutions (partially) covering the expenses related to their participation in organisational meetings so that they did not need to claim full reimbursement from ICMI. For example, during the year 2008, the following events and actions greatly benefited from an important support received from the many institutions to which the members of the committees belong (the amounts are approximate and in USD):

- *ICMI Executive Committee meeting, Rome, March 2008*  
     travel of nine EC members 7 500,00  
     accommodations for ten members 3 000,00
- *ICMI Executive Committee meeting, Monterrey, July 2008*  
     travel of nine EC members 7 500,00  
     accommodations for six members 1 500,00
- *ICMI Study 19 IPC meeting, Paris, November 2008*  
     travel of nine EC members 5 800,00
- *ICMI Study 20 IPC meeting, Obidos, October 2008*  
     travel of eleven EC members 7 200,00
- *EMF 2009, meeting with organisers in Dakar, October 2009*  
     travel of the chair of the Scientific Committee 1 050,00

Moreover the Secretary-General's home institution, Université Laval, has contributed in 2008 a support to ICMI's work of the order of 11 500 USD (e.g. through telephone and fax, email facilities, postage, the costs of the *ICMI Bulletin*, occasional secretarial help, plus a partially reduced teaching load for the Secretary-General).

The soundness of the financial situation of ICMI depends to a large extent on such external "invisible" support to the individuals involved in the organisational work of the Commission. But the difficult financial situation of several higher education institutions around the world makes this type of support rather fragile.

## **8. Commission on Development and Exchanges (CDE)**

<http://users.ictp.it/~cde/>

### **Report on CDE activities in 2008 prepared by Sharon Laurenti, Administrative Secretary IMU/CDE**

During the interval 1 January - 31 December 2008, CDE received a total of 58 applications for financial support, in the three existing categories:



- (i) conferences in developing countries<sup>1</sup>
- (ii) conferences in developed countries<sup>2</sup>
- (iii) individual research travel support

After initial routine screening by the Administrative Secretary to ensure that requests fell within IMU programme guidelines, a total of 55<sup>3</sup> applications were circulated to the Commission for review during the year.

During the interval 1 January<sup>4</sup> - 31 December, a total of 45 awards<sup>5</sup> were made, for a total value of USD 51,200.

Partial support was granted in **27 cases** for conferences taking place in the following **developing countries**:

<i>Country</i>	<i>No. awards</i>	<i>Total value of awards (USD)</i>
Argentina	5	5,000
Armenia	1	1,000
Brazil	1	2,500
Burkina Faso	1	1,000
Colombia	1	1,500
Cuba	2 (to the same conference)	1,500
Ecuador	1	800
Egypt	1	1,500
Guatemala	1	1,000
India	3	4,000
Indonesia	1	1,500
Iran	1	1,500
Morocco	3	3,100
Mozambique	1	1,000
Russian Federation	1	1,500
Tunisia	1	1,500
Ukraine	1	1,000
Uzbekistan	1	3,000
<b>Total</b>	<b>27</b>	<b>33,900</b>

<sup>1</sup> In 2008, the IMU/CDE definition of a developing country was where the Per Capita Gross National Income according to the World Bank's Development Indicators (Atlas methodology) was not in excess of USD 6,000.

<sup>2</sup> CDE 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 CDE by an equal amount from other sources also dedicated to the participation of mathematicians from developing countries.

<sup>3</sup> This number includes those applications received during December 2007 and circulated to the Commission in January 2008.

<sup>4</sup> CDE's January awards included 2 awards on applications received during November 2007, circulated to the Commission in December 2007, and decided upon in January. February awards included 6 awards on applications received during December 2007, circulated to the Commission in January, and decided upon in February

<sup>5</sup> At 31 December 2008, six of these awards, for a total value of USD 11,000, remained to be disbursed.

Partial support was granted in **5** cases of **conferences** taking place in the following **developed countries**:

<i>Country</i>	<i>No. awards</i>	<i>Total value of awards (USD)</i>
Spain	1	900
The Netherlands	1	1,000
Turkey	2	3,000
United Kingdom	1	1,500
<b>Total</b>	<b>5</b>	<b>6,400</b>

**Individual research travel support** was granted in **13** cases, to mathematicians from:

<i>Country</i>	<i>No. awards</i>	<i>Total value of awards (USD)</i>
Armenia	1	1,000
Ecuador	1	800
Gabon	1	800
Georgia	1	900
India	2	1,600 <sup>6</sup>
Iran	1	700
Nigeria	1	1,000
Philippines	1	800
Portugal ( <i>for travel to Argentina</i> )	1	900 <sup>7</sup>
Tajikistan	1	900
Tunisia	1	500
Uruguay	1	1,000
<b>Total</b>	<b>13</b>	<b>10,900</b>

Due to budgetary constraints, the amounts awarded for conferences were perforce rather small.

**Schedule A expenditures** during the year were limited to USD 1,561.87 in bank fees charged for the transfer of grant monies.

### **Income 1 January - 31 December 2008**

<i>Source</i>	<i>Amount (USD)</i>
---------------	---------------------

<sup>6</sup> One of these grants, to the value of USD 800, was returned due to the awardee's impossibility to travel.

<sup>7</sup> This grant was returned due to the awardee's impossibility to travel.

IMU Schedule A	2,797.36
IMU Schedule B	52,054.35
Donation from Swiss Mathematical Society	760.68
<u>Donation from Mathematical Society of Japan</u>	<u>1,575.96</u>
Total	57,188.35
=====	

A detailed financial report accompanies this narrative.

**Misc.**

During the year, CDE co-operated fully with the efforts of the Executive Committee of the IMU to expand the reach of IMU support in the developing world.

CDE FINANCIAL REPORT 2008									
Transaction	Date	Type	Schedule A (Admin.)	Schedule B (\$ to Ind.)	Schedule A	Schedule B	Account Balance		
		CS=Conf. Support / RT=Ind. Res. Travel			Schedule A	Schedule B	Balance		
<b>CDE Beginning Balance 2008 (inclusive of USD 7100 encumbered but not disbursed in 2007)</b>	01.01.2008				\$1,460,63	\$16,946,83	\$18,407,46		
50% of CHF 6180 Sch A + 115000 Sch B for 2008 (ROE CHF1=USD 0.905293)			(\$2,797,36)	(\$52,054,35)	\$4,257,99	\$69,001,18	\$73,259,17		
Swiss Mathematical Society donation (Euro 516.24)	14.02.2008			(\$760,68)	\$4,257,99	\$69,761,86	\$74,019,85		
Nang	20.02.2008	RT Gabon->ICTP (agrmt)		\$800,00	\$4,257,99	\$68,961,86	\$73,219,85		
De Los Reyes	20.02.2008	CS Ecuador		\$800,00	\$4,257,99	\$68,161,86	\$72,419,85		
Ran/Wiegerinck	20.02.2008	CS The Netherlands		\$1,000,00	\$4,257,99	\$67,161,86	\$71,419,85		
Rasulov (2007 award)	04.03.2008	RT Uzbekistan->ICTP (CDE/ICTP agrmt)		\$800,00	\$4,257,99	\$66,361,86	\$70,619,85		
Mena	25.03.2008	RT Ecuador->Germany		\$800,00	\$4,257,99	\$65,561,86	\$69,819,85		
Searle (2007 award)	01.04.2008	CS Mexico		\$1,000,00	\$4,257,99	\$64,561,86	\$68,819,85		
De talla	03.04.2008	RT Philippines->ICTP (agrmt)		\$800,00	\$4,257,99	\$63,761,86	\$68,019,85		
Prajapat	03.04.2008	RT India->ICTP (agrmt)		\$800,00	\$4,257,99	\$62,961,86	\$67,219,85		
Bahraini	03.04.2008	RT Iran->ICTP (agrmt)		\$700,00	\$4,257,99	\$62,261,86	\$66,519,85		
ElHarti (2007 award)	07.04.2008	CS Morocco		\$1,000,00	\$4,257,99	\$61,261,86	\$65,519,85		
Minian	21.04.2008	CS Argentina		\$1,000,00	\$4,257,99	\$60,261,86	\$64,519,85		
Mukerjee	21.04.2008	CS India		\$1,000,00	\$4,257,99	\$59,261,86	\$63,519,85		
Martinez-Moro	05.05.2008	CS Spain		\$900,00	\$4,257,99	\$58,361,86	\$62,619,85		
Harboure	05.05.2008	CS Argentina		\$1,000,00	\$4,257,99	\$57,361,86	\$61,619,85		
Sarih	13.05.2008	CS Morocco		\$600,00	\$4,257,99	\$56,761,86	\$61,019,85		
Chorwadwala	19.05.2008	RT India->ICTP (agrmt)		\$800,00	\$4,257,99	\$55,961,86	\$60,219,85		
Demidenko	19.05.2008	CS Russian Federation		\$1,500,00	\$4,257,99	\$54,461,86	\$58,719,85		
Barreto/Cardoso (2007 award)	19.05.2008	CS Brazil		\$1,000,00	\$4,257,99	\$53,461,86	\$57,719,85		
Pacharoni	02.06.2008	CS Argentina		\$1,000,00	\$4,257,99	\$52,461,86	\$56,719,85		
Shubladze	02.06.2008	RT Georgia->ICTP (agrmt)		\$900,00	\$4,257,99	\$51,561,86	\$55,819,85		
Sahakian/Arakelian	02.06.2008	CS Armenia		\$1,000,00	\$4,257,99	\$50,561,86	\$54,819,85		
Hervé/Treuil (2007 award)	20.06.2008	CS Madagascar		\$1,000,00	\$4,257,99	\$49,561,86	\$53,819,85		
Azizi	20.06.2008	CS Morocco		\$1,500,00	\$4,257,99	\$48,061,86	\$52,319,85		
Pani/Nataraj	17.07.2008	CS India		\$1,500,00	\$4,257,99	\$46,561,86	\$50,819,85		
Rittatore	17.07.2008	RT Uruguay -> Canada		\$1,000,00	\$4,257,99	\$45,561,86	\$49,819,85		
Dotli/Lauret	28.07.2008	CS Argentina		\$1,000,00	\$4,257,99	\$44,561,86	\$48,819,85		
Reimbursement of 3 April 2008 cheque to Prajapat	13.08.2008			(\$730,04)	\$4,257,99	\$45,291,90	\$49,549,89		
Iusem	05.09.2008	CS Guatemala		\$1,000,00	\$4,257,99	\$44,291,90	\$48,549,89		
Leadi (2007 award)	05.09.2008	RT Benin->ICTP (CDE/ICTP agrmt)		\$900,00	\$4,257,99	\$43,391,90	\$47,649,89		
Nurov	05.09.2008	RT Tajikistan->ICTP (agrmt)		\$900,00	\$4,257,99	\$42,491,90	\$46,749,89		
Okoya	18.09.2008	RT Nigeria->ICTP (agrmt)		\$1,000,00	\$4,257,99	\$41,491,90	\$45,749,89		
Agapito Ruiz	24.09.2008	RT Portugal->Argentina		\$900,00	\$4,257,99	\$40,591,90	\$44,849,89		
SAMSA Conference 2008 (Munembe)	24.09.2008	CS Mozambique		\$1,000,00	\$4,257,99	\$39,591,90	\$43,849,89		

