

ICMI

Bulletin

of the
International Commission
on
Mathematical Instruction

No. 40

June 1996

The International Commission on Mathematical Instruction

ICMI

Bulletin No. 40

June 1996

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The International Commission on Mathematical Instruction

Executive Committee 1995-1998

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Legend: IMU stands for *The International Mathematical Union*.

The General Assembly of ICMI to convene at ICME-8

In accordance with the *Terms of Reference for ICMI*, The General Assembly, consisting of the National Representatives on ICMI (each representing an Adhering Organization) and the Executive Committee, is going to be held at ICME-8, Sevilla, Spain, on **Wednesday 17th July, 17.00-19.00**. Information concerning the location of the Assembly will be provided in due course.

In case a National Representative be unable to be present at the General Assembly he or she is kindly asked to arrange for the appointment of a substitute. In addition to the formal members of the General Assembly, representatives of the four affiliated international study groups, IOWME, HPM, PME, and WFNMC are invited to participate in the meeting.

The **agenda** of the General Assembly is as follows:

1. ICMI finances

(Note: The ICMI accounts have been approved by the EC of the International Mathematical Union)

2. Debate on ICMI activities 1992-96, including:

ICMI internal affairs:

Members, in particular co-opted non IMU-members, National Representatives, Sub-Commissions

Information and communication, incl. the Bulletin

ICMEs 7 & 8

ICMI Studies

Affiliated study groups

Regional meetings

3. Future plans and developments

ICMEs 9 & 10

Future Studies

Affiliated study groups

Solidarity Programme and Fund

Regional meetings

ICMI infra-structure

WMY 2000

ICMI and the International Congress of Mathematicians (ICM)

4. Any other business

As background information to this agenda reports from ICMI and its Affiliated Study

Groups are published on the following pages.

Miguel de Guzmán, President

Mogens Niss, Secretary

ICMI on the World Wide Web

Information about ICMI, including the most recent issue of the ICMI Bulletin, is now available from the ICMI-pages of the IMU-server. The pages can be found through URL:

<http://elib.zib-berlin.de/imu.icmi>

Report on ICMI activities in 1992-96

1. Organisation

On the 1st January 1995, a new Executive Committee of ICMI, elected at the IMU General Assembly in Switzerland (in August 1994), took office. This resulted in the following changes: Professor Anna Sierpiska (Poland/Canada) was appointed new Vice-President in succession to Professor Lee Peng Yee (Singapore); Professors Colette Laborde (France), Gilah Leder (Australia), Carlos Vasco (Colombia), and Zhang Dianzhou (China), were elected new members in succession to Professors Yuri Ershov (Russia), Eduardo Luna (the Dominican Republic/USA), and Anna Sierpiska (Poland/Canada). Finally, Professor David Mumford (USA) replaced Professor J-L. Lions (France) as Ex Officio member (President of the IMU), whereas Professors Jean-Pierre Kahane and Jacobus H. van Lint left the EC as Ex Officio members (Past President and Representative of IMU on ICSU/CTS, respectively). In the ICMI Bulletin, No. 38, June 1995, the President, Miguel de Guzmán, thanked the outgoing officers and members of the EC very warmly for their enthusiastic, energetic, and excellent service to ICMI and to the mathematics education community at large.

Since the last General Assembly, held at ICME-7 in Québec City, Canada, in August 1992, the old Executive Committee met in August 1992 (Québec City, Canada), October 1993 (Höör, Sweden), and August 1994 (Zürich, Switzerland). The new EC met for the first time in February 1994 (Madrid, Spain), and at an informal sub-EC meeting in September 1996 (Catania, Italy). Beside in meetings, the work in the EC is conducted by correspondence and electronic communication under the direction of the President and the Secretary.

Since 1992, the following states have become new members of ICMI as a result of their acquisition of membership of International Mathematical Union (IMU) - which happened in consequence of the changes in Eastern Europe: *Croatia, The Czech Republic, Georgia, Russia, The Slovak Republic, Slovenia*. As, at the same time, USSR and Czechoslovakia ceased to exist, these states have disappeared as member states of ICMI.

In 1995, applications from a number of countries to be co-opted as non-IMU member states of ICMI were received by the EC. Decisions concerning these applications will be made by the EC in 1996.

In a number of member states, it was decided to establish National Sub-Commissions of ICMI. This is the case with *Chile* (1992), *Denmark* (1994). More countries are expected to establish National Sub-Commissions in the years to come.

As of 1st April 1994, *WFNMC* (The World Federation of National Mathematical Competitions) obtained the status of a study group affiliated to ICMI.

2. Finances

Accounts for 1995 appear in a separate section of this Bulletin. The accounts are approved by the IMU EC.

3. ICMEs

The latest of the quadriennial International Congress on Mathematical Education, *ICME-7*, was held at Université Laval, Québec, Canada 17-23 August 1992. The Programme and Local Organising Committees for the next congress, *ICME-8*, to be held in Sevilla (Spain), 14-21 July 1996, have invested immense efforts in planning the congress which is expected to be welcoming more than 3500 delegates from all parts of the world. For the first time in the history of the ICMEs, the organisers of ICME-8 have included a 'solidarity tax' of 10% in all registration fees. The amount thus generated serves to assist participants from non-affluent countries to attend the congress.

In October 1995, the EC decided unanimously, and with great pleasure and gratitude, to accept the bid submitted by Japan to host *ICME-9* in the year 2000. The Congress will be held in Chiba, near Tokyo. Informal contacts between the Japanese Invitation Committee and ICMI to initiate the organisation and planning of ICME-9 were established at the end of 1996.

4. ICMI Studies

The mounting and conducting of so-called ICMI studies on crucial themes and issues in mathematics education was continued during the years 1992-1996. The ICMI studies are now published by Kluwer Academic Publishers, Dordrecht, the Netherlands, under the general editorship of the President and the Secretary of ICMI.

The study conference for the study on *Gender and Mathematics Education* was held at Stiftsgården in Höör (Sweden), 7-12 October 1993. It was attended by 75 participants from 23 different countries. The proceedings of this conference, edited by Barbro Grevholm and Gila Hanna, were published in 1995 by Lund University Press. The final outcome of the ICMI Study, the book *Towards Gender Equity in Mathematics Education - An ICMI Study*, edited by Gila Hanna, appeared in the ICMI Study Series, published by Kluwer Academic Publishers, in 1996.

The study conference for the study on *What is Research in Mathematics Education, and What Are Its Results?* was held at the University of Maryland in College Park, Maryland, USA, 8-11 May 1994. It was attended by 81 participants from 23 different countries. The resulting ICMI study volume, edited by Jeremy Kilpatrick and Anna Sierpinska, to be published in the ICMI study series, is expected to appear in the course of 1996.

The study conference for the ICMI Study *Perspectives on the teaching of geometry for the 21st century* was held at Università di Catania, Sicily (Italy) 28 September - 2 October 1995. About 75 participants from more than 30 countries attended the conference. ICMI is grateful to the UNESCO/ROSTE office in Venezia (Italy) which sponsored the conference with a grant of US\$ 3,000. The resulting ICMI Study volume, which is being edited by Vinicio Villani, is expected to appear in 1997.

Reports on the three above-mentioned studies will be given in special ICMI study

sessions at ICME-8, in Sevilla, July 1996.

The EC has decided to devote the next study in the series to *The position and rôle of the history of mathematics in the teaching and learning of mathematics*. The study conference will be held in France in 1997. An International Programme Committee for the study will be appointed by the EC in the first half of 1996.

