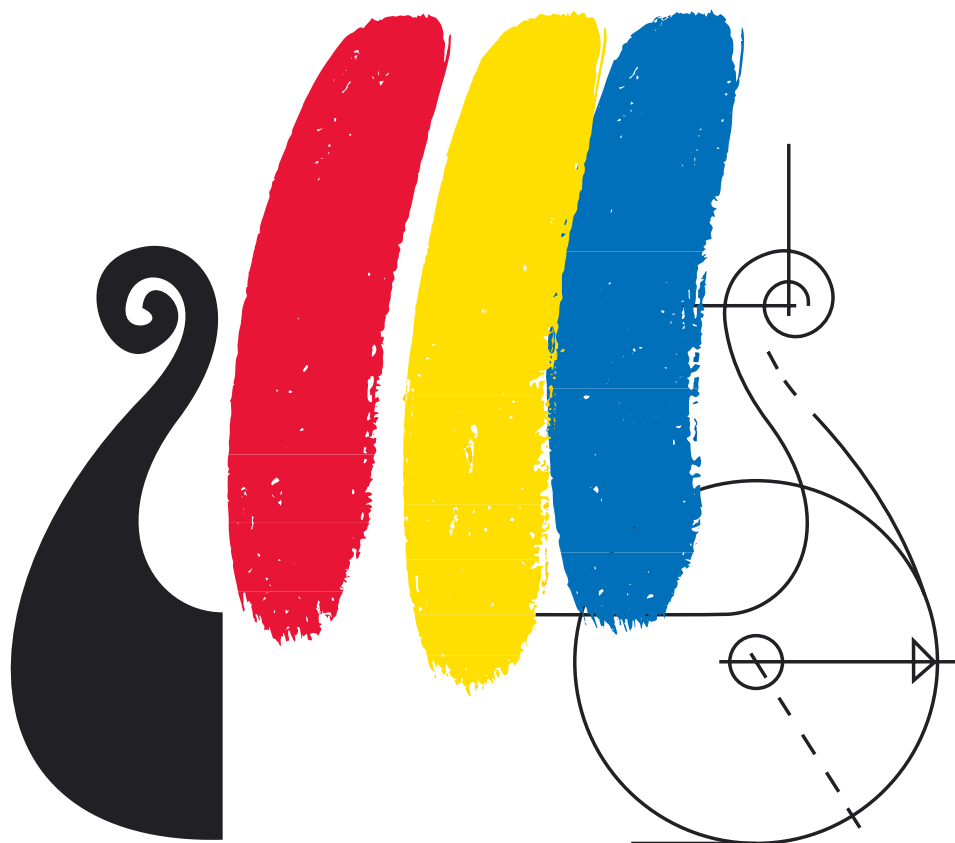# 10th International Congress on Mathematical Education

ICME 10

2004

July 4-11 2004

Copenhagen, Denmark

Organised in co-operation among the Nordic Countries

www.ICME-10.dk

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www.ICME-10.dk

The congress web site is the main source of information on all aspects of the congress. It will be updated regularly before, during and after the congress.

Congress period and place

July 4-11 2004 – The venue is the Technical University of Denmark, located in a northern suburb of Copenhagen.

Important dates

Registration category deadlines:
Early registration: Before **February 28**, 2004
Normal registration: Before **May 31**, 2004
Late registration: After **June 1**, 2004

Application for an ICME-10 grant:
As soon as possible, preferably before January 1 and no later than **February 15, 2004**. Decisions will be made on an ongoing basis, and all applicants will be informed by March 1, 2004.

Dates related to the scientific programme:
January 1: Deadline for *submission* of abstracts of posters, proposals for *Workshops* (WS) and *Sharing experience Groups* (SEG). January 1 is also the guiding deadline for submission of papers to *Topic Study Groups* (TSG), *Discussion Groups* (DG), and the *Thematic Afternoon* (TA). The organising teams may specify alternative dates.

February 15: Deadline for *acceptance/rejection* of poster abstracts, proposals for WSs and SEGs. February 15 is also the guiding deadline for contributions to TSGs and DGs. The Organising Teams may specify alternative dates. Preferably applications for non-commercial exhibitions should be sent before February 15.

April 1: Deadline for final description of all programme items. The programme will be announced at www.ICME-10.dk.