Kocatepe	26.09.2008	CS Turkey			\$1.500,00	\$4.257,99	\$38.091,90	\$42.349,89
Uludag	26.09.2008	CS Turkey			\$1.500,00	\$4.257,99	\$36.591,90	\$40.849,89
Tri Baskoro	26.09.2008	CS Indonesia			\$1.500,00	\$4.257,99	\$35.091,90	\$39.349,89
Kamoun	26.09.2008	CS Tunisia			\$1.500,00	\$4.257,99	\$33.591,90	\$37.849,89
Yengui	25.10.2008	RT Tunisia->France			\$500,00	\$4.257,99	\$33.091,90	\$37.349,89
Wolanski	29.10.2008	CS Argentina			\$1.000,00	\$4.257,99	\$32.091,90	\$36.349,89
Reimbursement of Agapito Ruiz's Euro 610 (20 Nov. 2008 USD equivalent = 765.35)	17.11.2008				(\$765,35)	\$4.257,99	\$32.857,25	\$37.115,24
Zahorodniuk	24.11.2008	CS Ukraine			\$1.000,00	\$4.257,99	\$31.857,25	\$36.115,24
Barseghyan	11.12.2008	RT Armenia->CTP			\$1.000,00	\$4.257,99	\$30.857,25	\$35.115,24
Ouattara	12.12.2008	CS Burkina Faso			\$1.000,00	\$4.257,99	\$29.857,25	\$34.115,24
Gasparim	12.12.2008	CS Cuba			\$1.500,00	\$4.257,99	\$28.357,25	\$32.615,24
Donation from Mathematical Society of Japan	16.12.2008				(\$1.575,96)	\$4.257,99	\$29.933,21	\$34.191,20
Jazar-CIMPA	18.12.2008	CS Egypt			\$1.500,00	\$4.257,99	\$28.433,21	\$32.691,20
Geetha	18.12.2008	CS India			\$1.500,00	\$4.257,99	\$26.933,21	\$31.191,20
Bank charges for 2008 money transfers	31.12.2008					\$2.696,12	\$26.933,21	\$29.629,33
<b>Funds encumbered</b>								
Tieudjo (encumbered since 2007)		RT Cameroon->Germany			\$400,00	\$2.696,12	\$26.533,21	\$29.229,33
Khosrovshahi		CS Iran			\$1.500,00	\$2.696,12	\$25.033,21	\$27.729,33
Cardona/Reyes		CS Colombia			\$1.500,00	\$2.696,12	\$23.533,21	\$26.229,33
Maniar		CS Morocco			\$1.000,00	\$2.696,12	\$22.533,21	\$25.229,33
Ruzhansky/Laptev		CS United Kingdom			\$1.500,00	\$2.696,12	\$21.033,21	\$23.729,33
El Zein		CS Uzbekistan			\$3.000,00	\$2.696,12	\$18.033,21	\$20.729,33
Polcino Milles		CS Brazil			\$2.500,00	\$2.696,12	\$15.533,21	\$18.229,33
<b>CDE Closing Balance 31 December 2008</b>						<b>\$2.696,12</b>	<b>\$15.533,21</b>	<b>\$18.229,33</b>

## Report on the activities of the Developing Countries Strategy Group (DCSG)

1 January - 31 December 2008

### Activities

1. The *Mathematics in Africa: Challenges and Opportunities* survey requested by the John Templeton Foundation was carried out. 65 institutions/individuals were invited to contribute to the survey, and 19 contributions were received; a 50-page report ensued. The report was drafted by Alan Anderson, a writer for the Science Initiative Group (SIG) and the U.S. National Academy of Sciences, and revised by the Ad Hoc Committee for the survey, John Ball (DCSG), David Bekolle (AMMSI<sup>8</sup>), C. Herbert Clemens (DCSG), Arlen Hastings (SIG), Edward Lungu (AMMSI) and Wandera Ogana (AMMSI). To the authors of the contributions an honorarium will be paid from the Templeton grant funds.

2. (a) DCSG approved the allocation of USD 13,000 towards the fund for our Volunteer Lecturers Programme for the developing world, in particular to finance the visits of three volunteers to the National University of Laos in August 2009.

(b) Within the framework of the Volunteer Lecturers Programme, the Department of Mathematics of the University of Dar es Salaam, Tanzania, requested a volunteer to deliver a course on Functional Analysis, and Vladimir Vershinin from the University of Montpellier, France, accepted our invitation. His feedback on the experience is appended.

3. DCSG granted USD 5,000 towards the expenses of three African participants in a Round Table Discussion on Mathematics in Africa which took place during the 5th European Congress on Mathematics (Amsterdam, The Netherlands, 14 - 28 July 2008). See appended report.

4. DCSG supplemented by USD 5,000 CDE<sup>9</sup>'s grant of USD 1,000 to the Southern Africa Mathematical Sciences Association (SAMSA) for its Annual Conference 2008, which took place in Maputo, Mozambique, during 25 - 29 November 2008.

5. DCSG granted USD 5,000 to the GIRAGA network (Groupe Inter-Africain de Recherche en Analyse, Géométrie et Applications) for its XIIth GIRAGA Seminar and an ensuing Colloquium in honour of J.-P. Ezin, one of the network's founders. The event took place in Benin during 3 - 12 December 2008.

6. DCSG granted USD 5,000 to the South East Asian Mathematical Society for the Fifth Asian Mathematical Conference, to take place in Penang, Malaysia, during 22 - 26 June 2009.

---

<sup>8</sup> African Mathematics Millennium Science Initiative

<sup>9</sup> Commission on Development and Exchanges of the International Mathematical Union

7. DCSG supplemented by USD 1,500 CDE's grant of USD 1,500 to Imperial College London, U.K., for the participation of mathematicians from developing countries in the 7th International ISAAC Congress, which will take place in London during 13 - 18 July 2009.

8. DCSG has continued monitoring the deployment of the grants awarded by the Levehulme Trust and the Nuffield Foundation, in particular the Mentoring African Research in Mathematics (MARM) mentorships.

9. As may be recalled from our previous report, in 2007 DCSG had approved IMU involvement in a programme of the U.S. National Committee for Mathematics to help vet applications from the developing world to the mathematics research institutes in the U.S., and the vetting is being done via our network of professional mathematicians in the developing world. In 2008, the U.S. Statistical and Applied Mathematical Sciences Institute in North Carolina sought our collaboration for the vetting of a Ghanaian applicant to one of their programmes.

### **Budget for 2008**

(i) IMU allocated CHF 115,000 (approx. USD 104,100) in Schedule B funds to CDE and DCSG for their 2008 programmes (roughly half of this anticipated as the 2008 grant from the Abel Fund). This allocation was split equally between CDE and DCSG.

(ii) IMU allocated CHF 56,000 (approx USD 45,000) for the CDE/DCSG Administrative Secretary's salary in 2008.

A detailed financial report accompanies this narrative.

### **IMU-supported administrative post at ICTP**

Work done by Sharon Laurenti included:

#### for CDE

- receipt and onward processing of applications for CDE support, checking for eligibility and completeness of information and, where necessary, contacting applicants for missing information;
- drafting and transmitting a monthly mailing to CDE members, retrieving from CDE records and including, where applicable, any relevant information on previous awards;
- informing applicants of the Commission's decisions;
- administering CDE accounting and fund transfers;
- maintaining CDE archives and records;
- drafting of CDE's 2008 annual financial and narrative reports to IMU/EC.

#### for DCSG

- co-ordination of the Mathematics in Africa survey for the John Templeton Foundation, mailing of requests to African mathematical institutions and individuals for contributions and data/report collection;
- administering DCSG accounting and fund transfers;
- transmitting a bi-monthly mailing to DCSG members;
- maintaining the online database of volunteers for the Volunteer Lecturers Programme, and corresponding with volunteer lecturers and requesting departments in the developing world to arrange courses by volunteers;
- drafting the report for the Board for the Niels Henrik Abel Memorial Fund on the uses of their grant for 2008;
- maintaining DCSG webpage;
- drafting of DCSG's annual financial and narrative reports to IMU/EC

## APPENDIX

### Vershinin feedback

#### **USNCM/IMU Volunteer Lecturer Program - Survey**

A. What were the location and dates of your lectures?

*University of Dar Es Salaam, Department of Mathematics; 3 weeks : from September 22 to October 10 2008; on October 11 (Saturday) I was checking tests, homeworks and final examinations*

B. What was the subject of the course you taught?

*Functional Analysis*

C. The goal of the lecture is to provide an intensive 3-4 week courses at universities in the developing world at the advanced undergraduate level. These courses should have a student audience of 20 or more, be controlled, with examinations, and be part of a regular degree program at the university at which they are offered. Was this goal achieved?

*Completely. There were 28 students from several African countries.*

D. The lecturer should be assisted by a local mathematics professor who prepares the students beforehand, assists when necessary during the course, and takes care of any necessary follow-up. Was you local assistant provided, and was his/her work satisfactory?

