

**Bulletins of the
International
Mathematical Union**



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I M U

Bulletin of the
International Mathematical Union

Nº 33
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New Secretariat, starting January 1st, 1991

Instituto de Matematica Pura e Aplicada - IMPA
Estrada Dona Castorina, 110
Rio de Janeiro - RJ
22460 - Brazil

INTERNATIONAL MATHEMATICAL UNION

Executive Committee

January 1, 1991–December 31, 1994

President:	Professor Jacques Louis Lions
Vice-Presidents:	Professor John Coates
	Professor David Mumford
Secretary:	Professor Jacob Palis
Members:	Professor James Arthur
	Professor Albrecht Dold
	Professor Hikosaburo Komatsu
	Professor László Lovász
	Professor Eduard Zehnder
Past President:	Professor Ludwig Faddeev

**33rd Bulletin of the
International Mathematical Union**

C O N T E N T S

Members of the Union	.....	page 3
Meeting of the Executive Committee	.....	page 4
Excerpts of the Meeting:	.....	page 4
..... Program Turn of the Century	.....	page 4
..... ICM-98 - Guidelines	.....	page 5
..... Bids for ICM-98	.....	page 6
..... Report on CODATA	.....	page 7
..... Report on IGBP	.....	page 8
Conferences Supported by IMU, 1991	.....	page 9
Instruction for Seeking Support for Conferences	.....	page 9
Special Development Fund	.....	page 11
Report for 1990 of the IMU	.....	page 12
Report on CDE Activities in 1990	.....	page 16
Report on ICMI Activities in 1990 and 1991	.....	page 18
IMU Accounts for 1990	.....	from pp. 20-34
CDE Accounts for 1990	.....	page 35
ICMI Accounts for 1990	.....	page 36
W D M - Accounts for 1991 (8th Edition)	.....	page 37
W D M - Accounts for 1991 (9th Edition)	.....	page 38

Members of the Union

The following countries were members of IMU as of January 1,1991:

- I: Cameroon, Chile, Cuba, Egypt, Greece, Hong Kong, Iceland, Iran, Ivory Coast, Democratic Republic of Korea, Republic of Korea, Mexico, New Zealand, Nigeria, Norway, Philippines, Portugal, Romania, Singapore, Turkey, Vietnam.
- II: Argentina, Austria, Bulgaria, Denmark, Finland, Ireland, South Africa, Yugoslavia.
- III: Australia, Belgium, Brazil, Czechoslovakia, Hungary, India, Israel, Netherlands, Poland, Spain, Sweden, Switzerland.
- IV: Canada, Italy.
- V: China, France Federal Republic of Germany, Japan, United Kingdom, USA, USSR.

In a postal ballot conducted among the Adhering Organizations of IMU, Venezuela was admitted to the Union in Group I, as of January 1, 1992.

Meetings of the Executive Committee

The Executive Committee had its 56th meeting in Paris, France, on April 17 - 19, 1991.

Excerpts of the Meeting:

1. Program Turn of the Century

Following a resolution of the General Assembly, GA 1990, the Executive Committee indicated a Committee to suggest to the GA-1994, possible activities to celebrate the turn of the century. All the colleagues invited accepted to serve in the Committee: Jacob Palis (Chairman), F. Hirzebruch, Barry Mazur, Sigeru Mizohata, Srinivasa Varadhan, Vladimir Arnold, Dan Mostow, William Thurston and Jacques Tits. The E.C. also approved a proposal of the President to have UNESCO to declare the Year 2000 as a "World Mathematical Year".

2. The Executive Committee decided to put forward to the Adhering Organizations a postal ballot for Venezuela to become a member of the International Mathematical Union.

3. The Executive Committee approved the following support to International Conferences:

- The International Colloquium on Geometry and Analysis, to be held at TATA Inst. of Fund. Research, India, in January, 1992, was granted 11.000 Swiss Frs. Prof. David Mumford was appointed the IMU representative.
- The X Escuela Latino Americana de Matematicas (ELAM), to be held in Sierras de Cordoba, Argentina, from August 12 to 21, was granted 11.000 Swiss Frs. Prof. Jacob Palis was appointed the IMU representative.
- The International Research Workshop on Banach Space Theory, to be held in Merida, Venezuela, from 6 to 17 of January, 1992, was granted 5.000 Swiss Frs. Prof. Jacob Palis was appointed the IMU representative.
- The European Congress of Mathematicians, to be held in Paris, France from July 6-12, 1992, was granted 11.000 Swiss Frs. Prof. J.L.Lions was appointed the IMU representative.

4. ICM 1998 - Site Committee - The Site Committee for ICM/98 shall be formed by the EC members and Prof. H. Carnal from the ICM-94 Organizing Committee.

The following guidelines for the operation of the Site Committee for ICM - 1988 were approved by the Executive Committee and sent to all Adhering Organizations:

I C M - 98

Following the recommendation of the 1990 General Assembly in Kobe, Japan, the Executive Committee has approved the following new guidelines for the operation of the Site Committee for ICM-98.

1. The Site Committee will consist of the members of the Executive Committee and Prof. H.Carnal of the Organizing committee of the ICM-1994.
2. All Adhering Organizations are now formally invited to place bids to hold ICM-98. To be considered by the Site Committee, these bids must be received by the Secretary of IMU by *November 30, 1992*. The Site Committee will then make its recommendation by *May 31, 1993*. The recommendation of the Site Committee will immediately afterwards be communicated to all Adhering Organizations.
3. The final decision will be taken by the General Assembly to be held at the end of July, 1994, just prior to the ICM-94 in Zurich. The General Assembly is free to consider bids placed after November 30, 1992 but the E.C. considers most advisable that the Adhering Organizations comply with the above procedure.
4. While it is impossible to spell out precisely all factors that will influence the final recommendation of the Site Committee, it will take into account the mathematical ambiance, the infrastructure and the economic conditions offered by each bidder, as well as the accessibility of the proposed site and the broad geographical distribution of congresses. All countries interested in making a bid are strongly encouraged to do so.