Distributed September 2003

Important addresses

Venue
Technical University of Denmark (DTU)
Anker Engelundsvej 1
DK-2800 Kgs. Lyngby
Denmark

All contact with the venue is through
the Congress Secretariat.

For all matters regarding registration,
accommodation, travel, sponsoring,
and commercial exhibitions contact:

Congress Secretariat
Congress Consultants
Martensens Allé 8
DK-1828 Frederiksberg C
Denmark
Tel: +45 70 20 03 05
Fax: +45 70 20 03 15
ICME@congress-consult.com

For all matters regarding the
organisation of ICME-10:

Chair, Local Organising Committee
Morten Blomhøj
IMFUFA, Roskilde University
P.O. Box 260
DK-4000 Roskilde
Denmark
Tel: +45 46 74 22 85
ICME10-LOC@ruc.dk

For all matters regarding the
scientific programme:

Chair,
International Programme Committee
Mogens Niss
IMFUFA, Roskilde University
P.O. Box 260
DK-4000 Roskilde
Denmark
Tel: +45 46 74 22 66
ICME10-IPC@ruc.dk

For all matters regarding the
Nordic presentations
and the Nordic organisation:

Chair, Nordic Contact Committee
Gerd Brandell
Centre for Mathematical Sciences
Lund University
P.O. Box 118
SE-221 00 Lund
Sweden
Tel: +46 (0) 46 222 0538
Gerd.Brandell@math.lth.se

Welcome to ICME-10

I C M E
1 0
2 0 0 4

On behalf of the organising bodies for ICME-10: The International
Programme Committee (IPC), The Local Organising Committee
(LOC) and the Nordic Contact Committee (NCC) we cordially invite
all readers of this second announcement to participate in ICME-10.
We invite you to experience an intellectually worthwhile and enjoyable
congress celebrating the 10th congress in the ICME tradition. The
congress is held under the auspices of ICMI, The International
Commission on Mathematical Instruction.

The IPC has put together a rich, varied and multi-faceted scientific
programme for the congress, with the aim of attracting and address-
ing the entire community of researchers and practitioners in math-
ematics education all over the world. The programme will provide
food for thought and inspiration for practice for all, from the estab-
lished mathematics educator of world renown to the novice in the
field attending his or her first ICME, and to everyone else with an
interest in mathematics education. Through plenary activities, lec-
tures, reports from survey teams, discussions and other activities, the
state of the art in mathematics education research and the practices
of mathematics teaching will be examined and demonstrated from
various perspectives.

The LOC is doing its utmost to provide the best possible organisa-
tional conditions for ICME-10. The venue for the congress,
The Technical University of Denmark, situated 10 km north of
Copenhagen, is an excellent place for an ICME. The campus provides
functional lecture rooms of various sizes, exhibition areas and rooms
for small group activities, in addition to green surroundings offering
convivial areas for social gatherings. Through the programme struc-
ture and planned social activities we are aiming to create an inclusive
and stimulating atmosphere at the congress for both researchers and
practitioners in mathematics education as well as for their accompa-
nying guests.

ICME-10 is held in Denmark, but the organisation of the congress is
supported through the work of the NCC by co-operation between all
the Nordic countries: Denmark, Finland, Iceland, Norway and
Sweden. The NCC takes a particular interest in having as many teach-
ers and researchers as possible from the Nordic countries participat-
ing in, and contributing to, ICME-10. Newcomers to ICME will be
offered special activities organised by the NCC.

The second announcement provides detailed information on the
scientific programme. At this stage not all Regular Lectures have been
confirmed and some of the Organising Teams of Topic Study Groups
and Discussion Groups are not yet complete. In spite of this there will
be no third announcement. However, the progress of completing the
scientific programme can be followed at the congress web site
www.ICME-10.dk. Likewise the results of the subsequent decentral-
ised planning of the Thematic Afternoon, the Topic Study Groups and
the Discussion Groups will be available at www.ICME-10.dk.

We are all very much looking forward to seeing you at ICME-10 and
are sure that your participation will contribute greatly to the success
of ICME-10.