*Yes. Very good.*

E. Did you develop or follow a prescribed syllabus or did you write your own? Was it available to the students before the course or when the course began?



*There was a prescribed syllabus, that I ameliorated and developed. The printed materials that I brought with me were copied and given to the students. Tests, tasks for homeworks and content of final examinations I prepared myself, they were copied and given to the students.*

F. Did you use any books, classroom material, AV, or other technology-based materials?

*Books were used, AV not.*

G. What type of assessment tools did you use?

*Tests, homeworks, final examinations.*

H. What are your principal observations concerning this experience?

*The level of African students is very, very low, though their interest in Mathematics is high.*

I. Did you feel that your contribution was useful and appreciated?

*I think that every contact with qualified enough professor is very useful for African students and appreciated by them.*

J. What did you like the most about your experience?

*Interest of the students in Mathematics. It is not always the case in Europe.*

K. What did you like the least about your experience?

*It was at least 5 hours of lectures per day and some days 7 hours. It is too much for students.*

L. How could your experience be improved?

*To diminish the number of lecture hours.*

M. How would you evaluate the overall utility of the work to your students?

\_\_\_ Outstanding \_\_\_ Very Good \_\_\_ Average \_\_\_ Marginal \_\_\_ Unsatisfactory

*I think very good. Anyway I tried my best.*

N. How would you evaluate the overall appropriateness of your living arrangements, care taken of your needs by your local host, etc.?

\_\_\_ Outstanding \_\_\_ Very Good \_\_\_ Average \_\_\_ Marginal \_\_\_ Unsatisfactory

*Taking into account the general conditions in the country, I think the local hosts did their best to make the living arrangements as good as it possible.*

O. Any other thoughts?

*The program should definitely continue.*

\* \* \* \* \*

SHORT REPORT OF ROUND TABLE DISCUSSION ON MATHEMATICS AND  
DEVELOPING COUNTRIES: MATHEMATICS IN AFRICA, 17 JULY 2008,  
DURING 5th ECM

*Prof. Dr. Andreas Griewank*  
*Moderator and Organizer of the Round Table*

The round table discussion was organized as a follow-up to one on 'Developing Mathematics in the Developing World' held at ICIAM'07. While the previous event had a global scope, this one focused on developing mathematics in Africa. The panel, comprising individuals actively involved in several development activities and organizations, presented and discussed among themselves and with the audience a wide range of topics including: Status quo of mathematics in statistical terms; Challenges with the development of advanced centers of Excellence; Whether mathematical research is an issue for a developing country; Barriers: political, economical, and cultural; Remedies: 'Twinning' of departments in developing countries with departments in the developed countries; and Strategies to persuade African governments to support the development of mathematics in their countries. Finally, panel members answered questions and took suggestions from the audience.

It was clear from the audience's vigorous discussions and contributions, especially from those working in various development activities in Africa, that the round table had highlighted challenges faced by Africa and other developing regions in the development of mathematics. To this end, a number of possible solutions were discussed. Existing efforts by the European Mathematical Society were presented, including a proposal to provide up to 500 euros 'seed grants' to mathematics departments in developed countries who wish to participate in the twinning project. A list of over twenty pairs of departments that had already twinned by the time of the round table was also presented.

An article on the event by Levis Eneya should appear in the EMS Newsletter soon.

We are grateful to EMS and IMU for the organizational and financial support, which made the round table a success, as it enabled the panel members to travel and stay in Amsterdam during the congress. These were:

(Name / Affiliation / Type of support received)

Laura Pauline Fotso / University of Yaoundé I, Cameroon / Full travel and accommodation

Wandera Ogana / University of Nairobi, Kenya / Partial travel and accommodation

Gareth Whitten / University of Cape Town, South Africa / Partial travel and accommodation

Leif Abrahamsson / Uppsala University, Sweden / Organizational

Tsou Sheung Tsun / Oxford University, UK / Organizational

Mohamed Jaoua / UNESCO Tunis and Université de Nice Sophia Antipolis, France  
/ Organizational

Bernard Philippe / INRIA, France / Organizational

Andreas Griewank / Humboldt Universität zu Berlin / Organizational and  
accommodation

Levis Eneya<sup>10</sup> / Humboldt Universität zu Berlin / Organizational, partial travel and  
accommodation

\* \* \* \* \*

---

<sup>10</sup> Levis Eneya is a PhD student from Malawi who assisted with the organization of the event.

**DCSG FINANCIAL REPORT 2008**

Transaction	Date	Type	Schedule A (Admin.)	Schedule B (CS/VLP)	Balances		Account Balance
					Schedule A	Schedule B	
		CS = Conf. Support VLP = Volunteer Lecturer Prog.					
<b>DCSG Beginning Balance 2008 (inclusive of USD 11,000 encumbered but not disbursed in 2007)</b>					<b>\$2,280.91</b>	<b>\$16,775.92</b>	<b>\$19,056.83</b>
50% of CHF 6180 Sch A + 115000 Sch B for 2008 (ROE CHF1=USD 0.905293)				(\$52,054.35)	\$5,078.27	\$68,830.27	\$73,908.54
Ran/Wiegerinck for 5th European Congress of Mathematics, 14-18 July 2008 (2007 encumbered funds)	<b>20.02.2008</b>	CS Netherlands	(\$2,797.36)	\$5,000.00	\$5,078.27	\$63,830.27	\$68,908.54
Ismail for 5th Asian Mathematical Conference (AMC2009), 22-26 June 2009	21.04.2008	CS Malaysia		\$5,000.00	\$5,078.27	\$58,830.27	\$63,908.54
Bekolli/Tossa for XII Giraga	02.06.2008	CS Benin		\$5,000.00	\$5,078.27	\$53,830.27	\$58,908.54
5th ECM for Round Table Discussion on Mathematics in Africa	20.06.2008	CS Netherlands		\$5,000.00	\$5,078.27	\$48,830.27	\$53,908.54
SAMSA Conference 2008 (Munembe)	24.09.2008	CS Mozambique		\$5,000.00	\$5,078.27	\$43,830.27	\$48,908.54
Vershimine I (from 2007 funds encumbered for VLP)	08.09.2008	VLP		\$1,489.36	\$5,078.27	\$42,340.91	\$47,419.18
Vershimine II (from 2007 funds encumbered for VLP)	31.10.2008	VLP		\$2,419.27	\$5,078.27	\$39,921.64	\$44,999.91
Forfeit of funds to compensate for loss in Abel Fund income due to currency fluctuations	17.11.2008			\$13,900.00	\$5,078.27	\$26,021.64	\$31,099.91
Bank charges for 2008 money transfers	31.12.2008		\$149.75		\$4,928.52	\$26,021.64	\$30,950.16
<b>Funds encumbered for VLP for 3 volunteers for Laos in August 2009</b>							
VLP Fund (USD 2,091.37 remaining from 2007 encumbered funds + USD 13,000 from 2008 funds)				\$15,091.37	\$4,928.52	\$10,930.27	\$15,858.79
ISAAC 2009		CS United Kingdom		\$1,500.00	\$4,928.52	\$9,430.27	\$14,358.79
<b>Closing balance at 31 December 2008</b>					<b>\$4,928.52</b>	<b>\$9,430.27</b>	<b>\$14,358.79</b>

**9. International Commission on the History of Mathematics (ICHM)**

<http://www.unizar.es/ichm/>

**Report of the Activities of the  
International Commission for the History of Mathematics (ICHM) in  
2008**

*Karen Hunger Parshall (Chair)*

In 2008, the International Commission for the History of Mathematics (ICHM) has continued to pursue its dual aims of encouraging the study of the history of mathematics and of promoting a high level of historically and mathematically sophisticated scholarship in the field internationally. It has done so in the following ways:

**Conferences /Symposia/ Congresses:**

In 2008, the ICHM co-sponsored the following *five* events internationally:

1. ICHM Special Session at the Joint Meetings of the AMS-MAA, San Diego, CA (January 2008);
2. "Mathematics: Picture of Reality or Created by the Mind?," Ninth Austrian Symposium on the History of Mathematics, Miesenbach, Austria, 12-18 May, 2008;
3. Session on "The Archimedes Palimpsest: A Symposium on Archimedes and Archimedean Mathematics in China" in connection with the twelfth International Congress on the History of Science in East Asia, Baltimore, MD, USA, 18 July, 2008;
4. Session on "Case Studies in the Internationalization of Mathematics: Goals, Strategies, and Outcomes in the Nineteenth and Twentieth Centuries" at the History of Science Society annual meeting, Pittsburg, PA, USA, 4-6 November, 2008; and
5. Conference on the " 'Unreasonable Effectiveness?' Historical Origins and Philosophical Problems for Applied Mathematics," Oxford, England, 16-17 December, 2008.

For the full reports on these meetings and sessions, see the ICHM's newly redesigned webpages at <http://www.unizar.es/ichm/home.htm>

**Projects:**

1. The ICHM has completely redesigned and updated its webpages.
2. The ICHM continues to compile and maintain a searchable database of information on historians of mathematics around the world.
3. The ICHM has begun an e-mail list and regular e-mailing of historians of mathematics internationally in an effort both to keep them more informed on the ICHM's activities than is possible in an annual snail mailing and to engage them more directly in the ICHM by encouraging them to report on events of interest in their respective countries.

## Publications:

*Historia Mathematica* is the official journal of the ICHM. Under the direction of Benno van Dalen (Germany), Editor, and June Barrow-Green (United Kingdom), Managing Editor, the journal appears four times annually and comprises annually roughly 525 pages of original research in the history of mathematics from all times and cultures. It is published by Elsevier Science and is available electronically to subscribers of IDEAL.

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

<http://www.ceic.math.ca/>

### **Annual Report of the CEIC for 2008**

John Ball, Chair

The CEIC met twice in 2008. The first meeting took place in Budapest on 22 April 2008, after a joint session with the IMU EC the previous afternoon. Present were John Ball, Jon Borwein (Chair), Michael Doob, John Ewing and Ulf Rehmann. The principal items discussed were:

1. Future directions and organization of the Committee: it was resolved that

The mandate of the CEIC is to advise the Executive Committee (EC) on matters of information and communication. The CEIC's duties include:

Reporting regularly to the EC, advising it on aspects of IMU operations related to information and communication, including financial implications, and keeping it informed of new developments.