Notes on what information the Site Committee would like to have for each bid are:

BIDS FOR ICM-98
REQUESTED INFORMATION

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. However, according to the reports of the latest ICM'S, a potential host country may consider a budget of about 1.5 million US dollars, of which about 0.5 or 0.6 million US dollars might be raised through registration fees (such fees should be at most about 200 US dollars). Again, these numbers may go up or down according to local costs and facilities. In considering the budget, printing 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 lodge freely about 80 young research mathematicians from developing countries, selected by IMU; they get their trips paid by IMU through its Special Development Fund. 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 the ICM as well as some provision in its budget to defray costs of the General Assembly Meeting that takes place just before the Congress; for 1994, these sums amount to 72.000 Swiss Frs. and 14.000 Swiss Frs., respectively.

II. *INFRASTRUCTURE*

It is important that good facilities to hold the Congress are available. All lectures should take place in sizeable, well equipped, pleasant and audible rooms. Special attention should be given to the Plenary Talks.

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.

Finally, it is expected that the local mathematical community get involved in the preparations of the Congress, so as to create a warm ambiance during the meeting.

REPORT ON THE COMMITTEE ON DATA FOR SCIENCE AND TECHNOLOGY - CODATA

by *Laszlo Lovasz*

It seems that the CODATA programs currently going on are not really for mathematicians; it is mainly for chemists and biologists.

Nevertheless, I believe it is worthwhile to take part on it. I can imagine several topics where CODATA could successfully interact with mathematicians, like

- Information about mathematically oriented software (Mathematica, Macsyma, various numerical and optimization packages, a lot of freeware, etc..)
- Use and accessibility of on-line Math Reviews, on-line Zentralblatt etc. (I am not sure that there is anything to do here right now, but I feel that some issues may come up. For example, suppose I want to make a database type software which would help to find good surveys and textbooks in various areas of mathematics. To what extent can I make use of on-line Math. Reviews?)
- Some hot issues about the ownership of mathematical ideas in software (can an algorithm be patented?)
On line version of the World Directory (with e-mail addresses!)
- A database of mathematical meetings to come.

If we want to do something about these issues, we have to do it ourselves, but CODATA may help with experience and perhaps more (e.g. software).

REPORT ON THE COMMITTEE ON INTERNATIONAL GEOSPHERE-BIOSPHERE PROGRAMME - IGBP

by *Jacques Louis Lions*

IMU entered the Global Change Program (IGBP) in 1988. An Adhering Committee has been appointed, formed by:

L.Hörmander, P.D. Lax, J.L.Lions (Chairman), V.Maslov.

A first meeting for which this committee has been consulted will take place in Spain, in the last week of August 1991, at El Escorial (no support has been asked to IMU). The meeting will concentrate on the modelling aspects of Climate and on the Mathematical Problems arising in these topics. The main speakers will come for a little less than half from *Meteorology and Climatology*:

- . J.C. André (French Meteorology)
- . L.Bengtson (Hamburg)
- . M.Ghill (UCLA)
- . A. Labajo (Spanish meteorology)
- . G.North (slow varieties in Meteorology)
- . A.Ruiz de Elvira (Alcala)

Mathematicians:

- . A. Bermudez (Univ. Santiago de Compostela)
- . J.I.Diaz (Universidad Complutense - Madrid)
- . A. Linan
- . J.L.Lions (Collège de France)
- . G.I. Marchuk (not confirmed)
- . V. Maslov (USSR)
- . I.Stakgold (University of Delaware)
- . R.Teman (Paris - Orsay)

Topics involved:

- assimilation,
- slow varieties and inertial varieties,
- sensitivity of free boundaries (such as solid sea/liquid sea),
- observation of uncompletely given systems.

Conferences Supported by IMU in 1991

IAMP Congress was held in Leipzig, DDr, on July 30 - August 8, 1991. The IMU representative was Prof. L. Faddeev. IMU gave a grant of 10.000 Swiss francs to the meeting.

SEVENTH SYMPOSIUM ON GENERAL TOPOLOGY AND ITS RELATIONS TO MODERN ANALYSIS AND ALGEBRA, was held in Prague, Czechoslovakia, from 19-24 August, 1991. The IMU representative was Prof. L.Lovasz. IMU gave a grant of 5.000 Swiss francs to the meeting.

INTERNATIONAL CONFERENCE ON THE THEORY OF RINGS, ALGEBRAS AND MODULES, a conference dedicated to the 70th anniversary of A.I. Shirshov, held at the Altai University, Barnaul, U.S.S.R., from 23-27 August, 1991. IMU gave a grant of 5.000 Swiss francs to the meeting.

THE INTERNATIONAL SYMPOSIUM ON ALGEBRAIC GROUPS AND RELATED NUMBER THEORY, organized by the Univ. of Minsk, from May 22-29, 1991. The IMU representative was Prof. W. Feit and IMU gave a grant of 5.000 Swiss francs to the meeting.

THIRD PAN AFRICAN CONGRESS OF MATHEMATICS, organized by the Univ. of Nairobi, Kenya, from August 13-23, 1991. The IMU representative was Prof. Jacob Palis and IMU gave a grant of CHF 10.000 Swiss francs to the meeting.

X ESCOLA LATINO AMERICANA DE MATEMATICAS - ELAM, organized by the Univ. of Cordoba from August 12-21, 1991. The IMU representative was Jacob Palis. IMU gave a grant of 11.000 Swiss francs.