5. Regional Conferences

In 1995, the EC decided to adopt the following (minimum) requirements for granting the status of *ICMI Regional Meeting* to a conference under planning:

- * There has to be evidence of a broad national support of the meeting;
- * There has to be evidence of a fair degree of regional support;
- * The conference should have a theme which is of specific significance to the region at issue;
- * An International Programme Committee has to be appointed. It should include at least one member representing the ICMI EC (not necessarily an EC member) who is prepared to produce a brief report of the organisation and proceedings of the conference;
- * A conference report in English should be published;
- * If ICMI is asked to provide financial support, a budget and a subsequent brief account, both in gross terms, should be made available to the ICMI EC. Normally, only regional conferences to be held in non-affluent countries will be eligible to financial support from ICMI.

Since 1992, the following regional meetings were sponsored (financially, morally or both) by ICMI: *SEACME-6* (The 6th South East Asian Conference on Mathematical Education) was held in Surabaya (Indonesia) in June 1993. The *ICMI-China Regional Conference* was held in Shanghai (China), in August 1994. The proceedings of this conference was published by Shanghai Educational Publishing House in 1995. In April 1995, *Regional Collaboration in Mathematics Education; An ICMI Regional Conference* was held in Melbourne (Australia). The Ninth Inter-American Conference on Mathematics Education, *IX IACME* was held in Santiago (Chile), July-August 1995. In June 1996, *SEACME-7* (The 7th South East Asian Conference on Mathematical Education) was held in Hanoi (Vietnam).

6. Affiliated Study Groups

ICMI now has four affiliated study groups, *HPM* (The International Study Group for the Relations Between the History and Pedagogy of Mathematics), *IOWME* (The International Organisation of Women and Mathematics Education), and *PME* (The International Group for the Psychology of Learning Mathematics), and *WFNMC* (The World Federation of National Mathematical Competitions).

7. Other initiatives

Further to a proposal made by Nicolas Balacheff (Grenoble, France) at the ICMI Study

Conference in College Park, Maryland (USA), May 1994, the EC has decided to appoint an international *Ad Hoc Committee on the Identity of the Professional Community of Mathematics Education Researchers* chaired by Nicolas Balacheff.

8. The Solidarity Programme

In 1992 ICMI established a Solidarity Programme to help the development of mathematics education in countries in which there is a need for it that justifies international assistance. The first stage in this programme was the mounting of a *Solidarity Fund* based on private contributions by individuals, associations, etc. The Fund is to be activated to support concrete initiatives and activities that may foster solidarity in mathematics education between well-defined quarters in developed and less developed countries. Since 1992 the Solidarity Fund has received generous donations from various organisations and individuals in mathematics education for which it is most grateful. Ultimo 1995, the Solidarity Fund contained almost USD 33.000.

The main idea with respect to the Solidarity Fund is to support projects which might help the improvement - in a broad sense - of mathematics education in a region, country, or province. Particular emphasis is placed on projects which enable the activation of a self-sustainable infra-structure (such as preparation of teachers or researchers in mathematics education, curriculum development, production of teaching/learning materials, creation of networks, initiation of research activities) within mathematics education in the area at issue. Only in very special cases will the Fund be used to support individuals in leaving their country for conferences, courses, etc.

In 1993 the first project under the auspices of the Solidarity Programme was carried out. With partial support from the Solidarity Fund, Professors Miguel de Guzmán and Mariano Martínez gave courses in Managua (Nicaragua) in two weeks in January-February 1993. In 1994 the Fund was activated to support (a) a project (begun in February 1994) in El Salvador to help establishing master's programmes in statistics and mathematics education; (b) the attendance of an IPC member and plenary speaker at the ICMI-China Regional Conference, held in Shanghai in August.

Although the total funds are not excessive, the ICMI EC would welcome applications concerning projects which are worthy of support along the lines indicated above.

9. ICMI Bulletins

Since August 1992 ICMI Bulletin Nos. 33-40 were published under the editorship of the Secretary of ICMI. In 1995, an ISSN-number (1024-3127: Bulletin - ICMI) was attached to the Bulletin. As from the end of 1995, the ICMI Bulletin is available in the following electronic forms: In ASCII-format on direct request to the editor. On the World Wide Web, where it can be found under the following coordinates on the IMU-server, through URL:

[http://elib.zib-berlin.de/imu.icmi.bull.\[no.\]](http://elib.zib-berlin.de/imu.icmi.bull.[no.])

10. ICMI on WWW

Since the end of 1995, information concerning ICMI can be found on the ICMI-pages of

the IMU-server on the World Wide Web. The pages are located through URL:

<http://elib.zib-berlin.de/imu.icmi>

Mogens Niss, Secretary, 14 May 1996
Roskilde University, Roskilde, Denmark

ICMI Accounts 1995:

1 January - 31 December

Swiss Franc Account:

Income:

balance 1994	105.016,03
IMU (Schedule A: Administration)	11.000,00
IMU (Schedule B: Scientific Activities)	22.000,00
interest	682,04
total	<u>138.698,07</u>

Expenditure:

transfer charges	12,82
transfer to US\$ Account	20.000,00
ICMI balance 1995	118.685,25
total	<u>138.698,07</u>

Den Danske Bank exchange rate, ult. 1995: 1 CHF = 0,87 US\$

Danish Kroner Account:

Income:

ICMI balance ¹⁾ 1994	9.608,05
Solidarity Fund balance ¹⁾ 1994	- 3.382,40
transfer from US\$ Account Solidarity Fund (562,00) to Solidarity Fund	3.382,40
transfer from Sterling Account (500,00)	4.349,85
payment from CIDE, Madrid, for EC members' lectures ²⁾	15.804,21
1. payment (US\$ 2.000) of UNESCO grant to ICMI Study on Geometry ³⁾	11.036,40
total	<u>40.798,51</u>

Expenditure:

EC meeting in Madrid ²⁾	10.504,17
ICMI Study on Geometry in Catania (Italy), Secretary's expenses	3.774,00
typing of Bulletin 38 & 39	2480,00
credit card charge	150,00
transfer charges	30,00
Solidarity Fund balance 1995	0,00
ICMI Balance 1995	23.860,34

(account balance	23.860,34)
total	<u>40.798,51</u>

Den Danske Bank exchange rate, ult. 1995: 1 DKR = 0,18 US\$

Sterling Account:

Income:

balance 1994	21.407,96
CUP royalties for studies	22,01
interest	649,26
total	<u>22.079,23</u>

Expenditure:

EC meeting in Madrid, members' accommodation and travels	4.303,10
ICMI Study on Geometry, Catania (Italy), President's expenses	420,35
EC member's participation in IX IACME	545,60
transfer to Danish Kroner Account	500,00
transfer charges	30,30
ICMI balance 1995	16.279,88
total	<u>22.079,23</u>

Den Danske Bank exchange rate, ult. 1995: 1 GBP = 1,55 US\$

US\$ Account:

Income:

ICMI balance ¹⁾ 1994	-11.333,96
Solidarity Fund balance ¹⁾ 1994	31.859,22
interest	1.204,02
reimbursement of ICMI expenditures at the Research Study ⁴⁾	5.553,32
transfer from Swiss Franc Account (20.000)	15.426,15
Contribution to the Solidarity Fund	
from <i>The Mathematics Education Research Group of Australiasia (MERGA)</i>	1.464,47
total	<u>44.173,22</u>

Expenditure:

EC meetings, members' travels	4.416,64
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ICMI contribution to SEACME 7 ^o	2.000,00
ICMI Study on Geometry, Catania, IPC member's travel	727,00
ICMI outlay for Geometry Study Unesco grant ³⁾	3.085,14
transfer charges	79,58
Solidarity Fund transfer to DKR Account	562,00
Solidarity Fund balance 1995	32.761,69
ICMI balance 1995	541,17
(account balance)	33.302,86)
 total	 <u>44.173,22</u>

Notes:

1. As a consequence of the ICMI General Assembly and Executive Committee meetings held in Québec, August 1992, it was decided to establish an ICMI Solidarity Fund based on private contributions. The **Solidarity Fund** is mounted to assist mathematics education and mathematics educators in less affluent countries. Its money can only be spent (by a committee chaired by Professor Jean-Pierre Kahane) to serve such purposes and is therefore **not** part of ICMI's general resources. However, the appearance of the Solidarity Fund on the ICMI accounts for 1995 is due to the wish to keep ICMI's number of different bank accounts low. The accounts exhibit the ICMI balances and the Solidarity Fund balances separately.