Reviewing the development of electronic information, communication, publication, and archiving so as to keep the EC abreast of current and emerging issues.

Advising the EC about potential opportunities to endorse standards ('best practice recommendations') on issues related to publication and communication, including such matters as the use of software and data repositories.

Advising the EC about potential opportunities to foster the growth of electronic infrastructure, and most selectively creating tools for this purpose.

2. New members of the Committee: Since Jon Borwein, John Ewing and Alf van der Poorten were standing down from the committee, various names of replacements were discussed and passed on to the EC. The issue of an interim Chair for the committee was also discussed.
3. CEIC web pages: These needed to be updated and moved to the IMU server.
4. A response was agreed to the ICSU report on Scientific Information and Data, as follows:

*Even though the focus of the SCID report was on the needs of sciences with large data issues, if ICSU is to maintain a committee on scientific information and data, it should have a broader remit that includes all related issues, including scientific journals and the use of metrics to evaluate research.*

*These topics have been of intense interest within the mathematics community, and our own Committee on Electronic Information and Communication ([www.ceic.math.ca](http://www.ceic.math.ca)) has considered many such issues over the last decade. For example, a forthcoming report from the IMU draws on the statistical expertise of our community to analyse the use and misuse of citation data in the assessment of research. In recommending that national members and unions establish committees or commissions where these do not already exist, focusing on data and information issues, ICSU should suggest that the terms of reference of these committees cover scientific information and data as a whole, and not just the issues covered in the SCID report.*

The new CEIC Committee took office on 1 July 2008 and consists of

John Ball (Chair), Olga Caprotti, James Davenport, Mike Doob, Carol Hutchins, Peter Oliver and Ulf Rehmann.

All members of the committee were present at the CEIC meeting held in Oxford on 19-20 December, at which Wolfgang Dalitz, who manages the IMU web pages, was also in attendance by invitation. The principal items discussed were:

1. Copyright agreements for speakers at ICM 2010: Drafts were produced of agreements between the publishers and local organizing committee (LOC) and between authors and the LOC. A commentary sent with the drafts explained the reasons for the recommendation that authors retain the copyright on their contributions.  
(Note: the publishers and LOC subsequently agreed the drafts.)
2. Web pages: The CEIC web pages would be moved to the IMU server and incorporated into its Content Management System early in 2009. These web pages should adopt the IMU style and the Commission on Development and Exchanges (CDE), soon to become the Commission on Developing Countries

(CDC), and Developing Countries Strategy Group (DCSG) web pages should probably follow suit.

3. Archiving: An archiving subgroup produced a recommendation on archiving which was endorsed by CEIC. In particular the setting up of an Archiving committee was recommended to advise the EC. While debating this, CEIC noted that Prize Committee e-mail correspondence was not encrypted, and recommended that IMU look at this as part of the guidelines for Fields' Medal Committees etc.
4. IMU on the Web: Carol Hutchins agreed to be the co-ordinator of this column and various possible topics for future items were discussed.
5. Digital Mathematics Library: It was asked whether this title was still relevant. The list at <http://www.wdml.org/dml/index.shtml> was out-of-date, but such a list was very useful, and IMU/CEIC was the obvious organisation to maintain it. Since there was still some fund-raising potential in the name, it was premature to disband it.
6. EWDM/FWDM: It was noted that the current IMU web page was not satisfactory, offering links to both databases with no guidance. There was no need for EWDM to be listed on the front page and the pages needed some clarification. FWDM is currently located at Dalhousie, though there were plans for a mirror at ZIB, which should become the main site.
7. Issues related to publishing: Financial issues relating to publishing, especially pricing, bundling etc were discussed.
8. ICSU Committees: It was agreed to nominate James Davenport to the ICSU Strategic Coordinating Committee on Data and Information

IMU is greatly appreciative of the outstanding contribution to CEIC of the retiring members Jon Borwein, John Ewing and Alf van der Poorten.

Finances: USD 5,000 was received from the IMU in January 2008. This money was paid in equal proportions to Mason Macklem and Lingyun Ye, Dalhousie University, to fund the work on the Federated World Directory of Mathematicians (FWDM) in advance of the CEIC meeting in Budapest (April 22, 2008). USD 19,872 was received from the IMU to cover expenditure on the Budapest and Oxford meetings of the CEIC.



## 11. Independent Auditor's Report 2008



**International Mathematical Union**  
Berlin

Audit Report on the  
Annual Financial Statements as of 31 December 2008

## International Mathematical Union Berlin

Audit Report on the  
Annual Financial Statements as of 31 December 2008

22 January 2009

**Persönlich haftende Gesellschafter:** Gregor Kunz, WP, StB | Magdalena Riehle, WP, StB | Helmut Schuhmann, WP, StB | Rainer Vedder, WP, StB | Rainer Weichhaus, WP, StB | Horst Beck, WP, StB | Gertrud R. Bergmann, WP, StB | Prof. Dr. Jens Poil, RA, WP, StB | Ingo Fehlberg, WP, StB | Dr. Christoph Regierer, RA, WP, StB | Dr. Reinhard Schubert, WP, StB | Bernd Schult, RA, StB | Gerhard Schmitt, RA, StB | Uwe Ehrsam, WP, StB | Dirk-Ralf Gloger, WP, StB  
**Tätige Kommanditisten:** Andreas Lichel, StB | Udo Heckeler, WP, StB | Marko Pape, WP, StB | Dieter Ulrich, RA, WP, StB

**Berlin**  
Auguste-Viktoria-Straße 118  
14193 Berlin  
Fon +49(0)30.890 62-0  
Fax +49(0)30.890 62-400

**Weitere Standorte**  
Hohenzollerndamm 123  
14199 Berlin  
Fon +49(0)30.82 50 21-0  
Fax +49(0)30.82 50 21-91

Katharinenstraße 18  
10711 Berlin  
Fon +49(0)30.890 62-0  
Fax +49(0)30.890 62-406

**Niederlassungen**  
**Dresden**  
Bautzner Straße 17  
01099 Dresden  
Fon +49(0)351.2136 7-140  
Fax +49(0)351.2136 7-145

**Frankfurt am Main**  
Gervinusstr. 15  
60322 Frankfurt  
Fon +49(0)69.24 75 62-0  
Fax +49(0)69.24 75 62-50

**Hamburg**  
Alter Steinweg 3  
20459 Hamburg  
Fon +49(0)40.300 69 79-0  
Fax +49(0)40.300 69 79-30

**Potsdam**  
Hebbelsstraße 27  
14469 Potsdam  
Fon +49(0)331.270 97-0 4  
Fax +49(0)331.280 26-35

Office@RoeverBroenner.de  
www.RoeverBroenner.de

RÖVERBRÖNNER KG  
Wirtschaftsprüfungsgesellschaft  
Steuerberatungsgesellschaft  
Sitz der Gesellschaft: Berlin  
AG Charlottenburg  
HRA 15276

independent member firm of  
**MOORE STEPHENS**  
INTERNATIONAL LIMITED



Contents

	<u>Page</u>
A. Audit Engagement	1
B. Object, Nature and Scope of the Audit	2
C. Statements and Notes on Accounting	
1. Proper Accounting	
1.1. Bookkeeping and Other Audited Documents	4
1.2. Annual Financial Statements	4
1.3. Management Report	5
2. Overall Assertions of the Annual Financial Statements	5
2.1. Our Opinion of the Overall Assertions of the Annual Financial Statements	5
2.2. Significant Measurement Principles	6
D. Other Classifications and Explanations to the Annual Financial Statements	
1. Net Assets	6
2. Financial Position	10
3. Results of Operations	10
E. Independent Auditor's Report and Concluding Statement	11

Annexes to the Audit Report

-----

A. Audit Engagement

We were engaged by the Secretary and Treasurer of the

International Mathematical Union  
Berlin  
(hereinafter "IMU" or "Association")

to audit and report on the annual financial statements for the reporting year ending 31 December 2008.

The IMU is an international association. According to German law, the IMU is an "ideal" association (§ 21 German Civil Code (BGB)) because 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 Association is not required by law to have its annual financial statements audited. In accordance with section 45 of the IMU Statutes, at least once every four years the members of the Union shall obtain from the Executive Committee an audit of the accounts. 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.

As per agreement, we included explanations to the net assets, financial position and results of operations in our audit report (section D.)

The budget comparison included in Annex 4 was, per agreement, not audited.

The performance of the audit and our liability, including any third-party liability, is controlled by the enclosed "General Engagement Terms for German Public Auditors and Public Audit Firms as of January 1, 2002" under Annex 6.

This report was prepared under the auditing standard of the Institut der Wirtschaftsprüfer in Deutschland e. V. IDW PS 450 "Fundamentals of Proper Audit Reporting."



B. Object, Nature and Scope of the Audit

Object of the Audit

We audited the annual financial statements of the IMU as of 31 December 2008 together with the bookkeeping system. The financial statements (statements of assets and liabilities and income and expenditure) were prepared in accordance with German accounting principles. Bookkeeping and the preparation of the annual financial statements are the responsibility of the Association's Secretary. Our responsibility is to provide an opinion on the annual financial statements based on our audit.

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 or to the extent that non-compliance may have an effect on the annual financial statements.

In addition, an audit is not intended to determine whether the Association is compliant with all regulations of, for example, tax law, social security and employment law, competition and price regulations, the law of foreign transactions, consumer protection regulations or environmental regulations or similar matters.

It is not the nature of an audit to detect and investigate criminal acts (e. g. embezzlement, fraud, collusion) occurring beyond the scope of the annual financial statements.

We have not examined the extent and appropriateness of insurance coverage.