Mogens Niss   *Morten Blomhøj*   *Gerd Brandell*
Chair of the IPC   *Chair of the LOC*   *Chair of the NCC*

Organising Committees

ICMI Executive Committee (2003-2006)

President
Hyman Bass, USA

Vice-Presidents
Jill Adler, South Africa
Michèle Artigue, France

Secretary-General
Bernard R. Hodgson, Canada

Members at large
Carmen Batanero, Spain
Maria Falk de Losada, Colombia
Nikolai Dolbilin, Russia
Peter Lawrence Galbraith, Australia
Petar Stoyanov Kenderov, Bulgaria
Frederick K.S. Leung, China – Hong Kong

Ex officio members (IMU)
John M. Ball (President), United Kingdom
Phillip Griffiths (Secretary), USA

**IPC
International Programme Committee**
The International Programme Committee is responsible for the planning of the official scientific programme.

Jill Adler, South Africa
Abraham Arcavi, Israel
Michèle Artigue, France
Mariolina Bartolini Bussi, Italy
Bill Barton, New Zealand
Hyman Bass, USA
(Ex officio, President, ICMI)
Christer Bergsten, Sweden
Ole Björkqvist, Finland
Morten Blomhøj, Denmark
Marcelo de Carvalho Borba, Brazil
Nikolai P. Dolbilin, Russia
Elin Emborg, Denmark
(Administrative secretary)
Joan Ferrini-Mundy, USA
Hiroshi Fujita, Japan
Gunnar Gjone, Norway
Bernard R. Hodgson, Canada
(Ex officio, Secretary-General, ICMI)
Mogens Niss, Denmark (Chair)
Kyungmee Park, Korea
Teresa Rojano, Mexico
Wilfried Schmid, USA
Lim-Teo, Suat Khoh, Singapore
Zheng, Yuxin, China

**LOC
Local Organising Committee**
The Local Organising Committee is in charge of the practical planning of the congress. The committee represents all levels and branches of the Danish educational system and the Nordic Contact Committee.

Leif Andersen
Michael Wahl Andersen
Morten Blomhøj (Chair)
Gerd Brandell, Sweden
Torben Christoffersen
Lisser Rye Ejersbo
Elin Emborg
(Administrative secretary)
Barbro Grevholm, Sweden
Ebbe Hansen
H. C. Hansen
Vagn Lundsgaard Hansen
Carsten V. Jørgensen
Leif Kragh
Kjeld Bagger Laursen
Bent Lindhardt
Claus Michelsen
Arne Mogensen
Mogens Niss
Anne Winther Pedersen
Tine Wedege
Carl Winsløw

**NCC
Nordic Contact Committee**
The hosting of ICME-10 in Copenhagen, Denmark, is based on an invitation from the Nordic countries, namely Denmark, Finland, Iceland, Norway and Sweden.
To ensure and develop the Nordic co-operation in relation to the congress, a special Nordic Contact Committee has been formed.
In terms of the traditional organi-sational structure of an ICME, the Nordic Contact Committee may be seen as playing the role of a National Committee.

Denmark
Morten Blomhøj
Carl Winsløw

Finland
Juha Oikkonen
Erkki Pehkonen

Iceland
Anna Kristjansdóttir

Norway
Otto B. Bekken
Ingvill Holden

Sweden
Gerd Brandell (Chair)
Barbro Grevholm
Kerstin Pettersson (Secretary)

Main Components of The Scientific Programme

The programme structure of ICME-10 reflects our attempts to combine the best of the traditional components which have contributed to the great successes of past ICMEs, with a number of new components and features which are intended to accommodate new needs and to address the changes that mathematics education as a field of research, development and practice is currently undergoing.

The main components of the scientific programme are outlined below. This announcement states names of lecturers and team chairs as well as team members of the Survey Teams. Readers are invited to consult our web site for further details. The web site will be regularly updated. Questions and proposals concerning matters pertaining to the programme should be addressed to the Chair of the IPC.

The observant reader will notice that certain themes are dealt with in several different programme formats. This is deliberate, and reflects the expectation that these themes will appeal to different categories of participants and therefore call for a variety of different approaches.

The official language of the congress is English.

Mogens Niss,
chair of the IPC.

How to contribute to the scientific programme? Submissions and proposals

The individual congress participant may contribute to the scientific programme in several different ways. Participants may contribute to *Topic Study Groups*, *Discussion Groups*, the *Thematic Afternoon*, *Workshops*, *Sharing Experiences Groups*, and the *Poster Exhibition*.