2. Part of the expenses concerning the EC meeting held in Madrid in February 1995 were covered by fees for lectures given by EC members at a seminar held by CIDE, Madrid.

3. The UNESCO/ROSTE office generously contributed a grant of US\$ 3.000 to the ICMI Study Conference on *Perspectives of the Teaching of Geometry for the 21st Century*, held in Catania, Sicily (Italy), 28 September - 2 October 1995. The payment, which is divided into two parts - US\$ 2.000 and 1.000, respectively - was not yet made at the time of the conference. So, ICMI made an outlay of US\$ 3.000 to the conference, for later reimbursement.

4. A great deal of ICMI's expenditures in 1994 concerning the ICMI Study Conference on *What is Research in Mathematics Education, and What Are Its Effects*, held at the University of Maryland (USA), 8 - 11 May 1994, were reimbursed from the net surplus of the conference budget in 1995.

5. SEACME 7 (*The Seventh South East Asia Conference on Mathematics Education*) is to be held in Hanoi (Vietnam) in June 1996.

6. In addition to the amounts displayed directly in the accounts, considerable extra sums should appear but do not and cannot. In 1995 Roskilde University (the Secretary's home

institution) has contributed a substantial support to ICMI's work (e.g. telephone and -fax, e-mail facilities, postage, all the printing and distribution costs of the Bulletin, plus secretarial help of various sorts). It is estimated that the total contribution of Roskilde University is equivalent about US\$ 5.000. The ICMI Executive Committee expresses its gratitude for this generous support.

The Executive Committee's thanks also go to the institutions of its other members. These institutions, too, have given invisible support to ICMI's work in a variety of ways. For instance, in many cases these institutions have paid travel and other expenses related to participation in EC meetings and so forth.

Mogens Niss
13 February 1996

Report by HPM
The International Study Group on the Relations between
History and Pedagogy of Mathematics

HPM Activities 1992-1996

Over the last four years, since the last General Assembly of ICMI in Québec, the HPM Study Group has continued to build on its earlier work and to develop its role of exploring, researching and promoting the relations between history and pedagogy of mathematics. Much has been achieved. A number of major international conferences have been held, twelve newsletters have been published and distributed to an ever-wider list of people around the world, books have appeared arising out of conferences and related activities, and continued progress has been made in working towards the research programme that will result in an ICMI study.

Structure of HPM

For the period 1992-1996, the HPM Advisory Board has consisted of

George Booker (Australia)
Jacques Borowczyk (France)
Ubiratan D'Ambrosio (Brazil), former chair
Florence Fasanelli (USA), former chair
John Fauvel (UK), Chair
Lucia Grugnetti (Italy)
Hans Niels Jahnke (Germany)
Charles V. Jones (USA), Americas Section Chair 1995-6
Victor J. Katz (USA), Editor
Maasouma Kazim (Egypt)
Israel Kleiner (Canada)
Osamu Kota (Japan)
Jan van Maanen (Netherlands)
Mohini Mohamed (Malaysia)
V. Frederick Rickey (USA), Americas Section Chair to 1994
Eduardo Veloso (Portugal)

Conferences

The concerns of the Study Group have been pursued through a major international HPM conference in each year of the quadrennium as follows:

1993: Montpellier, France, 19-23 July
1994: Blumenau, Brazil, 25-27 July
1995: Cairns, Australia, 30 June - 4 July
1996: Braga, Portugal, 24-30 July

The Montpellier conference, organised by Evelynne Barbin, Françoise Lalande and

Yves Nouaze on behalf of IREM (the French Institutes of Research into Mathematics Education) was the first European Summer University on history and epistemology in mathematics education. Reports appeared in HPM Newsletter 30 (pp. 3-7). The Blumenau HPM conference, organised by Ubiratan D'Ambrosio, is reported in HPM Newsletter 33 (pp. 2-6). The Cairns HPM conference, organised by George Booker, is reported in HPM Newsletter 36 and (with photograph) in BSHM Newsletter 30 (pp.20-21). The Braga conference, organised by Eduardo Veloso, Maria Fernanda Estrada, Evelyne Barbin and John Fauvel, is the final conference of the quadrennium, (even though for reasons of the Spanish climate and European school year it is actually taking place after ICME Seville and thus after the next ICMI General Assembly), at which the HPM Chair for the forthcoming quadrennium will be elected.

In addition there have been a number of other conferences across the world in the area of history and pedagogy of mathematics, as the reports in each issue of the HPM Newsletter demonstrate. In particular, two international conferences on History in Mathematics Education (HIMED) have been organised by the British Society for the History of Mathematics: 1994: Winchester, UK, 28-31 March; 1996: Lancaster, UK, 12-14 April. Reports of these, and many other conferences of one day or more, appear both in the HPM Newsletter and the BSHM Newsletter.

Sections

The only formal sub-section of the Study Group is the Americas Section, whose chairs over the period have been V. Frederick Rickey and Charles V. Jones. It holds various meetings, notably in connection with the annual meeting of the National Council of Teachers of Mathematics (Seattle 1993, Indianapolis 1994, Boston 1995, San Diego 1996).

As is clear from the range of conferences held over the period in Europe, South America and elsewhere, the Study Group has been deeply involved in permeating and working with other organisations such as IREM and BSHM to further its overall aims.

Publications

A refereed selection of thirty of the talks given at the 1992 Quadrennial Meeting of HPM, in Toronto, together with HPM talks given at ICME-Québec, have been published by the Mathematical Association of America in a volume edited by Ronald Calinger:

Ron Calinger (editor), *Vita mathematica: historical research and integration with teaching*, Washington DC: Mathematical Association of America, 1996. xii + 359 pp. ISBN 0-88385-097-4

The text on the back cover of this lavishly-designed book gives a fair summary of the content: 'This volume demonstrates that the history of mathematics is no longer tangential to the mathematics curriculum, but deserves a central role.'

Publications from the subsequent HPM meetings are under way also. The proceedings

of the Blumenau meeting have already appeared, edited by Sergio Nobre, under the title *Meeting of the International Study Group on the Relations between History and Pedagogy of Mathematics, HPM-Blumenau/Brazil 25-27 July 1994*. This contains the full text of four of the plenary addresses, thirteen talks from the parallel sessions and six further communications. The proceedings of the Cairns HPM conference are presently being edited for publication by George Booker.