Nature and Scope of the Audit

We conducted our audit of the annual financial statements in accordance with §§ 316 *et seq.* HGB as well as in observance of the Principles of Performing Audits of Financial Statements of the Institut der Wirtschaftsprüfer in Deutschland e. V. (IDW). Therein, an audit has to be planned and performed such that material misstatements affecting the bookkeeping and annual financial statements are to be detected with reasonable assurance.

The evidence supporting the disclosures in the accounting and annual financial statements is to be examined on a test basis. The audit includes assessing the accounting, measurement and classification 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.

We conducted our audit in January 2009 in the offices of the Konrad-Zuse-Zentrum für Informationstechnik Berlin (ZIB). The audit report was prepared in our office.

Our audit commenced with our independent auditor's report dated 4 November 2008 for the year ended 31 December 2007. The Statutes do not provide for an adoption of the annual financial statements. Instead, on the basis of every fourth annual financial statements (most recently on 31 December 2005, thereafter not until 31 December 2009) the preparation of a budget for the following four-year-period is anticipated. The budget for the time from 1 January 2007 to 31 December 2010 was approved by the 15<sup>th</sup> General Assembly in Santiago de Compostela/Spain, on 19 and 20 August 2006.

We received information from:

- |   |                                       |
|---|---------------------------------------|
| – Prof. Dr. Dr. h. c. mult.<br>Martin Grötschel | Secretary of the IMU                  |
| – Ms. Sylwia Markwardt                          | Assistant to the Secretary of the IMU |
| – Ms. Sylke Arencibia                           | Director of Finance ZIB               |

Management provided us with the information and documentation we requested and issued a standard letter of representation.

The audit had no particular focus because of the limited size of the Association. 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.

Our audit included events of particular importance occurring after the end of the reporting year as well as whether the annual financial statements as a whole provide an accurate view of the net assets, financial position and results of operations of the Association.



C. Statements and Notes on Accounting

1. Proper Accounting

1.1. Bookkeeping and Other Audited Documents

Financial bookkeeping is performed by the internal IT-equipment using the software HSD Finanzwesen 1.60. Wage and salary accounting is not necessary because there is no personnel.

Records are properly kept and, together with the books and other documents, allow for a proper audit. In our opinion, the bookkeeping corresponds to statutory and regulatory requirements.

1.2. Annual Financial Statements

Preparation of the Annual Financial Statements

The enclosed annual financial statements were prepared in accordance with the regulations of the Third Book of the HGB (§§ 238 *et seq.*) under observance of the supplementary regulations for companies in the Second Section (§§ 264 *et seq.*).

The annual financial statements commence with the prior year's financial statements and are based on proper bookkeeping. In accordance with the written statement issued by management, the annual financial statements include all required assets, liabilities and risks.

Accounting and Measurement

Proper documentation of assets and liabilities is maintained. Assets and liabilities have been reported and measured in compliance with statutory regulations and principles of proper bookkeeping.

Classification

The classifications used in the statement of assets and liabilities and statement of income and expenditure correspond to regulations under §§ 265 to 277 HGB.

The statement of income and expenditure is prepared in accordance with the total cost (nature of expense) method (§ 275 (2) HGB). Classifications were modified to conform to the requirements of the IMU.

#### Notes to the Annual Financial Statements

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

#### Contingencies, Other Financial Obligations

As per the information provided to us and our own inquiries, contingencies requiring disclosure within the meaning of § 251 HGB and other financial obligations within the meaning of § 285 (3) HGB did not exist on the balance sheet date.

#### 1.3. Management Report

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

The IMU provides its members with an annual accounting of its activities in the Bulletin of the International Mathematical Union. The current Bulletin number 55 dated December 2007 was published in January 2009.

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

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

#### 2. Overall Assertions of the Annual Financial Statements

##### 2.1. Our Opinion on the Overall Assertions of the Annual Financial Statements

According to the results of our audit, the annual financial statements give a true and fair view of the net assets, financial position and results of operations of the Association in accordance with German principles of proper accounting.

As per § 321 (2) HGB, the auditor is required to include statements in his audit report on significant measurement principles as well as the extent to which changes in measurement principles, including the exercise of accounting and measurement elective rights and use of discretion, influence the presentation of net assets, financial position and result of operations as a whole.





The influence of material measurement principles and changes thereto in the presentation of net assets, financial position and results of operations are explained in section 2.2.

General explanations of the net assets, financial position and results of operations are provided in sections D.1. - D.3.

## 2.2. Significant Measurement Principles

The exercise of accounting and measurement elective rights and the use of discretion do not indicate any tendency to improve or worsen the result or in any way influence the total disclosures of 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 exchange rate valid on that date, as necessary.

## D. Other Classifications and Explanations to the Annual Financial Statements

### 1. Net Assets

In order to evaluate the net assets, the balance sheet of the reporting year is shown in condensed form:

<u>ASSETS</u>	<u>31.12.2008</u>		<u>31.12.2007</u>		<u>Change</u>
	T€	%	T€	%	T€
<u>Current Assets</u>					
Receivables from member contributions	45	7.9	28	6.0	17
Cash	519	91.5	425	90.4	94
Other receivables (including prepaid expenses)	<u>3</u>	0.5	<u>17</u>	3.6	<u>-14</u>
	<u>567</u>	100.0	<u>470</u>	100.0	<u>97</u>

<u>LIABILITIES</u>	<u>31.12.2008</u>		<u>31.12.2007</u>		<u>Change</u>
	T€	%	T€	%	T€
<u>Net Assets (Own Funds)</u>	483	85.2	396	84.3	87
<u>Current Liabilities</u>					
Provisions	13	2.3	6	1.3	7
Trade payables	0	0.0	2	0.4	-2
Liabilities from donations not yet spent	64	11.3	41	8.7	23
Other liabilities (including deferred income)	7	1.2	25	5.3	-18
	84	14.8	74	15.7	10
	<u>567</u>	<u>100.0</u>	<u>470</u>	<u>100.0</u>	<u>97</u>

Receivables from member contributions are as follows:

Country	Year	Amount (CHF)	Amount (€)	Receipt of payment
Bosnia & Herzegovina	2008	1,455.00	879.00	
Bulgaria	2008	1,455.00	879.00	
Croatia	2008	1,455.00	879.00	
Cuba	2008	1,455.00	878.45	
France	2008	17,460.00	10,542.00	
Georgia	2008	1,455.00	878.45	
Iceland	2008	1,455.00	879.00	
Kazakhstan	2008	1,455.00	878.45	
Math Society, Taipei	2008	3.00	1.92	
Pakistan	2008	1,455.00	878.45	
Peru	2008	717.00	477.43	
Philippines	2008	1,455.00	878.45	
Russia	2008	17,460.00	10,542.00	
Uruguay	2008	1,455.00	878.45	7.1.2009
		<u>50,190.00</u>	<u>30,350.05</u>	
Bosnia & Herzegovina	2007	1,386.00	861.57	
Cuba	2007	1,386.00	861.57	
Georgia	2007	1,386.00	861.57	
Georgia	2005/2006	2,640.00	1,592.55	
Kazakhstan	2007	1,386.00	861.57	6.1.2009
Philippines	2007	1,386.00	861.57	
Russia	2007	16,632.00	10,338.80	
		<u>26,202.00</u>	<u>16,239.20</u>	
Impairment Georgia	2005-2008	<u>-2,740.00</u>	<u>-1,841.00</u>	
		<u>73,652.00</u>	<u>44,748.25</u>	



At the end of 2007, outstanding member contributions were T€ 28 (TCHF 46). At the end of 2008 they amounted to T€ 47 (TCHF 76) and at the time of the audit they amounted to T€ 45 (TCHF 74). An impairment of 50 % was made on the receivable of Georgia because it has not paid its member contributions for 2005 to 2008.

Cash, part of which is in foreign currency, is located in accounts with the Berliner Bank AG and is composed of the following:

	Foreign currency	€
Account in USD (98 00 41 05)	USD 323,096.31	229,223.91
Account in € (35 91 21 11 30)		192,948.76
Account in USD (00 93 02 50 50)	USD 71,856.96	50,979.40
Account in CHF (00 93 02 51 15)	CHF 50,222.71	33,747.50
Account in € - Ito Fund (35 91 21 11 41)		10,000.00
Account in € (35 91 21 11 00)		1,855.33
Account in € - Ito Fund (35 91 21 11 01)		<u>256.35</u>
		519,011.25
		=====

The conversion of foreign currency into Euro occurs at the period-end exchange rate.

Net assets (Own Funds) are composed of the following:

	€
Per 1.1.2008	396,409.43
Annual surplus 2008	<u>86,375.33</u>
Per 31.12.2008	482,784.76
	=====

A total of € 307,465.98 of net assets of the IMU was accumulated prior to the transfer of the IMU registered office to Germany.

Liabilities from donations not yet spent developed as follows:

	€	€
<u>Special Development Fund</u>		
Per 1.1.2008		30,695.49
Contribution		
– London Mathematical Society (LMS)		3,208.89
Withdrawal		
– Travel expenses		<u>-381.66</u>
Per 31.12.2008		<u>33,522.72</u>
 <u>Ito Fund</u>		
Per 1.1.2008		10,000.00
Contribution		
– Interest revenue 2007	6.76	
– Interest revenue 2008	<u>249.59</u>	<u>256.35</u>
Per 31.12.2008		<u>10,256.35</u>
 <u>Templeton Fund</u>		
Per 1.1.2008		0.00
Contribution		24,539.02
Withdrawal i. W. for Templeton Survey of the University of the Witwatersrand		<u>-4,112.46</u>
Per 31.12.2008		<u>20,426.56</u>
		<u>64,205.63</u>
		=====

The funds shown under *Special Development Fund* are for the support of mathematicians from developing countries to support participants in International Congresses of Mathematicians. An international committee decides on the applications. The next congress will take place in Hyderabad/India in 2010. The above travel expenses concern the subsequent reimbursement of same on the occasion of the 2006 ICM.

The funds shown under *Templeton Fund* were granted to the IMU by the John Templeton Foundation on 30.6.2008 and are for the support of the DCSG Project "Mathematics in Africa: Challenges and Opportunities".