Topic Study Groups: Individuals may submit a paper for consideration by the Organising Team of a TSG to be accepted either for *oral presentation* in the TSG or as a paper *presented by distribution*. The Organising Team of the TSG will decide which papers to accept. Only a rather limited number of papers can be presented orally in a TSG. Therefore, as an important component of the work of the TSG, papers considered by the Organising Team to be of appropriate quality and relevance to the TSG, may be accepted for presentation by distribution. Such papers will be placed on the web site of the TSG and thus form part of the material produced for it. Also, authors may distribute such papers in a hard copy version at the sessions of the TSG with a label stating that this paper has been accepted for presentation by distribution. All papers should be submitted directly to the chairs of the TSG (see "Topic Study Groups" below). The different TSGs may have *different deadlines* for the submission of papers (please check the ICME-10 web site), but typically it will be no later than *January 1, 2004*.

Discussion Groups: There will be no oral paper presentations in Discussion Groups by individual congress participants. However, it is possible to submit a paper for consideration by the Organising Team of a DG to be *presented by distribution*. The Organising Team of the DG will decide which papers to accept. Papers considered to be of appropriate quality and relevance to the discussions in the DG will be placed on the web site of the DG and thus form part of the material produced for it. Also, authors may distribute such papers in a hard copy version at the sessions of the DG with a label stating that this paper has been accepted for presentation by distribution. All papers should be submitted directly to the chairs of the DG (see the section "Discussion Groups" below). The different DGs may have *different deadlines* for the submission of papers (please check ICME-10 web site), but typically it will be no later than *January 1, 2004*.

Thematic Afternoon: Individuals may submit a paper for consideration by the Organising Team of a TA-Theme (cf. the section "Thematic Afternoon") to be accepted for *oral presentation* in the Theme or as a paper *presented by distribution*. The Organising Team of the Theme will decide which papers to accept. Only a rather limited number of papers can be presented orally in the Theme. However, as an important component of the work of the Theme, papers which the Organising Team considers to be of appropriate quality and relevance to the Theme, may be accepted for presentation by distribution. Such papers will be placed on the web site of the Theme and thus form part of the material produced for it. Also at the sessions of the theme, authors may distribute such papers in a hard copy version at the sessions of the Theme with a label stating that this paper has been accepted for presentation by distribution. All papers should be submitted directly to the chairs of the Theme. The different Themes may have *different deadlines* for the submission of papers (please check the ICME-10 web site), but typically the deadlines are no later than *January 1, 2004*.

Workshops: The workshop (WS) is a new kind of activity in the ICME programme. It is a "hands-on" type of activity aimed at a limited number of participants (30-40) and targeted at a specific, or a more general, group of teachers (from pre-school to university), graduate students, and/or researchers, who are interested to learn or try something through active participation. Normally, a workshop will be allotted up to two one-hour time slots.

Workshops should acquaint participants with, and provide experience in, a variety of areas such as those suggested by the following examples

- an alternative/innovative approach to teaching or to classroom practice
- a non-traditional mathematical topic for the curriculum, or a non-traditional approach to a traditional topic
- a methodology or a technique in mathematics education research
- an innovative use of information and communication technologies in the service of mathematics education
- an approach or a method to analysing videotapes (of individual students at work, classroom sessions, etc.)
- ways to read, write or assess academic papers in mathematics education

Please note that participation in a WS is limited and allocated on a "first come first served" basis.

Individuals or groups may submit proposals for review by means of the application form included in this announcement. Application forms must be directed to

Mogens Niss, Chair of the IPC and sent to
    Congress Consultants
    Martensens Alle 8
    DK-1828 Frederiksberg C
    Denmark
before January 1, 2004.
If possible please send proposals electronically through the form available at www.ICME-10.dk. In the case of no access to the Internet please use the standard form on page 27.

Only clearly non-commercial WSs will be accepted in the scientific programme. A *sub-committee* of the IPC will be in charge of reviewing and accepting workshop proposals. Proposers will be informed of the decisions by *February 15, 2004*. Latest time for changes to an accepted workshop programme is *April 1, 2004*.

Sharing Experiences Groups: A Sharing Experiences Group (SEG) is a small interactive group of 10-20 members gathering to exchange and discuss experiences concerning a well-defined theme of common interest. Normally, an SEG will be allotted up to two one-hour time slots. The following are examples of possible themes to be discussed by an SEG.