HPM Newsletter

Throughout this period the Newsletter has been edited by Profesor Victor J. Katz, University of the District of Columbia, USA. This has appeared regularly, three times a year, so twelve issues in all, nos. 27-38, have appeared between November 1992 and July 1996.

The HPM Newsletter fulfils a crucial role of informing and keeping in touch people throughout the world. For very many readers, the Newsletter is the main source of information about the activities of others in this field. To a considerable extent, HPM is its newsletter, and the role of its editor is therefore pivotal. We have been exceedingly fortunate to have had in Victor Katz an editor of superlative efficiency and powerful editorial skills who brought out the Newsletter with unfailing regularity, unperturbed by bringing out his highly acclaimed *History of mathematics*: an introduction (Harper-Collins, 1993) at the same time. Not the least of Victor's achievements over his period as editor is to have built up the panel of distributors so that there is now a very strong distribution network which serves also as a local focus for HPM activities and promotion. Having been appointed at the beginning of the previous quadrennium in 1988, that is, having now served an eight-year, 24 issue stint, Victor is giving up the editorship at Braga and applying his energies to fresh challenges. He is not abandoning HPM, but becoming chair of the Americas section. We are all very greatly in his debt.

Distribution of the HPM Newsletter throughout the world is through the kind services of 23 distributors, as follows: Australia: George Booker; Austria: Manfred Kronfeller; Canada: Glen van Brummelen; France: Evelyne Barbin; Germany & Eastern Europe: Roland Stowasser; Greece, Turkey and the Balkans: Nikos Kastanis; India and South Asia: R.C. Gupta; Iran: Mohammed Bagheri; Israel: Anna Sfard; Italy: Luciana Bazzini; Japan: Osamu Kota; Malaysia: Mohini Mohamed; Mexico: Alejandro Garciadiego; Morocco: Abdellah El Idrissi; Netherlands and Belgium: Jan van Maanen; New Zealand: Andy Begg; Nigeria and other Africa: J.O.C. Ezeilo; Philippines and East Asia: Gloria Benigno; Portugal and Spain: Eduardo Veloso; Scandinavia: Bengt Johansson; South America: Geraldo Pompeu; Southern Africa: Paulus Gerdes; UK: John Fauvel; US and rest of world: Victor Katz.

The Study Group is greatly indebted to these distributors, and to their supporting institutions, who generally take responsibility for copying the newsletter, from masters supplied by the Editor, and distributing it by post and at meetings to interested people in their areas, as well as promoting the Study Group throughout their distribution areas.

For much of this period, the central production and distribution costs were generously met by the University of the District of Columbia. Financial pressures in 1995 meant this support could no longer be provided, so the 1500 people on the US mailing list are now asked to contribute some \$10 per year towards the production and distribution costs. The rest of the world is currently unaffected by this, though it is not clear for how long local distributors will be able to continue various ad hoc distribution arrangements through the generosity of their organisations and institutions.

Further technological solutions are being pursued, and the BSHM Newsletter is now available on the World Wide Web.

Research

Several individuals within HPM have been formulating and conducting research in different countries on the use of history of mathematics in mathematics education. Some of the results of this research have been communicated at HPM meetings, at meetings of other organisations, and through papers in the usual journals. One of the benefits of the considerable consolidation and growth of interest in HPM over the past four years is that a research programme is beginning to emerge, with contributions from many places over the globe, which is now about ready to be put into operation. This will involve a consolidated critical bibliography of work that has been done hitherto (over the last century, and increasingly since HPM became established in recent years), and a programme for developing a deeper understanding of the factors involved in the relations between history and pedagogy of mathematics, in different areas of mathematics, and with pupils and students at different stages and with different environments and backgrounds. One of the main challenges for HPM in the next quadrennium, besides the further wide promotion of interest in its area of concern, will be to work on the long-promised ICMI study, and report back by the end of the millennium.

John Fauvel, Chair
The Open University, Milton Keynes, UK

Report of PME
The International Group for the Psychology of Mathematics Education

PME Activities 1992-96

Introduction

The International Group for the Psychology of Mathematics Education (PME) will be holding its twentieth annual meeting in Valencia, Spain, in July 1996. Previous annual meetings, since ICME-7, have been held in Tsukuba, Japan (1993), Lisbon, Portugal (1994) and Recife, Brazil (1995). It is significant that the 1996 meeting will have the largest attendance, with the largest number of research reports proposed and accepted, of any meeting in PME's history, with approximately 480 people pre-registered to date (15 May 1996). Whilst this is in part due to the proximity, both geographically and in time, of ICME-8 the previous largest meeting was in Lisbon (1994). The smaller attendance at the 1995 meeting may have been due to its being held in Brazil. It remains the policy of PME to hold meetings in different countries, on the invitation of groups in those countries, and PME endeavours to ensure a balance between northern hemisphere and southern hemisphere meetings, and between countries where the PME membership is small and where it is large.

Thus it appears that PME is growing in size. I believe this reflects: its growing stature internationally, and in particular the importance of the annual Proceedings and other publications (see below) to researchers in mathematics education; its eclecticism, in the sense of the interpretations of 'psychology' as the focus; the growing maturity of the academic discipline of mathematics education throughout the world; and also the growing pressures on academics to publish research. Greater size is a mixed blessing, as it may bring other problems: it may be harder for some countries to organise a large conference; PME has always had a certain intimacy due to the small numbers attending; and large groups implies more parallel presentations of research reports or a longer, and therefore more expensive, conference. The International Committee and the membership of PME will need to take this into account, together with other factors, as it considers in general its direction, research focus, etc. in moving into its third decade.

Publications

D. Tall (Ed.) (1991) "Advanced Mathematical Thinking", Kluwer: Dordrecht
A. Bishop, K. Hart, S. Lerman, T. Nunes (1993): "Significant Influences on Children's Learning of Mathematics", UNESCO Document Series, No. 47
P. Neshet & J. Kilpatrick (Eds.) (1990): "Mathematics and Cognition: A Research Synthesis", ICMI Study Series, Cambridge University Press.

Developments

A major change administrative to PME has been the appointment of an Executive Secretary, Dr. Joop van Dormolen, which took effect soon after the 1991 meeting in

Assisi. He was in place from the meeting in New Hampshire, in 1992. As the new President, I know I have the support of the past Presidents, Kath Hart and Carolyn Kieran, and the PME membership, in recording here in this report that he has been and continues to be of enormous value to the management of PME.

A constitutional change has been that the President now serves for three years, instead of the previous two.

The structure of the meetings is always modified by each local programme committee but there has been one formal change to the programme each year in that there is now a new form of presentation of research, called the Research Forum. First established in 1995, the forum invites researchers with a well-established and active research-programme to offer a presentation of their research in a more substantial form than is possible in research reports. The reports are followed by prepared responses by others well known in the field and there is an opportunity for substantial reaction and feedback from the audience. The aim is for there to be two presentations on each theme and reactions from each research group to the other. Both last year and this, one of the themes has had two presentations whilst the other has had just one.

Recently a custom that PME had before has been taken up again, by taking a theme for the meeting as a whole, reflected in two of the plenary presentations and the plenary panel drawing on that theme. In Recife (1995) the theme was Socio-cultural Perspectives on the Psychology of Mathematics Education and the theme of the 1996 meeting in Valencia will be Language and Mathematics.

PME has an Honorary Member, its first President, Efraim Fischbein. We have lost a number of founder members in recent years, including a former Honorary Member Hans Freudenthal, a former President, Richard Skemp, Nicolas Herscovics and Merlyn Behr.