## 2. Financial Position

The IMU was in a position to meet its payment obligations in a full and timely manner. The cash flow from current activities amounts to T€ 94 and corresponds to the change in the amount of cash between 1 January 2008 (T€ 425) and 31 December 2008 (T€ 519).

## 3. Results of Operations

The summarized statement of income and expenditure shows the following structure for the reporting year:

	2 0 0 8		2 0 0 7		Change
	T€	%	T€	%	T€
<u>Revenue</u>	306	100.0	341	100.0	-35
Administrative expenses	-112	-36.6	-122	-35.8	10
Expenditures for scientific activities	-115	-37.6	-137	-40.2	22
<u>Other expenses</u>	-227	-74.2	-259	-76.0	32
<u>Operating result</u>	79	25.8	82	24.1	-3
Net interest income	7	2.3	8	2.4	-1
<u>Result before taxes on income</u>	86	28.1	90	26.4	-4
Taxes on income	0	0.0	-1	-0.3	1
<u>Annual surplus</u>	86	28.1	89	26.1	-3

The IMU had revenue of T€ 306 in the reporting year, consisting largely of member contributions. In addition, the IMU received donations from scientific organizations.

Revenue is composed of the following:

	€
Member contributions	229,768.05
Third-party donations	42,968.54
Other revenue	<u>32,858.43</u>
	<u>305,595.02</u>
	=====

The composition of member contributions is shown in Annex 3 to this report.

Third-party donations from scientific organizations are composed of the following:

	€	€
Donations - international		
– Niels Henrik Abel Memorial Fund, Norway (thereof € 11,800.00 for the Ramanujan Prize)	36,537.00	
– LMS (for ICM 2010)	3,208.89	
– Mathematical Society Japan	<u>1,254.23</u>	41,000.12
Donations - national		
– DFG		<u>1,968.42</u>
		42,968.54 =====

Other expenditures of approximately T€ 227 are shown in detail in the statement of income and expenditure (Annex 2).

Interest and Similar Income represents the interest paid on the bank balance by the Berliner Bank AG.

#### E. Independent Auditor's Report and Concluding Statement

We have issued the following unqualified opinion dated 22 January 2009 for the annual financial statements as of 31 December 2008 of the IMU, Berlin. The annual financial statements are enclosed in this report under Annexes 1 to 2.

##### "Independent Auditor's Report

To the International Mathematical Union, Berlin

We have audited the annual financial statements, together with the bookkeeping system of the International Mathematical Union for the reporting year from 1 January 2008 to 31 December 2008. The maintenance of the books and the preparation of the annual financial statements in accordance with the German Commercial Code (HGB) are the responsibility of the Association's management. Our responsibility is to express an opinion on the annual financial statements, together with the bookkeeping system, based on our audit.



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

The audit includes assessing the accounting principles used and significant estimates made by management as well as evaluating the overall presentation of the annual financial statements. We believe that our audit provides a reasonable basis for our opinion.

Our audit has not led to any reservations.

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

The above audit report is submitted in compliance with statutory provisions and principles of proper audit reporting of annual financial statements (IDW PS 450).

Use of the above independent auditor's report outside of this audit report requires our prior consent. Publication or a copy of the annual financial statements in a form different from the certified form also requires our consent if our independent auditor's report is quoted or if reference is made to our audit. We herein refer to § 328 HGB.

Berlin, 22 January 2009

RÖVERBRÖNNER KG  
Wirtschaftsprüfungsgesellschaft  
Steuerberatungsgesellschaft



Helmut Schuhmann  
Wirtschaftsprüfer



Annexes

	<u>Annex</u>
Statement of Assets and Liabilities as of 31 December 2008	1
Statement of Income and Expenditure for 2008	2
Schedule of Member Contributions 2008	3
Budget Comparison	4
Legal and Tax Position	5
General Engagement Terms	6

STATEMENT OF ASSETS AND LIABILITIES as of 31 December 2008

ASSETS	per 31.12.2008		Prior Year	LIABILITIES	per 31.12.2008		Prior Year
	€	€	€		€	€	€
<b>A. Current Assets</b>				<b>A. Net Assets</b>			
<b>I. Receivables and Other Assets</b>				<b>I. Association net assets</b>	396,409.43	307,465.98	
1. Receivables from member contributions	44,748.25		28,451.98	<b>II. Annual surplus</b>	86,375.33	88,943.45	
2. Other assets	82.15		17,044.00		<b>482,784.76</b>	<b>396,409.43</b>	
		<b>44,830.40</b>	<b>45,495.98</b>	<b>B. Provisions</b>			<b>6,000.00</b>
<b>II. Bank Balances</b>		<b>519,011.25</b>	<b>424,758.75</b>	<b>C. Liabilities</b>			
				1. Trade payables	0.00	2,054.86	
<b>B. Prepaid Expenses</b>		<b>3,254.56</b>	<b>0.00</b>	2. Liabilities from donations not yet spent	64,205.63	40,695.49	
				3. Other liabilities	0.00	16,975.84	
					<b>64,205.63</b>	<b>59,726.19</b>	
<b>Total Assets</b>		<b>567,096.21</b>	<b>470,254.73</b>	<b>D. Deferred Income</b>			<b>8,119.11</b>
				<b>Total Liabilities</b>	<b>7,105.82</b>	<b>8,119.11</b>	
					<b>567,096.21</b>	<b>470,254.73</b>	

Annex 2International Mathematical Union, BerlinStatement of Income and Expenditure for 2008

	per 31.12.2008		Prior Year
	€	€	€
<b>Income</b>		<b>305,595.02</b>	<b>341,111.84</b>
Member contributions	229,768.05		251,587.23
Donations - national	1,968.42		5,516.91
Donations - international	41,000.12		70,879.95
Gifts	0.00		10,000.00
Other income	32,858.43		3,127.75
<b>Other Expenditures</b>		<b>-226,415.57</b>	<b>-259,270.32</b>
<b>Administrative Expenses</b>	<b>-111,771.18</b>		<b>-121,798.05</b>
Salaries	-45,311.66		-42,739.10
Travel	-20,283.73		-8,544.57
Print	-1,356.60		0.00
Consulting	-785.02		-6,951.98
Audit fees	-7,000.00		-7,587.46
Other activities CDE/ICMI	-9,575.70		-9,383.60
Member contributions	-6,302.00		-6,002.00
Postage	-827.15		-559.25
Bank fees	-2,106.13		-2,740.00
Other	<u>-18,223.19</u>		-37,290.09
<b>Expenditures for Scientific Activities</b>	<b>-114,644.39</b>		<b>-137,472.27</b>
Promotion of scientific activities	-83,893.46		-90,812.67
Expenditures ICM	-13,776.78		-282.16
Travel	-381.66		0.00
Expenditures Prize Award	-11,800.00		-7,349.54
Transfer to liabilities from restricted donations	-3,465.24		-39,027.90
Other	<u>-1,327.25</u>		0.00
<b>Interest and Similar Income</b>		<b>7,195.88</b>	<b>7,912.31</b>
<b>Interest and Similar Expenditures</b>		<b>0.00</b>	<b>-0.13</b>
<b>Result of Association Activities</b>		<b>86,375.33</b>	<b>89,753.70</b>
Taxes		<b>0.00</b>	<b>-810.25</b>
<b>Annual Surplus (Excess of Income over Expenditures and Transfers)</b>		<b>86,375.33</b>	<b>88,943.45</b>

**International Mathematical Union**

**Annex 3**

- 1 -

**Schedule of Member Contributions 2008**

Country	Amount EUR	Amount CHF
Argentina	1,756.91	2,910.00
Armenia	878.45	1,455.00
Australia	3,513.81	5,820.00
Austria	1,757.00	2,910.00
Belgium	3,514.00	5,820.00
Bosnia & Herzegovina	879.00	1,455.00
Brazil	7,235.66	11,640.00
Bulgaria	879.00	1,455.00
Cameroon	879.00	1,455.00
Canada	10,541.40	17,460.00
Chile	1,756.91	2,910.00
CMS, Beijing	6,324.86	10,476.00
Math Society, Taipei	4,216.58	6,984.00
Colombia	878.45	1,455.00
Croatia	879.00	1,455.00
Cuba	878.45	1,455.00
Czech Republic	3,514.00	5,820.00
Denmark	1,757.00	2,910.00
Egypt	1,756.91	2,910.00
Estonia	879.00	1,455.00
Finland	1,757.00	2,910.00
France	10,542.00	17,460.00
Georgia	878.45	1,455.00
Germany	10,542.00	17,460.00
Greece	879.00	1,455.00
Hong Kong	879.00	1,455.00
Hungary	3,514.00	5,820.00
Iceland	879.00	1,455.00
India	7,027.63	11,640.00
Indonesia	878.45	1,455.00
Iran	3,514.00	5,820.00
Ireland	1,757.00	2,910.00
Israel	10,541.40	17,460.00
Italy	10,542.00	17,460.00
Ivory Coast	879.00	1,455.00
Japan	8,309.99	13,764.00
Kazakhstan	878.45	1,455.00
Korea, Republic of	7,027.63	11,640.00
Latvia	879.00	1,455.00
Lithuania	879.00	1,455.00

International Mathematical UnionAnnex 3

- 2 -

**Schedule of Member Contributions 2008**

Country	Amount EUR	Amount CHF
Mexico	1,756.91	2,910.00
Netherlands	7,028.00	11,640.00
New Zealand	878.45	1,455.00
Nigeria	878.45	1,455.00
Norway	3,469.00	5,577.50
Pakistan	878.45	1,455.00
Peru	878.45	1,455.00
Philippines	878.45	1,455.00
Poland	7,028.00	11,640.00
Portugal	1,757.00	2,910.00
Romania	879.00	1,455.00
Russia	10,542.00	17,460.00
Saudi Arabia	878.45	1,455.00
Serbia	879.00	1,455.00
Singapore	879.00	1,455.00
Slovakia	1,757.00	2,910.00
Slovenia	879.00	1,455.00
South Africa	1,757.00	2,910.00
Spain	7,028.00	11,640.00
Sweden	7,028.00	11,640.00
Switzerland	7,028.00	11,640.00
Tunisia	878.45	1,455.00
Turkey	879.00	1,455.00
Ukraine	1,661.85	2,910.00
United Kingdom	10,542.00	17,460.00
Uruguay	878.45	1,455.00
USA	10,541.40	17,460.00
Venezuela	878.45	1,455.00
Vietnam	883.45	1,455.00
<b>Total</b>	<b>229,768.05</b>	<b>380,181.50</b>