Instructions for Seeking Support for Conferences

Colloquia Sponsored by IMU

1. The International Mathematical Union sponsors, or co-sponsors, "colloquia"; it does not sponsor or co-sponsor "institutes". A colloquium is understood to mean a meeting, lasting about a week or more, to mainly discuss the results of recent research.
2. Any colloquium sponsored or co-sponsored by the Union is to be designated "an international colloquium".

3. The co-sponsorship of the Union usually (though not always) implies a financial contribution by the Union of a few thousand Swiss francs. It is understood that such a contribution will be matched by at least an equal contribution from the organizers themselves.
4. The Union's contribution is to be utilized for meeting the travel expenses of the invitees. The living expenses are to be met from other sources.
5. When the Union co-sponsors a colloquium, it nominates one or two members to the Organizing Committee of the Colloquium as its representatives. The Union's nominee(s) should have a share in the preparation of the scientific program and in the selection of speakers. It is customary that one of the nominees of the Union is a member of the Executive Committee.
6. Immediately after the Colloquium is over, a financial statement giving the full budget of the Colloquium (showing the income from *all* sources, and the expenditure on all accounts) and a report on the scientific activities are to be sent by the Chairman of the Organizing Committee to the Secretary of the Union.
7. The Union's deadline for receiving applications for colloquia is March 1 of the year preceeding the Colloquium. Even if the full picture of the Colloquium is not clear by that date, an application giving the topic, the names of the officers of the Organizing Committee, the main prospective speakers, the probable size of the Colloquium, and the probable size of the budget, together with the place where the Colloquium will be held, should be sent in.
8. The ICSU resolution on the free circulation of scientists should be observed: *Before the Symposia or meetings are arranged, an assurance in writing should be obtained from the organizers in the country concerned that visas will be granted to bona fide scientists if proper applications are made.*

Special Development Fund

The Special Development Fund aids IMU to fulfill the important obligation of helping developing countries within the framework of mathematical research. The means of the Fund, which go unreduced to mathematicians from developing countries, are used primarily for travel grants to young mathematicians, to make it possible for them to participate in International Congresses of Mathematicians. The Executive Committee of IMU elects an international committee to distribute the grants.

Means to the Special Development Fund come from donations. Donations can be sent, at any time and in any convertible currency, to the following accounts:

Account no. 0862-656208-21
Schweizerische Kreditanstalt
Stadtfiliale Zürich-Rigiplatz
Universitätstraße 105
CH-8033 Zürich
Switzerland

Account no. 100020-411-CHF-5706 FR
Kansallis-Osake-Pankki
Aleksanterinkatu 42
SF-00100 Helsinki
Finland.

The goal right now is to collect funds for travel grants for the 1994 International Congress of Mathematicians in Zürich

In 1991, the following contributions have been received

London Mathematical Society - L 1,000

The Royal Society - L 5,075

American Mathematical Society - US\$ 14,772.93

In 1990, 47 young mathematicians from developing countries received travel grants (42) or local support (5) from the Special Development Fund to attend the ICM at Kyoto; see IMU Bulletin No.32, November 1990. The local Organizing Committee provided funds for local support of most of these young mathematicians.

On behalf of IMU, the Executive Committee of IMU expresses its deep gratitude for these donations.

Report for 1990 of the International Mathematical Union

Professor Olli Lehto, Secretary

The International Mathematical Union was founded in its present form in 1951. The purpose of the Union is to promote international cooperation in mathematics, to support and assist the International Congress of Mathematicians and other international scientific meetings and 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. IMU has two commissions, the International Commission on Mathematical Instruction and the Commission on Development and Exchange. The International Commission on the History of Mathematics is a joint commission with the International Union of the History and Philosophy of Science.

Membership

The members of IMU are countries. At the moment IMU has 51 members. Saudi Arabia joined the Union in 1990 and Pakistan was removed from the membership list. The German Democratic Republic withdrew from the Union.

Scientific Meetings

The major event of the Union was the International Congress of Mathematicians 1990, held in the Kyoto International Conference Hall. A total of 3955 mathematicians from 76 countries and districts attended in person together with 470 accompanying members and 92 child members.

The Chairman of the Fields Medals Committee, Ludwig D. Faddeev, President of IMU, announced the recipients of the Fields Medals: V. G. Drinfeld, Vaughan F. R. Jones, Shigefumi Mori and Edward Witten. The Chairman of the Rolf Nevanlinna Prize Committee, László Lovász announced A. A. Razborov as the recipient of the Prize.

The main part of the mathematical program consisted of one-hour Plenary Addresses and 45-minute Section Lectures in 6 parallel sessions. In total, 15 Plenary Addresses and 138 Section Lectures in 18 Sections were delivered. The Organizing Committee invited these speakers following the decision of the IMU Program Committee. No invited speakers declined for political or economical reasons. In addition, there were five 45-minute lectures invited by ICMI, 620 Short Communications and many informal seminars and other meetings conducted by the participants. The details of scientific activities will be reported in the Proceedings of the Congress, which will be published by the end of 1991.

Funds from Japan made it possible to support 269 foreign participants from 50 countries. Most of them came from developing countries or countries in difficult currency situations. The number includes 47 IMU Scholars whose travel expenses were supported by the Special Development Fund of IMU. To the Fund IMU had received donations more than ever before from several mathematical societies as well as important contributions from ICSU and the Royal Society, London.

At the Closing Ceremony in the afternoon of August 29 the President of IMU, Professor Faddeev, announced the new officials of IMU for 1991-94 and the site of ICM-94 as decided by the General Assembly. Professor S. D. Chatterji invited mathematicians of the world to the next ICM in Zürich.

IMU endorsed the *4th International Conference of Graph Theory*, held in Marseille, France, on July 9-14, and the *Asian Mathematical Conference*, held in Hong Kong on August 14-18.