Officers and International Committee of PME

In 1992/3 the President was Carolyn Kieran, the Vice-President Gilah Leder, the Treasurer Angel Gutiérrez, and the Secretary Martin Cooper. In 1993/4 the President was Carolyn Kieran, the Vice-President Mariolina Bartolini Bussi, the Treasurer Angel Gutiérrez, and the Secretary was Martin Cooper. In 1994/5 the President was Carolyn Kieran, the Vice-President Mariolina Bartolini Bussi, the Treasurer Stephen Lerman, and the Secretary Judy Sowder. In this current academic year, 1995/6, the President is Stephen Lerman, the Vice-President is Jere Confrey, the Treasurer is Avraham Arcavi and the Secretary is Judy Sowder. The editor of PME News, which is published every November and May, is Kaye Stacey.

The other members of the International Committee at this time are: Jill Adler, Paul Ernest, Maria Alessandra Mariotti, João Filipe Matos, Luciano Meira, Judy Mousley, Raphael Nunez, Erkki Pehkonen, Luis Puig, Teresa Rojano, Keiichi Shigematsu, Kaye Stacey, and Erna Yackel.

Working Groups

A major part of the scientific work of PME takes place in the Working Groups. Some have been active for many years, going through transformations as the convenors change, and in some cases as the groups publish the results of their work and a new agenda is set. Others grow out of successive years of the meetings of Discussion Groups which then see their way to an on-going programme of research and, with the agreement of the International Committee, become Working Groups. Others still come to the end of their 'Working' life and have ceased to function. Currently the Working Groups and their convenors are:

Advanced Mathematical Thinking - D. Reid
Algebraic Processes and Structures - T. Rojano and L. Raford
Classroom Research - A. Teppo and C. Maher
Cultural Aspects in the Learning of Mathematics - B. Nedys and P. Laridon
Geometry - M.A. Mariotti and A.L. Mesquita
Research on the Psychology of Mathematics Teacher Development - N. Ellerton
Social Aspects of Mathematics Education - L. Rogers
Teachers as Researchers in Mathematics Education - C. Breen

Reports of the recent work of the groups can be found in PME News, copies of which can be obtained from the editor, Kaye Stacey, or the Executive Secretary, Joop van Dormolen.

The Future

All aspects of the running of the International Group come under review by the International Committee each year, and of course by the membership at the Annual General Meetings. This year the Committee will, in particular, undertake a review of the Working Groups and Discussion Groups, examine the policies for the distribution of the Richard Skemp Memorial Fund, which is used to support the attendance of people who, for racial, political or philosophical reasons find difficulty in attending the PME conferences; and commence discussions concerning the nature of the Group over the next twenty years of PME. In the last two years the International Committee has been developing a policy to encourage participation from people in under-represented countries. One strategy has been to include this as a criterion in the distribution of the Richard Skemp Memorial Fund.

The meeting in 1997 will be held in Lahti, Finland, from 14 to 19 July. The meeting in 1998 will be held in Stellenbosch, South Africa, although exact dates have not yet been determined.

Stephen Lerman, President
South Bank University, London, UK

Report of WFNMC
The World Federation of National Mathematical Competitions

WFNMC Activities 1992-1996

The World Federation of National Mathematics Competitions was created at the 1984 ICME (5) meetings in Adelaide. While others assisted in the formation, it was the vision and leadership of Professor Peter O'Halloran of Canberra, Australia, that led directly to the Federation's being. Professor O'Halloran led the Federation until 1994 when, aware that he was experiencing health problems, he turned the leadership over to Professor Blagovest Sendov of Sofia, Bulgaria. For Professor Sendov, who expressed a strong interest in leading the Federation, the restructuring of the Bulgarian government has caused significant problems, for he has been actively involved in the government. He has recently, and with regret, decided that he cannot make the commitment he feels is necessary and has relinquished his post. At the request of members of the Executive, Professor Ronald Dunkley, of Waterloo, Canada, has agreed to be Acting President until elections can be held during the Seville meetings.

The Journal of the Federation continues to produce excellent articles. The WFNMC publishes twice a year (June and December) the Journal "Mathematics Competitions". The journal consists of approximately 120 pages and has attracted articles by authors from 45 countries since 1988. Articles are related to mathematical enrichment activities and contests in all types of situations and school age groups from elementary to upper secondary, from in-school activities to local, regional, national and international competitions. A major role of the journal has been the sharing of ideas by mathematicians and teachers from many countries and there has been positive feedback for its provision of resources and contacts for people in developing countries. The journal has a distribution of about 700, and in keeping with the 'solidarity' guidelines of ICMI, a significant proportion of these are provided without charge to members who are in less well off situations. In order to do this, the WFNMC receives significant support from the Australian Mathematics Competition and the Australian Mathematical Olympiad activities, and also from the Canadian Mathematics Competition.

The Federation continues its established pattern of sessions during ICME meetings and during the second year of the interval between ICME meetings. The 1994 meeting was held at Pravetz, Bulgaria, hosted by the Bulgarian Academy of Sciences. The conference was attended by almost one hundred members from around the world, and honoured Professor Peter O'Halloran, founder and President of the Federation from its creation. Sessions featured presentations on the creation of mathematics problems suitable for students at all levels and, lively discussion on appropriate competitions and challenges to set before young people. It was proposed that the 1998 meetings be held in China.

The Federation continues its policy of recognizing persons who have made significant

contribution to the inspiring of young people through mathematical challenges. The Seville meeting will see four persons recognized, as follows:

1. *The David Hilbert International Award* will be present to Professor Andy Liu, Edmonton, Canada. The award honours David Hilbert, long recognized as a problems poser extraordinaire, famous for his twenty-three challenges at the Second International Congress of Mathematicians in Paris in 1900. Professor Liu has achieved international renown as a creator of problems for young mathematicians. He has been a consultant in competition creation in Canada, Australia, the United States, Hong Kong, and numerous other countries. He is presently Vice-President and main solutions provider for the International Mathematics Tournament of the Towns.

2. *The Paul Erdős Award* will be presented to three persons: Professor George Berzenyi, of Terre Haute, USA, Professor Tony Gardiner, of Birmingham, UK, and Professor Derek Holton, of Dunedin, New Zealand.

Professor Berzenyi is known for his work with school publications Arbelos, Horizons, and Quantum. He has chaired the American Invitational Math Exam and the Southwest region of the American Regions Math League.

Professor Gardiner is the author of numerous articles and publications for school children. He has been responsible for some of the best material available in this area. He is the founder of the UK Schools Mathematical Challenge, which has grown from 1 600 participants in 1988 to 120 000 in 1996. He is also leader of the British Mathematical Olympiad program.

Professor Holton has spearheaded the creation of a coordinated national program in New Zealand. He is the author of an internationally acclaimed set of problem materials, recently published in book form. He is recognized as an inspiring teacher of young people and as a person always willing to give of his time to work with teachers or students.

The sessions at Seville will include discussions on the composition of competitions, emphasizing the Federation's belief that while competitions are a means in the identification of gifted students they also serve the extremely important goal of acting as a stimulant in encouraging students to pursue studies in mathematics. The Federation will continue to seek ways of helping countries seeking to develop competitions structures to achieve this goal. The federation also hopes during these meetings to pursue a clarification of its structure and its goals.