## INTERNATIONAL MATHEMATICAL UNION

Annex 4

Statement of Income and Expenditure\* - 2008  
for the year ended December 31, 2008

	Budget 2008 CHF (Swiss Franc)	Actual 2008	Budget 2008 EUR (Euro)	Actual 2008
<b>Expenses</b>				
<b>Schedule A:</b>				
Secretarial help, IMU office	22,660	0	15,226	0
Secretarial help, President	5,150	5,405	3,461	3,632
Accountant	9,270	0	6,229	0
ICMI	15,450	14,251	10,382	9,576
CDE	6,180	1,714	4,153	1,152
Office expenses (including postage)	16,480	4,838	11,074	3,251
Travel expenses of the EC	30,900	22,921	20,763	15,402
President's and Secretary's expenses	4,120	4,335	2,768	2,913
Contribution to ICSU	9,785	9,379	6,575	6,302
IMU Bulletin	1,500	2,019	1,008	1,357
Audit fee	8,755	11,566	5,883	7,785
General Assembly	4,120	0	2,768	0
World Directory of Mathematicians	0	0	0	0
Contingencies	2,060	25,122	1,384	16,881
<b>Subtotal of Schedule A</b>	<b>136,430</b>	<b>101,570</b>	<b>91,674</b>	<b>68,251</b>
<b>Schedule B:</b>				
IMU non-CDE conference support	20,000	44,646	13,439	30,000
ICMI scientific activities	27,810	25,651	18,687	17,236
CDE scientific activities	115,000	74,089	77,276	49,784
CDE support staff	56,000	62,028	37,629	41,660
CEIC scientific activities	25,000	25,110	16,799	16,873
Website support	6,253	308	4,202	207
ICM Site Committee	2,000	0	1,344	0
Program Committee for ICM	8,240	20,503	5,537	13,777
Subvention to ICM	28,840	0	19,379	0
Prize Committees (subvention)	11,100	920	7,459	618
Awards	0	17,561	0	11,800
Travel grants (young & senior)	61,000	568	40,989	382
Media Relations	3,500	747	2,352	502
<b>Subtotal of Schedule B</b>	<b>364,743</b>	<b>272,131</b>	<b>245,091</b>	<b>182,859</b>
<b>Total Expenses (A &amp; B)</b>	<b>501,173</b>	<b>373,701</b>	<b>336,765</b>	<b>251,110</b>
<b>Income</b>				
Membership dues	353,565	341,941	237,579	229,768
ICSU Grant	0	44,646	0	30,000
Special Development Fund	32,000	6,642	21,503	4,463
Interest on bank accounts	16,000	10,709	10,751	7,196
Donations	59,220	54,374	39,793	36,537
Other income	0	51,261	0	34,445
Draw from Reserves	40,388	0	27,139	0
Return to Reserves	0	0	0	0
<b>Total Income</b>	<b>501,173</b>	<b>509,573</b>	<b>336,765</b>	<b>342,409</b>
<b>Income less Expenses</b>	<b>0</b>	<b>135,872</b>	<b>0</b>	<b>91,299</b>

Transition to P&L Statement:	Transfer to liabilities from donations not yet spent	-3,465
	Depreciation of receivables from member contributions	-1,841
	Withdrawal from liabilities from donations not yet spent	382
	Excess (deficit) of income over expenditure:	86,375

Actual Euro Income and Expenses converted to Swiss Franc, using the December 31, 2008 rate of 1 Euro = 1,4882 Swiss Franc

\*Based on the corrected version of the Budget for 2007-2010, published in IMU Bulletin No. 55, 2007

Legal and Tax Position

1. Legal Position

Association, Registered Office

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)) because 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 registered office of the IMU was located in Princeton/USA, until 31 December 2006. According to article 29 of the IMU Statutes, the legal domicile of the Union shall be located at the offices of the Secretary.

Place of Management

c/o Konrad-Zuse-Zentrum (ZIB), Takustrasse 7, 14195 Berlin/Germany

Bookkeeping and monetary transactions of the IMU were performed by ZIB within the scope of the support activities.

Statutes

The Statutes were amended on 19 and 20 August 2006 in Santiago de Compostela/Spain, by the 15<sup>th</sup> General Assembly. The amendments were with regard to articles 7-12 (Associate Membership), article 22 (term of office of the Executive Committee Members-at-Large) and article 23 (number of the Executive Committee Members-at-Large). A certified German translation is available.

Objectives of the Association

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

- (a) to promote international cooperation in mathematics;
- (b) to support and assist the International Congress of Mathematicians and other international scientific meetings or conferences;

- (c) to encourage and support other international mathematical activities considered likely to contribute to the development of mathematical science in any of its aspects, pure, applied, or educational.

#### Association Capital, Members

The Statutes make no provision for association capital. Association capital amounted to approximately T€ 307 on 1 January 2007, the time when the registered office 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 institutions or association of institutions, or an appropriate agency of its government. At the end of 2008, the IMU had 68 regular members (voting) and 3 associate members (non-voting).

#### Executive Committee

The Executive Committee consists of the following persons:

- Mr. László Lovász, Hungary (President)
- Mr. Martin Grötschel, Germany (Secretary)
- Mr. Zhi-Ming Ma, China (Vice-President)
- Mr. Claudio Procesi, Italy (Vice-President)
- Mr. M. Salah Baouendi, USA (Member-at-Large)
- Mr. Manuel de León, Spain (Member-at-Large)
- Ms. Ragni Piene, Norway (Member-at-Large)
- Ms. Cheryl E. Praeger, Australia (Member-at-Large)
- Mr. Victor A. Vassiliev, Russia (Member-at-Large)
- Mr. Marcelo Viana, Brazil (Member-at-Large)
- Mr. John M. Ball, United Kingdom (Ex-officio, because he is the former President of the IMU)

Ordinary business is performed by the Secretary and his assistant in Germany.



Reporting Year

The reporting year corresponds to the calendar year. Reports to members are made annually by dispatching the Bulletin of the IMU. The next General Assembly of all members will take place in 2010.

General Assembly

The General Assembly resolved the following in August 2006:

- appointments to various committees and commissions
- the budget for the time between 2007 and 2010
- amendments to the IMU Statutes (see above "Statutes")
- increase in member contributions
- the next General Assembly will take place in Hyderabad/India

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 there was no tax notice available because the registered office of the Association only moved to Germany in 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 fulfillment of the requirements.

The Finanzamt für Körperschaften I, Berlin, issued a preliminary certification for the time between 1 January and 31 December 2007 in which the current revenue of the IMU is free of corporate and trade tax. This was done upon the instruction of the Senatsverwaltung der Finanzen, Berlin. In addition, revenue from capital of the IMU is not subject to tax up to 31 December 2008. Further, the IMU is entitled to issue donation confirmations until 4 May 2010.

[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, 2002

This is an English translation of the German text, which is the sole authoritative version

**1. Scope**

(1) These engagement terms are applicable to contracts between Wirtschaftsprüfer [German Public Auditors] or Wirtschaftsprüfungsgesellschaften [German Public Audit Firms] (hereinafter collectively referred to as the "Wirtschaftsprüfer") and their clients for audits, consulting and other engagements to the extent that something else has not been expressly agreed to in writing or is not compulsory due to legal requirements.

(2) If, in an individual case, as an exception contractual relations have also been established between the Wirtschaftsprüfer and persons other than the client, the provisions of No. 9 below also apply to such third parties.

**2. Scope and performance of the engagement**

(1) Subject of the Wirtschaftsprüfer's engagement is the performance of agreed services – not a particular economic result. The engagement is performed in accordance with the Grundsätze ordnungsmäßiger Berufsausübung [Standards of Proper Professional Conduct]. The Wirtschaftsprüfer is entitled to use qualified persons to conduct the engagement.

(2) The application of foreign law requires – except for financial attestation engagements – an express written agreement.

(3) The engagement does not extend – to the extent it is not directed thereto – to an examination of the issue of whether the requirements of tax law or special regulations, such as, for example, laws on price controls, laws limiting competition and Bewirtschaftungsrecht [laws controlling certain aspects of specific business operations] were observed; the same applies to the determination as to whether subsidies, allowances or other benefits may be claimed. The performance of an engagement encompasses auditing procedures aimed at the detection of the defalcation of books and records and other irregularities only if during the conduct of audits grounds therefor arise or if this has been expressly agreed to in writing.

(4) If the legal position changes subsequent to the issuance of the final professional statement, the Wirtschaftsprüfer is not obliged to inform the client of changes or any consequences resulting therefrom.

**3. The client's duty to inform**

(1) The client must ensure that the Wirtschaftsprüfer – even without his special request – is provided, on a timely basis, with all supporting documents and records required for and is informed of all events and circumstances which may be significant to the performance of the engagement. This also applies to those supporting documents and records, events and circumstances which first become known during the Wirtschaftsprüfer's work.

(2) Upon the Wirtschaftsprüfer's request, the client must confirm in a written statement drafted by the Wirtschaftsprüfer that the supporting documents and records and the information and explanations provided are complete.

**4. Ensuring independence**

The client guarantees to refrain from everything which may endanger the independence of the Wirtschaftsprüfer's staff. This particularly applies to offers of employment and offers to undertake engagements on one's own account.

**5. Reporting and verbal information**

If the Wirtschaftsprüfer is required to present the results of his work in writing, only that written presentation is authoritative. For audit engagements the long-form report should be submitted in writing to the extent that nothing else has been agreed to. Verbal statements and information provided by the Wirtschaftsprüfer's staff beyond the engagement agreed to are never binding.