Education

The year 1990 was a year of planning for the IMU International Commission on Mathematical Education, ICMI. The Program Committee for the 7th International Congress on Mathematical Education, to be held in Quebec in 1992, met in June, and planning meetings were held in connection with the studies on the Influence of Computers and Informatics on Mathematics and its Teaching; the Assessment in Mathematics Education and its Effects; the Mathematics and Science Training of Elementary School Teachers; Gender and Mathematics Education; UNESCO supported part of these meetings.

ICMI was very active in ICM-90. In addition, some affiliated groups of ICMI held meetings in 1990, and there was a South East Asian Conference on Mathematical Education in Brunei. The International Mathematical Olympiad was held in Beijing, China. The First Ibero-American Conference on Mathematics Education was held in Seville, Spain, in September, with several hundred Spanish-speaking mathematics educators.

Activities Involving Developing Countries

The Commission on Development and Exchange, CDE, supported in 1990 a group at the Facultad Nacional de Cordoba, Argentina, with \$ 3000, enabling it to invite foreign mathematicians to Cordoba and to acquire books for its library.

CDE supported the following conferences: *Groupe Interfricain de Recherche en Analyse Globale et ses Applications III*, in Yaounde, Cameroon, on 17–21 September. The financial support was \$ 2000.—*Fourth Congress of Vietnamese Mathematicians*, in Hanoi, Vietnam, in September, with \$ 2000.—*Symposium on Algebra*, in Madras, India, in September, with \$ 1000.—*Symposium on Dynamical Systems*, in Santiago de Chile, Chile, in December, with \$ 3000.

The Commission gave travel grants to the following persons: Professor A.O. Kuku, University of Ibadan, Nigeria, for a 2-month visit to the Department of Mathematics of the University of Bielefeld, Germany; Professor A. Simis, University of Bahia, Brazil, to participate in the International Congress of Mathematicians and satellite conferences held in Japan in August; Professor Ahmedou Haouba, University of Nouakchott, Mauritania, for a one-month visit to the Institut National de Recherche en Informatique et en Automatique in Nancy, France; Professor Sridharan, Tata Institute of Fundamental Research, Bombay, India, for a 6-month visit to the University of California in Berkeley, USA; Professor Yu Yanlin, University of Beijing, China, for a 6-month visit to the University of Oxford, Great Britain; Professor Nguyen To Nhu, University of Hanoi, Vietnam, for a 2-month visit to the University of Paris VI, Paris, France, and the University of Bielefeld, Germany. The total for these travel grants was \$ 5087.

CDE received a grant of \$ 6500 from UNESCO in 1990.

Other Scientific Activities

The International Commission on the History of Mathematics, ICHM, a joint commission of IMU and the International Union of the History and Philosophy of Science, supported the *First Summer School for History of Mathematics in Portugal* in Herdade da Mitra, Evora, from July 16–21, 1990. Organized by Professors Jean Dhombres (University of Nantes) and Luis Saraiva (University of Lisbon), the summer school included twenty-eight participants. The goal was to help create in Portugal a group of historians of mathematics. The focus of the summer school was on styles and methods in history of mathematics.

During the 11th General Assembly of the IMU, Jean Dhombres and H. Edwards were elected as IMU members to serve on the Executive Committee of the joint International Commission on the History of Mathematics for the period 1991–1994.

At the International Congress of Mathematicians two invited 45-minute lectures were devoted to history of mathematics. ICHM co-sponsored, with the History of Science Society of Japan and the Organizing Committee of the Kyoto ICM-90, a conference on *History of Mathematics* at the University of Tokyo, August 31 and September 1, 1990. The Tokyo Symposium emphasized three areas in particular: 1) mathematical traditions in the East, 2) the history of mathematics in modern Europe, and 3) the interaction between mathematical research and the history of mathematics. In addition to 22 invited lectures, a separate session was devoted to short communications.

The next *International Congress of History of Science* will be held in Zaragoza, Spain, in 1993.

Periodically, the Commission updates its *World Directory of Historians of Mathematics*. Work on the new edition is underway. In conjunction with this work, the International Commission intends to compile a database of more detailed information about historians of mathematics around the world.

The ICHM is also exploring various ways to support the maintenance and future development of a catalogue of photographs of mathematicians in conjunction with the collection already housed at the Mathematisches Forschungsinstitut in Oberwolfach, Germany.

The ICHM Dictionary on History of Mathematics project continues to progress.

Publications

IMU published two bulletins in 1990, No. 31 and No. 32. The 9th World Directory of Mathematicians came out during the summer of 1990.

ICMI published 2 Bulletins, both supported with UNESCO grants.

Organizational Matters

The Executive Committee of IMU met in Cambridge on April 6–7, 1990 and in Kobe, Japan, on August 17, 1990.

The General Assembly was held in Kobe on August 18–20, 1990. It elected a new Executive Committee for IMU as well as for its subcommission ICMI (International Commission on Mathematical Instruction), a new Commission for Development and Exchange, members to the Executive of its joint International Commission on the History of Mathematics, as well as representatives to several ICSU bodies. The Assembly also decided the site of the next Congress, Zürich in 1994.

CDE Activities in 1990

Professor Jean Pierre Bourguignon, Secretary

Team Support for a 2-year period

Facultad Nacional de Cordoba (Argentina): support for invitations and support of the library: US\$ 3000

Conferences supported in 1990

Group: Interafricain de Recherche en Analyse Globale et ses Applications III, Yaounde (Cameroon), 17-21 September -

Organizers: Wouafo Kanga, Cagnac.

Main Speakers: C. Badji (Senegal); R. Kerner (Paris); I.Kupka (Toronto).