R.G. Dunkley, Acting President
University of Waterloo, Canada

Gesellschaft für Didaktik der Mathematik (GDM)

by Werner Blum

Aims of and membership in the GDM

The "Gesellschaft für Didaktik der Mathematik" (GDM) is a scientific society whose aims are to advance mathematics education (the didactics of mathematics, in German: Didaktik der Mathematik), in particular in German speaking areas, and to cooperate with corresponding societies in other countries. Membership in the GDM is open to everybody who is scientifically interested in the learning and teaching of mathematics at all levels and in all kinds of institutions or contexts. Accordingly, members of the GDM are university teachers and researchers of mathematics education, of mathematics, of pedagogy or psychology as well as school teachers, curriculum developers or teacher trainers of mathematics (for all levels). At present, the GDM has approximately 700 members, mostly from Germany, Austria and Switzerland but also from some 15 other countries where German is read and understood. The membership fee is DM 100.- per year and includes, among other things, a subscription to "Beiträge zum Mathematikunterricht" and to "JMD" (see next section).

Organization of the GDM

The GDM is led by the President, the Vice-President, the Secretary and the Treasurer as well as by a board of (up to) 15 representatives elected by the members.

The GDM organizes a series of annual scientific congresses of didactics of mathematics which take place every March at varying places in Germany, Austria or Switzerland. The Proceedings of these congresses are published (in German) as the series "Beiträge zum Mathematikunterricht".

Further, the GDM is editing an international scientific journal (with 4 issues per year), the "Journal für Mathematikdidaktik" (JMD), with original contributions in German, English or French on current research and development in mathematics education. The responsibility for the JMD is in the hands of three editors, elected on a temporary basis by the officials of the GDM. The editors are supported by an advisory board consisting of 12 members.

Working groups of the GDM

There are several permanent "Arbeitskreise" (Working Groups) of the GDM, among others on

- mathematics teaching and computer science
- mathematics and psychology
- mathematics and general education
- mathematics in vocational education
- mathematics in primary education
- geometry teaching

- probability and statistics teaching
- women and mathematics

These working groups usually meet twice every year, for a short meeting at the annual congresses and for a one or two day conference in the autumn. These group are open for everyone, including non-members of the GDM. Some of the groups regularly publish their own Proceedings.

For further information on the GDM and its activities see

<http://www.uni-giessen.de/gdm/>

or contact the President of the GDM:

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Dept. of Mathematics
D-34109 Kassel, GERMANY

A New ICMI Study has appeared

On the following page you will find an advertisement for the most recent ICMI Study volume, *Towards Gender Equity in Mathematics Education: An ICMI Study*, edited by Gila Hanna. Individuals (referred to in the advertisement as ICMI members) may obtain a copy for non-institutional use at a reduced rate of NLG 60 instead of NLG 95 by ordering it through ICMI.

The publication of this volume completes the ICMI Study on Gender in Mathematics Education. In 1995, the Proceedings of ICMI Study Conference appeared, edited by Barbro Grevholm and Gila Hanna, published by Lund University Press (cf. No. 39 of this Bulletin, p. 12).

Towards Gender Equity in Mathematics Education: An ICMI Study is the third volume in the New ICMI Study Series. The two previous ones are *Investigations into Assessment in Mathematics Education: An ICMI Study* and *Cases of Assessment in Mathematics Education: An ICMI Study*, both edited by Mogens Niss.

Towards Gender Equity in Mathematics Education An ICMI Study

edited by:

Gila Hanna, *The Ontario Institute for Studies in Education,
Toronto, Canada*

Special rate of NLG 60.00 for ICMI members

NEW ICMI STUDIES SERIES 3

The present volume consists of original scholarly articles that develop further issues pertaining to gender equity in mathematics education. The premise - that there is no physical or intellectual barrier to the participation of women in mathematics, science, and technology - provides the starting point for analysis and discussion. The authors explore the attitudinal and societal/structural reasons for the gender imbalance in these fields and look at foci for change, including curriculum and assessment practices, classroom and school cultures, and teacher education programs. A major part of the book comprises a series of detailed descriptive studies of education systems across the world from the perspective of mathematics and gender equity issues.

Contents and Contributors:

Preface; *U.M. Franklin*. Introduction; *G. Hanna*.

Part One: General Issues. Mathematics, Gender, and Research; *E. Fennema*. Gender and Mathematics: Mythology and Misogyny; *M. Gray*. Gender Equity: A Reappraisal; *G.C. Leder*. Symbolic Interactionism and Ethnomethodology as a Theoretical Framework for the Research on Gender and Mathematics; *H. Jungwirth*. Curriculum and Assessment: Hitting Girls Twice; *S.D. Forbes*. Mathematics and Gender: Some Cross-Cultural Observations; *A. Hübner Koblitz*.

Part Two: Cross-Cultural Perspectives. Women's Participation in Mathematics Education in Sweden; *B. Grevholm*. Gender and Mathematics Education in Norway; *K. Hag*. Gender and Mathematics Education in Denmark; *B. Branner, et al.* Gender and Mathematics Education in Finland; *L.M. Finne*. Gender and Mathematics Education: A German View; *C. Niederdröck-Felgner*. Is Gender a Relevant Variable for Mathematics Education? The French Case. *J. Adda*. Women's Know-How and Authority: Italian Women and Mathematics; *R.M. Spitaleri*. Gender and Mathematics in England and Wales; *T. Smart*. Gender and Mathematics in the Context of Australian Education; *J.M. Gaffney, J. Gill*. Mathematics, Women, and Education in New Zealand; *M. Clark*. Gender and Mathematics Education: A Snapshot of China; *Rui Fen Tang, et al.* Gender and Mathematics in Mexico; *C. Bosch, M. Trigueros*. Female Participation in the Study of Mathematics: The US Situation; *S.F. Chipman*. Index.

1996, 312 pp.

ISBN 0-7923-3922-3

Paperback NLG 95.00/GBP 42.00/USD 65.00

P.O. Box 322, 3300 AH Dordrecht, The Netherlands

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Highlight

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The Spanish Society for Research in Mathematics Education (SEIEM)

by Luis Rico

During the last two decades Spanish university departments of Didactic of Mathematics have invested a great effort in developing research on mathematics education and in reaching current standards of quality of research in the international community in this field. Today, the Spanish group of researchers in mathematics education has grown and has achieved a vigorous and increasing production, involving all levels of the educational system and attempting to inquire into the main problems of the teaching and learning of mathematics. This context provides an explanation of the fact that a great number of Spanish researchers felt the need to set up a Society of their own. *The Spanish Society for Research in Mathematics Education (SEIEM)* was finally founded in March 1996. Among its aims we underline the following:

- * To create and maintain a space of communication for criticizing and debating about research on mathematics education. This space will be used to pose questions, to communicate and exchange results, to deepen theoretical constructions, and to improve and validate methodological designs.
- * To promote steady research groups on mathematics education, with a qualified production, prepared to delimit priorities and to tackle specific inquiry questions.
- * To promote mathematics education in research institutions and educational agencies; to stress regular applications for research and education programs.
- * To contribute to and to assume a leading role in the development, assessment and uses of research in Didactics of Mathematics.
- * To contribute to the dissemination of the outcomes of research in the mathematics education fora, meetings and publications.
- * To establish relations and to promote collaborative work with other research groups in mathematics education.
- * To actively foster the cooperation and exchange between research and practice throughout the educational system.

To be in charge of carrying out this comprehensive plan of work SEIEM has elected the following Committee:

President: Dr. L. Rico, University of Granada;
Secretary: Dr. E. Lacasta, Public University of Navarra;
Treasurer: Dr. M. Sierra, University of Salamanca;
Staff members: Dra. C. Azcárate, Autonomous University of Barcelona, Dra. V. Sanchez University of Sevilla, and L. Puig, University of Valencia.