- how to initiate and conduct a research project
- what should be the balance between course work and dissertation work in a PhD study
- problems typically encountered in planning and carrying through empirical research
- obstacles, or avenues, to innovation experienced by individual teachers who want to adopt innovative approaches to teaching or assessment
- experiences of team teaching
- problems encountered in graduate supervision

Individuals or groups may submit *proposals* to establish a Sharing Experiences Group by means of the application form included in this announcement. Application form must be directed to Mogens Niss, Chair of the IPC, and sent to
    Congress Consultants
    Martensens Alle 8
    DK-1828 Frederiksberg C
    Denmark
before January 1, 2004.
If possible please send proposals electronically through the form available at www.ICME-10.dk. In case of no access to the Internet please use the standard form on page 27.

Only clearly non-commercial SEGs will be accepted in the scientific programme. A *sub-committee* of the IPC will be in charge of reviewing and accepting SEG proposals. The committee will try to coordinate proposals of a similar nature. Proposers will be informed of the decisions by *February 15, 2004*. Latest time for changes to an accepted SEG programme is *April 1, 2004*.

Posters: Congress participants are invited to submit proposals of posters for display in the poster exhibition area. We anticipate space for several hundred posters and encourage this form of congress participation as a means of presenting a wide array of mathematics education initiatives concerning research or practice. The International Programme Committee has formed a new scheme for presentation and discussion of posters. Posters will be grouped, as far as possible, according to the themes of the 29 Topic Study Groups and the 24 Discussion Groups. Time slots will be made available for the presentation of posters. Poster presenters who so wish are invited to participate in scheduled Round Table sessions allowing commentary and discussion of groups of posters belonging to the same theme (approx. ten posters per group). The IPC will appoint experienced mathematics educators to chair such Round Table sessions.

Information about the size and format of posters will be given when a poster has been accepted. Presenters should use a font of at least 24 points so as to make the posters readable at a distance of 1.5 meters. Poster presenters should consider using both textual and visual means of presentation in their posters. The congress will not be able to provide poster supplies or material on site beyond space, pins, tape and suchlike.

An *abstract* of a proposed poster should be submitted for review by means of the application form included in this announcement. Application forms must be directed to Mogens Niss, Chair of the IPC, and sent to

> Congress Consultants
> Martensens Alle 8
> DK-1828 Frederiksberg
> Denmark

before January 1, 2004. If possible please send proposals electronically through the form available at www.ICME-10.dk. In case of no access to the Internet please use the standard form on page 27.

Only clearly non-commercial posters will be accepted in the scientific programme. A *sub-committee* of the IPC will be in charge of reviewing and accepting poster submissions. Submitters will be informed of the decisions by *February 15, 2004*. Latest time for changes to an accepted poster abstract is *April 1, 2004*.

Acknowledgement of receipt

Acknowledgement of receipt of proposals for WS's, SEG's and Posters will be forwarded within seven days of submission. Please observe that it is the responsability of the proposal submitters' to contact the organisers if acknowledgement of receipt is not received.

Time Table for ICME-10

July, 2004	Sunday 4th	Monday 5th	Tuesday 6th	Wednesday 7th	Thursday 8th	Friday 9th	Saturday 10th	Sunday 11th	
08:00		Registration							08:00
09:00									09:00
09:30			P 3	P 4		P 6	P 7	P 8	
10:00		Opening	Coffee break	Coffee break		Coffee break	Coffee break	Coffee break	10:00
10:30			R I	R II		R III	R IV	R V	10:30
11:30	Registration	Short break	Short break	Short break	Excursion day	Short break	Short break	Short break	11:30
12:00		P 1	TSG I	TSG II		TSG III	TSG IV	Closing	12:00
13:00		Lunch break	Lunch break	Lunch break		Lunch break	Lunch break	Farewell gathering	13:00
13:30									13:30
14:30		P 2 Panel	National Presentation	P 5 Interview		Thematic Afternoon	DG III/ SGA IV		14:30
15:00									15:00
16:00		Coffee break	Coffee break	Coffee break		Coffee break	Coffee break		16:00
16:30		DG I / SGA I / ASG I	NP cont. / SGA II / Poster RT	DG II / SGA III / ASG II		Thematic Afternoon	Poster/RT/ ICMI Studies/ ASG III		16:30
18:30		Happy hour	Happy hour	Happy hour		Happy hour	Happy hour		18:30
19:30		MS	MS	MS		MS/GA	MS		19:30

Legend: The hour gives the starting time of the following activity. Roman numerals refer to session slots with parallel activities.