Support given: US\$ 2000

Fourth Congress of Cietnamese Mathematicians, Haoin (Vietnam), September,

Organizers: Nguyen Dinh Tri)

Support given: US\$ 2000

Symposium on Algebra, Madras (India), September

Organizer: M.S. Parvathan

Main Speakers: Miller (USA); Ruscheweyh (Germany); Owa (Japan)

Support given: US\$ 1000

Symposium on Dynamical Systems, Santiago do Chile (Chile), December

Organizer: R. Labarca

Support given: US\$ 3000

Travel Grants for 1990

Professor A. Kuku, Univ. of Ibadan, Nigeria, for a 2 month visit to the Department of Mathematics of the University of Bielefeld (Germany).

Support given: US\$ 1000

Professor A. Simis, Univ. of Bahia, Brazil, to participate in the International Congress of Mathematicians and satellite conferences held in Japan in August.

Support given: US\$ 1000.

Professor Ahmedou Haouba, University of Nouakchott, Mauritania, for a 1-month visit to the Institut National de Recherche en Informatique et en Automatique in Nancy (France)

Support given: US\$ 820

Professor Sridharan, Tata Institute of Fundamental Research, Bombay, India, for a 6-month visit to the University of California in Berkeley, USA.

Support given : US\$ 562

Professor Yu Yanlin, University of Beijing, China, for a 6-month visit to the University of Oxford, Great Britain.

Support given: US\$ 605

Professor Nguyen To Nhu, University of Hanoi, Vietnam, for a 2-month visit to the University of Paris VI, France and the University of Bielefeld, Germany.

Support given: US\$ 1100

Report on ICMI activities for 1990 and 1991

Professors Geoffrey Howson and Morgen Niss, past and present Secretary

1. Organization

As from 1 January 1991 a new Executive Committee of ICMI took office. This resulted in a change of President (to Professor Miguel de Guzmán, Madrid, Spain), one Vice-President (to Professor Jeremy Kilpatrick, Athens (Georgia, USA) and Secretary (to Professor Morgen Niss, Roskilde, Denmark). Consequently, the Secretariat moved to the University of Roskilde. The new Executive Committee expressed its sincere thanks and deep gratitude to the Past President, Professor Jean-Pierre Kahane, Orsay, France, the outgoing Vice-President Hiroshi Fujita, Tokyo, Japan, and the outgoing Secretary, Professor Geoffrey Howson, Southampton, UK, as well as to the outgoing Members, for their work and enthusiasm.

The old Executive Committee had its last meeting in Paris, France, 19 - 20 January 1990, whereas the new one had its first meeting in Madrid, Spain, 9 - 10 April 1991.

In 1991 National Sub-Commissions of ICMI were established in Belgium and in New Zealand in accordance with the Terms of Reference for ICMI, item 4.

2. ICMEs

The latest of the quadrennial International Congress on Mathematical Education, ICME-6, was held in Budapest, Hungary, 1988. The Programme and Organizing Committees for next congress, ICME-7, which is to be held at Université Laval, Québec, Canada, 17-23 August 1992, have invested immense efforts in planning the congress which is expected to have an attendance of more than 3000 participants from all parts of the world.

The Executive Committee has decided with great pleasure to accept Spain's bid to host ICME-8, 1996, in Sevilla. A general invitation to submit bids to host ICME-9, 2000, has been issued in Bulletins Nos. 30 and 31.

ICMI Studies

In the last few years ICMI has emphasized the holding of so-called ICMI study conferences on specific key themes and issues in mathematics education and in publishing subsequent study volumes. In 1990 no conferences were held. However, the study *The Popularization of Mathematics* (210 + pages) resulting from a seminar held at the University of Leeds in September 1989 was published (by Cambridge University Press) in 1990 as was the study *Mathematics and Cognition: A Research Synthesis by the International Group for the Psychology of Mathematics Education* (180 + pages). The International Group for the Psychology of Mathematics Education is one of three study groups affiliated to ICMI.

In 1991 an ICMI study conference on *Assessment in Mathematics Education and Its Effects* was held in Calonge, Spain 11-16 April. More than 80 invited participants from 25 countries attended and contributed to the conference. A study based on this conference is expected to appear in the second half of 1992.

ICMI has decided to carry on with further studies in the years to come. The first one will be on *Gender and Mathematics Education* for which an international programme committee has been appointed. The study conference is scheduled for 1993.

Outside the study series, ICMI has been involved in producing a document on *Science and Mathematics Education for Future Elementary School Teachers* jointly with ICSU/CTS and UNESCO. The document is expected to appear in 1992, published by UNESCO.

4. Regional Conferences

Financial support was given by ICMI to regional conferences held by the Southeast Asian Mathematical Society (Brunei, 14-16 June 1990), the Inter-American Committee on Mathematical Education (Miami (Florida), USA 3-7 August 1991), and to the ICMI-China Regional Conference on Mathematical Education (Beijing, China 5-8 August 1991).

5. ICMI Bulletins

In 1990 ICMI published Bulletins Nos. 28 and 29 by the Secretariat at University of Southampton, U.K. In 1991, Bulletins Nos. 30 and 31 were published by the new Secretariat at Roskilde University, Denmark.

Helsinki March 26, 1991

IMU ACCOUNTS FOR 1990

AUDITOR'S REPORT

We have audited the Financial Statements of the International Mathematical Union (I.M.U.) prepared by the Executive Secretary of I.M.U. for the year ended December 31, 1990. The Statement of Income and expenditure is prepared in accordance with the instructions given by the International Council of Scientific Unions in a letter dated October 24, 1990. The Balance Sheet and the accounting principles are similar to those of the previous years.

Principles and comments:

1. Currency

The Financial Statements are expressed in US dollars. Balances in other currencies have been exchanged into US dollars by applying the Unesco Standard Rates of Exchange based on December 1990.

Income and Expenditure for each month was translated into US dollars at the Unesco Rate of Exchange, which the International Council of Scientific Unions (I.C.S.U.) has made available throughout the year.