As a next step, the new Society initiated a debate on priorities in research topics in mathematics education. This led to the organization of several working groups among the members. Six groups were established:

1. *Didactics of Analysis*, coordinated by Dra. C. Azcárate, Autonomous University of

Barcelona;

2. *Geometry Learning*, coordinated by Dr. A. Gutiérrez, University of Valencia;

3. *Didactics of Statistics, Probability and Combinatorics*, coordinated by Dra. C. Batanero University of Granada;

4. *Numerical and Algebraical Thinking*, coordinated by Dr. B. Gómez, University of Valencia;

5. *Research on the Mathematics Teacher: Attitudes, Beliefs, Knowledge and Understanding, Development and Teacher Education*, coordinated by Dr. S. Llinares University of Sevilla;

6. *Research Methodology in the Didactic of Mathematics*, coordinated by Dr. L. Rico University of Granada, and Dr.E. Lacasta, Public University of Navarra.

Luis Rico,

Departamento Didáctica de la Matemática

Facultad de Ciencias de la Educación. Campus de Cartuja

Universidad de Granada. 18071 Granada, SPAIN.

A short report on ATCM-1

by Lee Peng Yee

The First Asian Technology Conference in Mathematics was held from 18th to 21st December 1995 at the National Institute of Education, Singapore. The objective is to initiate a series of conferences in Asia concerning the innovative use of technology for teaching and research in mathematics. The emphasis of the first conference was on the use of mathematics softwares in mathematics teaching and research.

There were 7 plenary lectures given by David C. Johnson, J. J. Uhl, Ki Hyoung Oh, Z. Karian, Tateaki Sasaki, Marston Conder, Wu Wentsun. Also, there were 4 special lectures by 3 speakers, namely, Paul C. Abbott (in place of Conrad Wolfram), Keith Geddes, and Roger Hunter, on the philosophy and the development of *Mathematica*, *Maple* and *Scientific Workplace*. Furthermore, there were about 80 topical presentations on pedagogy, computer algebra and computational mathematics, and 16 workshops on the use of various software packages. The conference attracted 12 exhibitors displaying new softwares, graphic calculators, and books.

The contents of the plenary lectures in some way represented the state of the art and the current issues of technology in mathematics. Johnson (UK) gave a survey of how

technology was used in teaching mathematics in the past few decades. Uhl (USA) raised the question whether we should teach the same mathematics as the mathematics we used to teach. His answer was positive and he showed how that could be done. Oh (Korea) showed how computer-aided tutorials could be useful in teaching and in evaluation. Karian (USA) developed a statistics library for *Maple* so that the software can perform the statistical tasks more efficiently. Sasaki (Japan) advocated the involvement of engineers in our effort to promote technology in mathematics. Conder (New Zealand) explained how the meaning of proof had changed and how the proof may be done using computers. Finally, Wu (China) traced the process of how technology was involved in solving mathematical problems, which paralleled the development of mathematics in ancient China.

There were nearly 300 participants from 22 countries. Among the participants, 2/5 were local and 3/5 foreign. The local participants were teachers from junior colleges (senior high schools), polytechnics, and universities. The foreign participants were mathematicians, mathematics educators, and software developers. The chair of the international programme committee was Dr. Yang Wei-Chi of Radford University, and the chair of the local organizing committee was Dr Fong Ho Kheong of the National Institute of Education, Singapore.

The second Asian Technology Conference in Mathematics (ATCM '97) will be held from 16th to 20th June 1997 in Penang, Malaysia. The contact is:

Dr Yahya Abu Hassan, Chair of the Organizing Committee ATCM '97,
School of Mathematics, Universiti Sains Malaysia,
11800 Penang, Malaysia. e-mail: ahyahya@cs.usm.my.

The chair of the international programme committee for ATCM '97 is

Dr. Yang Wei-Chi, Department of Math/Stat, Radford University, Radford,
VA 24142, USA. e-mail: wyang@runet.edu.

Lee Peng Yee,
National Institute of Education,
Singapore

FUTURE CONFERENCES

SEACME 7, June 1996

The Seventh South East Asian Conference on Mathematics Education will be held at Hanoi University of Technology, Hanoi, Vietnam, 3-7 June 1996. The organising institutions include the Hanoi University of Technology, the Hanoi Pedagogical Institute No. 1, the Hanoi University, the Research Institute of Education Science, and the Vietnamese Mathematical Society.

The themes of SEACME 7 are Mathematics education in upper secondary schools, and Mathematics education for mathematicians, scientists and engineers, social scientists, and mathematics teachers. The programme will include invited lectures (delivered by international experts), working groups, topic groups, workshops, national presentations, and posters. Exhibitions of textbooks, software and other types of material are being planned as well. The conference languages will be English and French.

If you want to obtain the Second Announcement or other type of information, please contact

Nguyen Dinh Tri,
the Organizing Committee of SEACME 7,
Hanoi University of Technology,
Dai Co Viet Road,
Hanoi
VIETNAM

ICME-8, July 1996

See separate announcements in previous issues of this Bulletin. Up-dated information is available from the Word Wide Web. The URL is <http://icme8.us.es/icme8.html>.

Second European Mathematical Congress, July 1996

This congress will be held 21-27 July 1996 in Budapest (Hungary), hosted by the János Bolyai Mathematical Society. The Scientific Committee is chaired by Jürgen Moser, Germany, and the Organising Committee by Gyula Katona, Hungary.

To obtain a copy of the First Announcement, please contact

János Bolyai Mathematical Society,
Fő utca 68,
H-1027 Budapest

HUNGARY,
Tel: +36 1 201 7656
Fax: +36 1 201 6974
e-mail: <h3341sza@ella.hu>

Junior Mathematical Congress-96, July-August 1996

As a satellite conference to the above-mentioned Second European Mathematical Congress, this meeting - which aims at bringing together the future mathematicians of Europe - will take place 29 July - 2 August 1996 in Miskolc, Hungary.

The conference welcomes young people between 13 and 19, interested in mathematics, from all countries in Europe. It will provide an excellent opportunity for the participants to make friends and meet famous European mathematicians. In addition to new ideas, participants will become acquainted with several new branches and applications of mathematics as well as educational software and logical games. Apart from lectures by scholars, the participants may themselves give talks or exhibit posters. Those wishing to give a talk should submit a manuscript no later than 31 March 1996.

For further information and preliminary registration, please contact

Peter Kortesi,
Chair of the Hunior Mathematical Congress-96,
Department of Mathematics,
University of Miskolc,
H-3515 Miskolc-Egyetemvaros, Pf. 10
HUNGARY
Fax: +36 46 365174
e-mail: <matjun@gold.uni-miskolc.hu>

The official languages of the conference are English and Hungarian. Contributions in Hungarian will be translated into English. Contributions in any other language are welcomed if supported by an English translation.

First Iranian Mathematics Education Conference, august 1996

This conference will be held 27-29 August 1996 in Isfahan, Iran. The Scientific Committee is chaired by Dr. Ali Rejali, School of Mathematics, Isfahan University of Technology.

The main theme of the conference is the popularisation of mathematics through high schools with the help of dedicated mathematics teachers. Three major study groups will present their studies, and two workshops on geometry and mathematical modelling will be offered. Exhibitions on books, software and other education facilities are planned for the conference.