P: Plenary Activity
R: Regular Lecture
TSG: Topic Study Group session

DG: Discussion Group session
SGA: Common term for Small Group Activities, i.e. Sharing Experiences Groups and Workshops

ASG: Affiliated Study Group meetings
Poster/Round Table (RT): Poster presentation and Round Table discussion
GA: ICMI General Assembly

MS: Meeting Slot after happy hours available for meetings in different groupings within the mathematics education community.
NP: National Presentation

Plenary activities

The plenary activities are those components of the scientific programme that address all congress participants at the same time. For ICME-10 there will be eight different plenary activities. These will include six plenary *lectures*, two of which will present the outcomes of the work of two of the Survey Teams (ST) (see below). There will be a panel *debate* on the theme "Mathematics education for whom, and why? The balance between mathematics education 'for all' and 'for high level mathematical activity'". Finally, there will be an *interview session* during which four senior mathematics educators will be interviewed by an expert about their perceptions and views of the development of mathematics education during their professional lifetime. The plenary activities are numbered and listed below according to their order on the timetable.

P1: *Hyman Bass*, University of Michigan, Ann Arbor, USA:
"Mathematicians, mathematics, and mathematics education"

P2: Panel Debate moderated by *Stephen Lerman*, South Bank University, London, United Kingdom
Panel members:
Richard Askey, University of Wisconsin, USA
Susana Carreira, University of Algarve, Portugal
Yukihiko Namikawa, Nagoya University, Japan
Renuka Vithal, University of Durban-Westville, South Africa

P3: *Anna Sfard*, University of Haifa, Israel:
"The relations between research and practice in mathematics education"
report of the work of ST1:
Yoshihiko Hashimoto, Yokohama National University, Japan
Gelsa Knijnik, University of Vale do Rios dos Sinos, Porta Alegre, Brazil
Aline Robert, IUFM de Versailles, France
Ole Skovsmose, Aalborg University, Denmark

P4: *Erno Lehtinen*, University of Turku, Finland:
"Mathematics education and learning sciences"

P5: Interview session moderated by *Michèle Artigue*, University of Paris VII, France
Interviewees:
Ubiratan D'Ambrosio, São Paulo, Brazil
Gila Hanna, University of Toronto, Canada
Jeremy Kilpatrick, University of Georgia, Athens, USA
Gérard Vergnaud, University of Paris VIII, Paris, France

P6: *Jill Adler*, University of the Witwatersrand, Johannesburg, South Africa:
"The professional development of mathematics teachers"
report of the work of ST3:
Deborah Ball, University of Michigan, Ann Arbor, USA
Konrad Krainer, Interuniversity Department of Interdisciplinary Research and Further Education, Klagenfurt, Austria
Lin, Fou-Lai, National Taiwan Normal University, Taipei, China, Taiwan
Jarmila Novotna, Charles University, Prague, The Czech Republic

P7: *Andreas Dress*, University of Bielefeld, Germany:
"Structure formation in nature as a topic of mathematics"

P8: *Ferdinando Arzarello*, University of Torino, Italy:
"Mathematical landscapes and their inhabitants: perceptions, languages, theories"

After the lectures by *Hyman Bass, Anna Sfard, Jill Adler, Andreas Dress*, and *Ferdinando Azarello* there will be an opportunity for participants to meet and discuss with the lecturers in the timeslot of the next Regular Lecture.

ICMI Awards

The Executive Committee of the International Commission on Mathematical Instruction (ICMI) has decided to create two new awards in mathematics education research:

- The Hans Freudenthal Award, for a major programme of research on mathematics education during the past 10 years.
- The Felix Klein Award, for lifelong achievement in mathematics education research.

These awards will consist of a certificate and a medal, and they will be accompanied by a citation. They should have a character similar to that of a university honorary degree, and they shall be given in each odd numbered year. At each ICME, the medals and certificates of the awards given after the previous ICME will be presented at the Opening Ceremony.

At the end of 2003 the inaugural recipients of the Freudenthal and Klein awards will be announced; these awards will formally be presented at the opening of ICME-10.