2. Income

The contributions from national members, USD 119.520,43 (in 1989 USD 92.063,12) have been recorded on cash basis. The number of members having

Helsinki March 26, 1991

unpaid dues, and most of them for several previous years, is decreasing. The total of unpaid dues is USD 50.048 (in. 1989 USD 51.358).

The list of the unpaid dues is attached to the Financial Statements.

3. Sales of publications

The income of the editions of the World Directory of Mathematicians is USD 2.052. These editions have been sold in the year 1990 according to the bank statement of the Bank of Boston, USA.

4. Expenditure

Expenditure is recorded on accrual basis. The Statement of Income and Expenditure includes gain on exchange for the year 1990 USD 85.711.

5. Bank accounts

The balances of the bank accounts agree with the respective bank statements.

In our opinion the Balance Sheet and the Statement of Income and Expenditure give a true and fair view of the financial status of the International Mathematical Union at December 31, 1990.

SALMI, VIRKKUNEN & HELENIUS OY
Authorised Public Accountants


Antti Helenius

Authorised Public Accountant



Pekka Kaasalainen

Authorised Public Accountant

INTERNATIONAL MATHEMATICAL UNION

STATEMENT OF INCOME AND EXPENDITURE
FOR THE YEAR ENDED 31 DECEMBER 1990

I. INCOME	NOTES	US DOLLARS
Grant from ICSU Fund		10.000,00
Allocation from Unesco Subvention to ICSU		10.606,04
Unesco Contracts		-
Contributions from National Members	1.	119.510,43
Contributions from Scientific Members		-
Special Contributions		34.726,00
Contracts		-
Sales of Publications, Royalties		2.052,00
Sales of Scientific Materials		-
Bank Interest		20.950,05
Gain on Exchange		85.711,41
Other Income		-
T O T A L I N C O M E		<u>283.555,93</u> =====
II. EXPENDITURE		
a) SCIENTIFIC ACTIVITIES		
General Assembly		2.362,20
Scientific Meetings		10.067,11
Groups, etc.		-
Representation at Scientific Meetings		-
Data Gathering/Processing		-
Research Projects		-
Grants to Individuals/Organizations	2.	56.979,12
Other		-
LESS COVERED BY UNESCO CONTRACTS		
ROUTINE MEETINGS		
Bureau/Executive Committee		31.020,45
Other		353,97
PUBLICATIONS		
	3.	7.410,02
b) OTHER ACTIVITIES		
Contribution to ICSU		2.300,00
Contribution to other ICSU bodies (CTS, SCOSTEP, COBIOTECH, FAGS, ETC.)		400,00
Activities Covered by Unesco Contracts		-
ADMINISTRATIVE EXPENSES:		
Salaries and Related Charges		11.894,19
General Office Expenses		3.294,19
Office Equipment		-
Audit Fees		1.253,48
Bank Charges		1.248,42
Loss on Exchange		-
T O T A L E X P E N D I T U R E		<u>128.583,15</u> =====
EXCESS OF INCOME OVER EXPENDITURE		154.972,78
ACCUMULATED BALANCE AT 1 JANUARY 1990		250.575,87
ACCUMULATED BALANCE AT 31 DECEMBER 1990		<u>405.548,65</u> =====

Balance Sheet at December 31, 1990

	Notes	1990	1989
ASSETS			
Bank accounts and cash	4		
Cash		1.671	-
Current accounts		255.743	203.452
Deposit accounts		176.794	432.537
Prepayments	5	<u>7.692</u>	<u>4.139</u>
Receivable		2.766	-
		<u>444.666</u>	<u>336.405</u>
LESS: LIABILITIES			
Creditors and accruals	6	12.716	3.932
		<u>431.950</u>	<u>332.473</u>
		=====	=====
ACCUMULATED FUNDS			
General fund	7		
Balance at December 31, 1989		250.576	279.872
Excess of Income Over Expenditure		154.972	29.296
Balance at December 31, 1990		<u>405.548</u>	<u>250.576</u>
		Transfer	405.548
			250.576

		Transfer	405.548		250.576
Special Development Fund	7				
Balance at December 31, 1989			36.281		21.246
Interest			1.088		1.275
Income	8		24.252		13.760
Travel grants			(35.219)		-
Balance at December 31, 1990			<u>26.402</u>		<u>36.281</u>
General Assembly Fund					
Balance at December 31, 1989			11.177		9.313
General Assembly 1990			2.362		1.864
To Special Development Fund			(13.539)		-
Balance at December 31, 1990			<u>0</u>		<u>11.177</u>
World Directory of Mathematicians Fund					
Balance at December 31, 1989			34.439		25.123
World Directory, IX ed.			-		9.316
World Directory, IX ed. printing expenses			(34.439)		-
Balance at December 31, 1990			<u>0</u>		<u>34.439</u>
			<u>431.950</u>		<u>332.473</u>
			=====		=====

INTERNATIONAL MATHEMATICAL UNION

1. STATEMENT OF CONTRIBUTIONS RECEIVED FROM MEMBERS DURING THE YEAR
ENDED DECEMBER 31, 1990

MEMBER	PRE 1990	PAYMENT CONCERNING THE YEAR		TOTAL
		1990	1991	
Australia		2.685		
Austria		1.342		
Belgium	2.685	3.077		
Bulgaria		1.342		
Cameroon		787		
Canada		4.575		
China				
- Chinese Mathematical Society		2.685		
- Mathematical Society, Taipei		1.307		
Cuba		769	62	
Czechoslovakia		3.077		
Denmark		1.370		
Egypt	671	769		
Finland		1.374		
France		7.216		
German D.R.		2.685		
Greece	671	671		
Hungary		2.740		
Iceland	1.307			
Iran		709		
Israel		1.418		
Italy		4.965		
Ivory Coast	872	873		
Japan		7.092		
Korea, D.P.R.		709		
Korea, Rep.		671		
Netherlands		2.740		
New Zealand		671		
Nigeria	2.440			
Norway		787		
Philippines		815		
Portugal		671		
Poland		2.685		
South Africa		1.307		
Spain	1.370	2.685		
Sweden		2.941		
Switzerland	2.544	2.837		
Turkey		787		
United Kingdom		7.092		
U.S.A.		7.693		
U.S.S.R.	5.142	5.142		
Vietnam	709	2.731		
Yugoslavia	4.545			
	<u>22.956</u>	<u>96.492</u>	<u>62</u>	<u>119.510</u>