**6. Protection of the Wirtschaftsprüfer's intellectual property**

The client guarantees that expert opinions, organizational charts, drafts, sketches, schedules and calculations – especially quantity and cost computations – prepared by the Wirtschaftsprüfer within the scope of the engagement will be used only for his own purposes.

**7. Transmission of the Wirtschaftsprüfer's professional statement**

(1) The transmission of a Wirtschaftsprüfer's professional statements (long-form reports, expert opinions and the like) to a third party requires the Wirtschaftsprüfer's written consent to the extent that the permission to transmit to a certain third party does not result from the engagement terms. The Wirtschaftsprüfer is liable (within the limits of No. 9) towards third parties only if the prerequisites of the first sentence are given.

(2) The use of the Wirtschaftsprüfer's professional statements for promotional purposes is not permitted; an infringement entitles the Wirtschaftsprüfer to immediately cancel all engagements not yet conducted for the client.

**8. Correction of deficiencies**

(1) Where there are deficiencies, the client is entitled to subsequent fulfillment [of the contract]. The client may demand a reduction in fees or the cancellation of the contract only for the failure to subsequently fulfill [the contract]; if the engagement was awarded by a person carrying on a commercial business as part of that commercial business, a government-owned legal person under public law or a special government-owned fund under public law, the client may demand the cancellation of the contract only if the services rendered are of no interest to him due to the failure to subsequently fulfill [the contract]. No. 9 applies to the extent that claims for damages exist beyond this.

(2) The client must assert his claim for the correction of deficiencies in writing without delay. Claims pursuant to the first paragraph not arising from an intentional tort cease to be enforceable one year after the commencement of the statutory time limit for enforcement.

(3) Obvious deficiencies, such as typing and arithmetical errors and formelle Mängel [deficiencies associated with technicalities] contained in a Wirtschaftsprüfer's professional statements (long-form reports, expert opinions and the like) may be corrected – and also be applicable versus third parties – by the Wirtschaftsprüfer at any time. Errors which may call into question the conclusions contained in the Wirtschaftsprüfer's professional statements entitle the Wirtschaftsprüfer to withdraw – also versus third parties – such statements. In the cases noted the Wirtschaftsprüfer should first hear the client, if possible.

**9. Liability**

(1) The liability limitation of § [Article] 323 (2) [paragraph 2] HGB ["Handelsgesetzbuch": German Commercial Code] applies to statutory audits required by law.

(2) Liability for negligence; An individual case of damages

If neither No. 1 is applicable nor a regulation exists in an individual case, pursuant to § 54a (1) no. 2 WPO [Wirtschaftsprüferordnung]: Law regulating the Profession of Wirtschaftsprüfer] the liability of the Wirtschaftsprüfer for claims of compensatory damages of any kind – except for damages resulting from injury to life, body or health – for an individual case of damages resulting from negligence is limited to € 4 million; this also applies if liability to a person other than the client should be established. An individual case of damages 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 without taking into account whether the damages occurred in one year or in a number of successive years. In this case multiple acts or omissions of acts based on a similar source of error or on a source of error of an equivalent nature are deemed to be a uniform breach of duty if the matters in question are legally or economically connected to one another. In this event the claim against the Wirtschaftsprüfer is limited to € 5 million. The limitation to the fivefold of the minimum amount insured does not apply to compulsory audits required by law.

(3) Preclusive deadlines

A compensatory damages claim may only be lodged within a preclusive deadline of one year of the rightful claimant having become aware of the damage and of the event giving rise to the claim – at the very latest, however, within 5 years subsequent to the event giving rise to the claim. The claim expires if legal action is not taken within a six month deadline subsequent to the written refusal of acceptance of the indemnity and the client was informed of this consequence.

The right to assert the bar of the preclusive deadline remains unaffected. Sentences 1 to 3 also apply to legally required audits with statutory liability limits.

**10. Supplementary provisions for audit engagements**

- (1) A subsequent amendment or abridgement of the financial statements or management report audited by a Wirtschaftsprüfer and accompanied by an auditor's report requires the written consent of the Wirtschaftsprüfer even if these documents are not published. If the Wirtschaftsprüfer has not issued an auditor's report, a reference to the audit conducted by the Wirtschaftsprüfer in the management report or elsewhere specified for the general public is permitted only with the Wirtschaftsprüfer's written consent and using the wording authorized by him.
- (2) If the Wirtschaftsprüfer revokes the auditor's report, it may no longer be used. If the client has already made use of the auditor's report, he must announce its revocation upon the Wirtschaftsprüfer's request.
- (3) The client has a right to 5 copies of the long-form report. Additional copies will be charged for separately.

**11. Supplementary provisions for assistance with tax matters**

- (1) When advising on an individual tax issue as well as when furnishing continuous tax advice, the Wirtschaftsprüfer is entitled to assume that the facts provided by the client – especially numerical disclosures – are correct and complete; this also applies to bookkeeping engagements. Nevertheless, he is obliged to inform the client of any errors he has discovered.
- (2) The tax consulting engagement does not encompass procedures required to meet deadlines, unless the Wirtschaftsprüfer has explicitly accepted the engagement for this. In this event the client must provide the Wirtschaftsprüfer, on a timely basis, all supporting documents and records – especially tax assessments – material to meeting the deadlines, so that the Wirtschaftsprüfer has an appropriate time period available to work thereon.
- (3) In the absence of other written agreements, continuous tax advice encompasses the following work during the contract period:
- preparation of annual tax returns for income tax, corporation tax and business tax, as well as net worth tax returns on the basis of the annual financial statements and other schedules and evidence required for tax purposes to be submitted by the client
  - examination of tax assessments in relation to the taxes mentioned in (a)
  - negotiations with tax authorities in connection with the returns and assessments mentioned in (a) and (b)
  - participation in tax audits and evaluation of the results of tax audits with respect to the taxes mentioned in (a)
  - participation in Einspruchs- und Beschwerdeverfahren [appeals and complaint procedures] with respect to the taxes mentioned in (a).

In the afore-mentioned work the Wirtschaftsprüfer takes material published legal decisions and administrative interpretations into account.

- (4) If the Wirtschaftsprüfer receives a fixed fee for continuous tax advice, in the absence of other written agreements the work mentioned under Paragraph 3 (d) and (e) will be charged separately.
- (5) Services with respect to special individual issues for income tax, corporate tax, business tax, valuation procedures for property and net worth taxation, and net worth tax as well as all issues in relation to sales tax, wages tax, other taxes and dues require a special engagement. This also applies to:
- the treatment of nonrecurring tax matters, e. g. in the field of estate tax, capital transactions tax, real estate acquisition tax
  - participation and representation in proceedings before tax and administrative courts and in criminal proceedings with respect to taxes, and
  - the granting of advice and work with respect to expert opinions in connection with conversions of legal form, mergers, capital increases and reductions, financial reorganizations, admission and retirement of partners or shareholders, sale of a business, liquidations and the like.

- (6) To the extent that the annual sales tax return is accepted as additional work, this does not include the review of any special accounting prerequisites nor of the issue as to whether all potential legal sales tax reductions have been claimed. No guarantee is assumed for the completeness of the supporting documents and records to validate the deduction of the input tax credit.

**12. Confidentiality towards third parties and data security**

- (1) Pursuant to the law the Wirtschaftsprüfer is obliged to treat all facts that he comes to know in connection with his work as confidential, irrespective of whether these concern the client himself or his business associations, unless the client releases him from this obligation.
- (2) The Wirtschaftsprüfer may only release long-form reports, expert opinions and other written statements on the results of his work to third parties with the consent of his client.
- (3) The Wirtschaftsprüfer is entitled - within the purposes stipulated by the client - to process personal data entrusted to him or allow them to be processed by third parties.

**13. Default of acceptance and lack of cooperation on the part of the client**

If the client defaults in accepting the services offered by the Wirtschaftsprüfer or if the client does not provide the assistance incumbent on him pursuant to No. 3 or otherwise, the Wirtschaftsprüfer is entitled to cancel the contract immediately. The Wirtschaftsprüfer's right to compensation for additional expenses as well as for damages caused by the default or the lack of assistance is not affected, even if the Wirtschaftsprüfer does not exercise his right to cancel.

**14. Remuneration**

- (1) In addition to his claims for fees or remuneration, the Wirtschaftsprüfer is entitled to reimbursement of his outlays; sales tax will be billed separately. He may claim appropriate advances for remuneration and reimbursement of outlays and make the rendering of his services dependent upon the complete satisfaction of his claims. Multiple clients awarding engagements are jointly and severally liable.
- (2) Any set off against the Wirtschaftsprüfer's claims for remuneration and reimbursement of outlays is permitted only for undisputed claims or claims determined to be legally valid.

**15. Retention and return of supporting documentation and records**

- (1) The Wirtschaftsprüfer retains, for ten years, the supporting documents and records in connection with the completion of the engagement - that had been provided to him and that he has prepared himself - as well as the correspondence with respect to the engagement.
- (2) After the settlement of his claims arising from the engagement, the Wirtschaftsprüfer, upon the request of the client, must return all supporting documents and records obtained from him or for him by reason of his work on the engagement. This does not, however, apply to correspondence exchanged between the Wirtschaftsprüfer and his client and to any documents of which the client already has the original or a copy. The Wirtschaftsprüfer may prepare and retain copies or photocopies of supporting documents and records which he returns to the client.

**16. Applicable law**

Only German law applies to the engagement, its conduct and any claims arising therefrom.

## 12. Special Development Fund

Contributions to the IMU Special Development Fund 2008

American Mathematical Society	20,428.85 US dollars
London Mathematical Society	5,000.00 US dollars

## 13. IMU Bank accounts

as of January 1, 2007:

International Mathematical Union, Takustr. 7, D-14195 Berlin, Germany  
Berliner Bank, Hardenbergstr. 32, D-10623 Berlin, Germany  
BIC (SWIFT) code: BEBEDEBB

<u>CHF transfer</u> to account No.:	<u>EUR transfer</u> to account No.:	<u>USD transfer</u> to account No.:
IBAN code:	IBAN code:	IBAN code:
DE5610020000093025115	DE45100200003591211100	DE6510020000093025050