For further information, please contact

Dr. Ali Rejali, Associate Professor (Conference Chair)
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Isfahan University of Technology
Isfahan, 84156
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Fax: +98 31 8912602
e-mail: <a_rejali@rose.ipm.ac.ir>

ICTCM-9, November 1996

The Ninth Annual International Conference on Technology in Collegiate Mathematics will be held 7-10 November 1996, at the University of Nevada, Reno (USA), hosted also by the Truckee Meadows Community College. The conference is sponsored by Addison-Wesley Publishing Company. The conference is co-chaired by Professors Jerry Johnson, University of Nevada, and Bill Newhall, Truckee Meadows Community College.

For further information, please contact

Professor Jerry Johnson,
e-mail: <jjohnson@math.unr.edu>

or

Ms. Joanne Foster
Addison-Wesley Publishing Company
1 Jacob Way
Reading, MA 01867
USA

Second International Symposium on the Teaching of Mathematics for Engineering and Architecture, November 1996

This symposium will be held 25-29 November, in Ciudad de la Habana, Cuba. The meeting is organised jointly by the following institutions: Departamento de Matemática General and the Facultad de Ingeniería Industrial of Instituto Superior Politécnico José A. Echeverría (Cuba); Centro de Estudios de Tecnologías Avanzadas (Cuba); Departamento de Matemática Educativa, Centro de Investigación y de Estudios Avanzados (Mexico); Departamento de Matemática Aplicada, Universidad Politécnica de Valencia (Spain); Centro Latinoamericano de Matemática e Informática (Argentina); Facultad de Ingeniería, Universidad Nacional de Entre Ríos (Argentina).

The themes of the symposium are the following: The position of mathematics in engineering and architectural curricula; The teaching and learning of mathematics; Informatics and the teaching of mathematics; Supervision and professional development of teaching staff; The relations between university and upper secondary school.

The programme includes plenary sessions, special lectures, round tables, working groups, poster exhibitions, short communications, short post-graduate courses, and key note addresses (to be given by Ricardo Cantoral Uriza, Mexico; Carlos E.D. Atellis, Argentina; Ed Dubinsky, USA; Pedro Perez Carrera, Spain). The deadline for the submission of abstracts was 31 May 1996.

The registration fee for non-Cuban delegates is 80 USD (40 USD for accompanying persons).

For further information, please contact

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Second Scientific Conference on The Future of Science and Mathematics Teaching and the Needs of Arab Society, December 1996

This conference, which will be held at the University of Science, Technology and Medicine in Tunisia (Tunis 2), 20-23 December 1996, is organised jointly by the Arab Development Institute (Beirut, Lebanon), the UNESCO Education Bureau in the Arab States (UNEDBAS), and the host university. The conference topics are the following:

General Topics: Recent developments in the teaching of science and mathematics; The teaching of science and mathematics in the light of the needs of society; New trends in the teaching of science and mathematics.

Special Topics: The role of information technology in the teaching of science and mathematics; The role of the teaching of science and mathematics in cultivating a healthy environment.

The deadline for submission of abstracts to the Organizing Committee was 15

March 1996.

The conference language is Arabic. However, papers may be submitted in English or French.

For further information concerning the conference programme, please contact

The Conference Coordinator
Dr. Mohamad Debs, Arab Development Institute,
P.O. Box: 14-5300 Beirut, LEBANON
Fax: +1 212-478-2932
e-mail: <cnrs10@calvacom.fr>

To reach the Organising Committee in Tunisia, please contact

Dr. Ahmad BouAzzi
Ecole Nationale d'Ingénieurs de Tunis
Tunis 2 University
P.O. Box 37, Tunis 1012
TUNISIA
Fax: +216 1-510729

International Conference on Science, Mathematics, and Technology Education, January 1997

This conference, which will be held in Hanoi, Vietnam, 6-9 January 1997, is organised jointly by the National Key Centre for School Science and Mathematics, Curtin University of Technology (Perth, Australia), and Hanoi Pedagogy University.

The general theme of the conference is: Science, mathematics and technology education, and national development. More specifically, the following themes and topics will be addressed: Learning; Curriculum issues; Constructivism; Computer-assisted learning; Assessment and evaluation; Higher education; Primary Education; Secondary Education; Gender issues; Research methodology; Learning environments; Environmental studies; Cultural context; International education; Technological development; Distance education; Communication and language.

The conference will include keynote addresses, symposia, papers, posters, workshop presentations, and exhibits.

The conference language is English, but a special strand conducted in Vietnamese will be provided for Vietnamese mathematics and science educators and will allow the opportunity for overseas Vietnamese experts to interact with their colleagues in Vietnam.

The deadline for submission of abstracts (of approx. 250 words) is 15 September 1996.

Abstracts should be posted to Dr. Fisher or sent by e-mail to Dr. Le (se below).

For further information, please contact

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Information may also be obtained from the World Wide Web, at URL:
<http://www.educ.utas.edu.au/~thao.le/hn/n.html>

ATCM '97, June 1997

The Second Asian Technology Conference in Mathematics, focusing on computer technology in mathematical research and teaching, will be held 16- 20 June, 1997, in Penang, Malaysia, organised by School of Mathematical Sciences, Universiti Sains Malaysia.

The conference will provide an interdisciplinary forum where researchers in the fields of mathematics, education, computers and technology, together with teachers can present results and exchange ideas and information. The conference will cover a broad range of topics relevant to the use of technology in mathematics. These topics include: The potential use of technology in teaching and learning of mathematics; Development of user-friendly softwares; Computational mathematics. The programme will include plenary sessions, special sessions, short communications and exhibitions. Selected papers presented at the conferecne will be published in the proceedings.

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International Congress of Mathematicians, ICM-98, 1998

This congress will be held, under the auspices of the International Mathematical Union, 18-27 August 1998 in Berlin, Germany. The Board of Directors of the Organizing Committee consists of

President: M. Grötschel, Berlin
Vice-President: M. Aigner, Berlin
Honorary President: F. Hirzebruch, Bonn
Treasurer: J. Sprekels, Berlin
Secretary General: J. Winkler, Berlin

The International Programme Committee is chaired by Phil. J. Griffiths, Princeton, USA.

The current plans for the congress include the following sections: 1. Logic; 2. Algebra; 3. Number Theory and Arithmetic Algebraic Geometry; 4. Algebraic Geometry; 5. Differential Geometry and Global Analysis; 6. Symplectic Geometry and Hamiltonian Theory; 7. Topology; 8. Lie Groups and Lie Algebra; 9. Analysis; 10. Ordinary Differential Equations and Dynamical Systems; 11. Partial Differential Equations; 12. Mathematical Physics; 13. Probability and Statistics; 14. Combinatorics; 15. Mathematical Aspects of Computer Science; 16. Numerical Analysis and Scientific Computing; 17. Applications; 18. Control Theory and Optimization; 19. Teaching and Popularization of Mathematics; 20. History of Mathematics.

Further information about ICM-98 can be obtained through the World Wide Web, through URL:

<http://elib.zib-berlin.de/icm98>

The ICMI Bulletin on the World Wide Web and on E-mail

Since December 1995, the ICMI Bulletin has been accessible on the WWW, through the IMU-server at the Konrad-Zuse-Zentrum für Informationstechnik Berlin, (Germany). Access is obtained by the URL:

[http://elib.zib-berlin.de/imu.icmi.bull.\[no\]](http://elib.zib-berlin.de/imu.icmi.bull.[no])

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ISSN 1024-3127: Bulletin - ICMI