2. GRANTS TO INDIVIDUALS/ORGANIZATIONS

I.C.M.I	6.040
C.D.E	6.213
Travel grants, part	44.726
	<hr/>
	56.979
	<hr/> <hr/>

3. PUBLICATIONS

Publications expenditure is made up as follows:

	1990	1989
I.M.U. Bulletin	2.888	389
World Directory of Mathematicians, IX ed.	4.522	9.317
	<hr/>	<hr/>
	7.410	9.706
	<hr/> <hr/>	<hr/> <hr/>

NOTES TO BE READ IN CONNECTION WITH THE FINANCIAL STATEMENT
OTHER NOTES

			1990		1989	
			Currency	USD	Currency	USD
4. Banks and cash						
The amount held with banks is made up as follows						
Cash	FINLAND	FIM	5.999	1.671	-	-
Credit Swiss	SWITZERLAND					
- Current account		FS	126.067	99.265	107.241	66.609
Kansallis-Osake-Pankki	FINLAND	FIM	-	-	70.316	16.545
Kansallis-Osake-Pankki	FINLAND	USD	-	-	-	16.342
Kansallis-Osake-Pankki	FINLAND	FS	44.887	35.344	55.894	34.717
Kansallis-Osake-Pankki	FINLAND					
- Deposit account (RESERVE)		FS	224.528	176.794	207.391	128.814
- Longterm account		FS	153.840	121.134	72.131	44.802
Bank of Boston	USA	USD	-	-	-	24.437
				434.208		332.266

5. PREPAYMENTS

IAMP Congress

7.692

7.692

6. CREDITORS AND ACCRUALS

Audit

1.689

Office expenses

66

WDM 9th, printing expenses

10.961

12.716

7. FUNDS

These funds represent the amounts set aside to cover the following

Provided in year ended	1990 General Fund	1990 General Assembly	1990 World Directory	1990 Special Development Fund
-----	-----	-----	-----	-----
General Fund				
Balance 31.12.1989	250.576			
Transfer from the income of expenditure over excess	154.972			
Special Development Fund				
Balance 31.12.1989				36.281
Interest				1.088
Donations				24.252
Travel Grants				(35.219)
General Assembly Fund				
Balance 31.12.1989		11.177		
General Assembly 1990		2.362		
To Special Development Fund		(13.539)		
World Directory of Mathematicians Fund				
Balance 31.12.1989			34.439	
World Directory, IX ed. printing exp.			(34.439)	
	<u>405.548</u>	<u>0</u>	<u>0</u>	<u>26.402</u>
	-----	-----	-----	-----

8. The following contributions to the SDF,
we received in 1990:

The Royal Society, United Kingdom	7.179,93
The Royal Society, - " -	9.135,43
Donations from Mathematical Societies	18.410,64
	<hr/>
	34.726,00
Transfer for travel grants to young mathematicians	(10.474,00)
	<hr/>
	24.252,00

STATEMENT OF INCOME AND EXPENDITURE:
FINANCIAL YEARS 1989 AND 1990 COMPARED

INCOME	1990	1989
Grant from ICSU to SDF	10.000	-
Allocation from Unesco grant to ICSU	10.606	9.774
Contributions from Members	119.510	92.063
Special contributions	34.726	-
Sale of publications	2.052	4.966
Bank interest	20.950	12.481
Next exchange (loss) / gain	85.711	33.782
	<u>283.555</u>	<u>85.502</u>
EXPENDITURE		
A. MEETINGS		
Executive Committee meetings	31.020	10.111
Program Committee	354	3.728
General Assembly	2.362	2.019
	<u>33.736</u>	<u>15.858</u>
B. PUBLICATIONS		
	7.410	9.706
C. SCIENTIFIC ACTIVITIES		
Colloquia	-	28.548
Other activities		
ICM 1990	-	13.836
I.C.M.I	10.067	9.434
Conferences/ICSU	-	2.006
CDE	6.213	9.482
Travel grants	44.726	-
	<u>61.006</u>	<u>63.306</u>

D. ADMINISTRATIVE EXPENSES

Contribution to I.C.S.U.	2.300		2.767	
Grant to C.T.S.	400		400	
Grant to I.C.M.I.	6.040		5.660	
Grant to C.D.E.	3.356		2.199	
Audit fees	1.253		1.000	
General office expenses	11.833		12.480	
Bank charges	1.248		1.422	
	<u>26.430</u>		<u>25.928</u>	
	128.582		114.798	
	<u>154.973</u>		<u>(29.296)</u>	

EXCESS OF INCOME OVER EXPENDITURE

Allocated to:

General fund

154.973

(154.973)

EXCESS OF EXPENDITURE

Allocated from:

General fund

(29.296)

(29.296)

INTERNATIONAL MATHEMATICAL UNION

Dues arrears as of January 1, 1991:

Member	Dues (Swiss francs)	Year(s)	USD
Argentina	4.000	1990, 1989	3.150
Brazil	4.000	1990	3.150
Chile	3.232	1990, 1989, 1988, 1987	2.545
Germany, F.R.	10.000	1990	7.874
Hong Kong	3.000	1990, 1989, 1988	2.362
Iceland	1.000	1990	787
India	4.000	1990	3.150
Ireland	2.000	1990	1.575
Mexico	3.000	1990, 1989, 1988	2.362
Nigeria	1.000	1990	787
Philippines	1.080	1988, 1987	850
Poland	8.000	1989, 1988	6.299
Romania	16.000	1990, 1989, 1988, 1987, 1986, 1985, 1984, 1983, 1982	12.598
Yugoslavia	3.250	1990, 1989, 1988	2.559
			<hr/> 50.048 <hr/> <hr/>

1 USD = 1,27 SFR = December 31, 1990

CDE ACCOUNTS FOR 1990

Income

Balance 1989	17,610.31
IMU CDE Contribution	6,666.67
1989 UNESCO Support	5,000.00
U.M.I. (versement UNESCO 1990)	6,401.90

\$35,678.88

Expenses

Prof. Ekhaguere	3,000.00
Draft fee	10.00
Pham Huu Sach Mannheim	1,000.00
Wire fee	25.00
Facultad National de Cordoba	1,500.00
Draft fee	10.00
Fee for #34411 stop payment	10.00
Prof. Fernando Levstein	1,500.00
CNFM Société Générale	2,541.62
Wire fee	20.00
CNFM (frais de secrétariat)	400.00
Ahmedou Haouba	820.37
Wire fee	20.00
Prof. Aron Simis	1,000.00
Wire fee	8.00
Prof A.O. Kuku	1,000.00
Wire fee	25.00
Prof. S.S. Miller	330.00
Prof. St. Ruscheweyh	330.00
Prof. S. Owa	330.00
Inst. Mathématique de Hanoi	2,000.00
Draft fee for Hanoi	10.00
Wire fee for Yu YanLin	23.02
Wire fee for Yu YanLin	20.00
Wire Ji Min for Yu YanLin	605.12
Foreign Bank Charge YuYan Lin 9/6	74.00
Telex chg. Yu Yan Lin 9/6	30.00
Prof. Sridharan	562.00
AMS/reimburse telex to India	21.96
Univ. de Santiago de Chile	3,000.00
Prof. Nguyen To Nhu	1,100.00
Wire fee	20.00

\$21,346.09

Balance 12/31/90

\$14,332.79

ICMI ACCOUNTS FOR 1990

Accounts 1 January - 31 December 1990

Swiss Franc Account

Income

Balance at 1 Jan 1990	2,136
IMU (Admin and Sc.Act)	24,000
	<hr/>
	26,136

Expenditure

Transfer to other accounts	24,000
Charges	11
Balances at 31 Dec 1990	2,125
	<hr/>
	26,136

Dollar Account

Income

Balance at 1 Jan 1990	43,473
UNESCO (Popularization)	1,000
UNESCO (Assessment)	1,700
Interest (less charges)	1,886
	<hr/>
	48,059

Expenditure

E.C. Meeting	523
Computer Study	1,720
China Meeting	1,500
Transfer to Sterling	15,000
ICME 7	1,000
Women Study	650
Balance at 31 Dec 1990	27,666
	<hr/>
	48,059

Sterling Account (up to 28 February 1991)

Income

Balance at 1 Jan 1990	14,372
Transfer from Swiss Francs	9,504
Transfer from Dollar	8,673
ICSU CTS (Joint)	194
CUP	105
UNESCO (Popularization)	1,150
ICME 6 Proceedings	350
UNESCO (Assessment)	146
UNESCO (Joint)	1,016
Interest less charges	2,447
	<hr/>
	37,957

Expenditure

Computer Study	927
Popularization Study	3,210
Assessment Study	1,255
Joint Study	1,646
ICME 7 IPC	560
Southampton University	
Bulletins	550
Services	2,700
Incidentals	24
E.C. Meetings	4,684
IMO Site Committee	30
Balance at 28 Feb 1991	22,371
	<hr/>
	37,957

World Directory of Mathematicians
ACCOUNTS FOR 1991

WORLD DIRECTORY OF MATHEMATICIANS
8TH EDITION

REVENUE:

5 Units, US\$ 30.00 each	US\$ 150.00
AMS SERVICE FEE	
5 Units, US\$ 8.00 each	40.00
NET AMOUNT DUE YOU	<u>US\$ 110.00</u>

RECONCILIATION OF UNITS

TOTAL COPIES PRINTED		2,050
LESS: ADVANCE COPIES	77	
DAMAGE COPIES DESTROYED	36	
RETURNED COPIES	-9	
1986 SALES	278	
1987 SALES	551	
1988 SALES	229	
1989 SALES	147	
1990 SALES	53	
1991 SALES	5	
REMAINING COPIES DESTROYED	683	2,050
	<hr/>	<hr/>
		0

WORLD DIRECTORY OF MATHEMATICIANS
9TH EDITION

REVENUE:

297 Units, US\$ 40.00 (each)	US\$ 11,800.00
3 Units, US\$ 46.50 (each)	139,50
2 Units, US\$ 36 (each)	72.00
1 Unit, US\$ 28 (each)	28.00
1 Unit, US\$ 26 (each)	26.00
3 Units, US\$ 20 (each)	60.00
22 Units, US\$ 0	0

TOTAL	REVENUE	US\$ 12,105,50
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AMS SERVICE FEE

329 Units, US\$ 9,00 (each)	2,961.00
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BALANCE DUE YOU	9,244.50
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RECONCILIATION OF UNITS

AMS SERVICE FEE

329 Units, US\$ 9.00 (each)	2,961.00
-----------------------------	----------

BALANCE DUE YOU	9,244.50
-----------------	----------

RECONCILIATION OF UNITS

TOTAL COPIES PRINTED		1,298
LESS: ADVANCE COPIES	102	
1990 SALES	360	
1991 SALES	329	791

ON HAND DECEMBER 31, 1991		507
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