ICME-10 Survey Teams
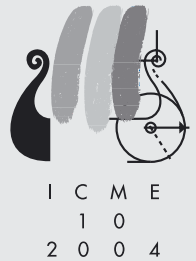
As an innovative feature of ICME-10, five ICME-10 Survey Teams (ST) have been appointed. Each team will work until the congress to survey the state-of-the-art with respect to a certain theme or issue, with particular regard to identifying and characterising important new knowledge, recent developments, new perspectives, and emergent issues. The outcomes of the work of each ST will be presented in a plenary (ST1 and 3) or in a regular lecture (ST2, 4 and 5) at the congress. The creation of these teams is intended to strengthen the emphasis on new developments and progress in the area of each theme or issue since the latest ICMEs. The themes are:

ST 1: The relations between research and practice in mathematics education

Team Chair: *Anna Sfard*, University of Haifa, Israel, sfard@netvision.net.il

Team Members: *Yoshihiko Hashimoto*, Yokohama National University, Japan
Gelsa Knijnik, University of Vale do Rios dos Sinos, Porta Alegre, Brazil
*Aline Rober*t, IUFM de Versailles, Versaille, France
Ole Skovsmose, Aalborg University, Denmark

ST 2: Reasoning, proof, and proving in mathematics education

Team Chair: *Maria Alessandra Mariotti*, University of Pisa, Italy, mariotti@dm.unipi.it

Team Members: *Celia Hoyles*, Institute of Education, London, United Kingdom
Hans Niels Jahnke, University of Duisburg-Essen, Essen, Germany
A. S. Mishchenko, Moscow State University, Russia
Ren, Zizhao, National Education Examinations Authority, Beijing, China

ST 3: The professional development of mathematics teachers

Team Chair: *Jill Adler*, University of the Witwatersrand, Johannesburg, South Africa, adlerJ@educ.wits.ac.za

Team Members: *Deborah Ball*, University of Michigan, Ann Arbor, USA
Konrad Krainer, Interuniversity Department of Interdisciplinary Research and Further Education, Klagenfurt, Austria
Lin, Fou-Lai, National Taiwan Normal University, Taipei, Taiwan, Republic of China
Jarmila Novotna, Charles University, Praha, The Czech Republic

ST 4: The shaping of mathematics education through testing

Team Chair: *Christine Keitel-Kreidt*, Free University of Berlin, Germany, keitel@zedat.fu-berlin.de

Team Members: *Antoine Bodin*, University of France Comté-IREM, Ornans, France
David Clarke, University of Melbourne, Australia
Kyungmee Park, Hongik University, Seoul, Korea
Bill Schmidt, Michigan State University, East Lansing, USA

ST 5: Information and communication technology in mathematics education

Team Chair: *Frederick Leung*, University of Hong Kong, China – Hong Kong, hraslks@hkucc.hk / frederickl@lessonlab.com

Team Members: *Colette Laborde*, University of Grenoble, France
Thomas Lingefjärd, University of Gothenburg, Sweden
Teresa Rojano, CINVESTAV, Mexico
Jeremy Roschelle, SRI International, Menlo Park, USA

Regular Lectures

There are five time slots for regular lectures in the congress timetable, each with approximately 16 regular lectures running in parallels. The regular lectures will all be given by prominent mathematics educators from different parts of the world who have been invited by the IPC. The lectures will cover a wide spectrum of topics, themes, and issues. The list below contains the names in alphabetic order of those who have already accepted the invitation. The list will be updated on the web site and will eventually also include titles and abstracts. Please check the web site for details.

Karoline Afamasaga-Fuatai, Samoa

Jin Akiyama, Japan

Dimitri Anosov, Russia

Mike Askew, United Kingdom

Deborah L. Ball, USA

Carmen Batanero, Spain

Nadine Bednarez, Canada

Christer Bergsten, Sweden

Albrecht Beutelspacher, Germany

Rolf Biehler, Germany

Werner Blum, Germany

Jo Boaler, USA

Cinzia Bonotto, Italy

Jonathan Borwein, Canada

Margarida de Piedade da Silva César, Portugal

Maria Luiza Cestari, Norway

Louis Charbonneau, Canada

Cho, Sungje, Korea

Doug Clarke, Australia

Jean-Luc Dorier, France

Willibald Dörfler, Austria

Raymond Duval, France

Paula Ensor, South Africa

Peter Galbraith, Australia

Anthony Gardiner, United Kingdom

Rossella Garuti, Italy

Daniel Goroff, USA

Koeno Gravemeijer, The Netherlands

Dominique Guin, France

Miguel de Guzmán, Spain

Vagn Lundsgaard Hansen, Denmark

Patricio Herbst, USA

Rina Hershkowitz, Israel

Geoffrey Howson, United Kingdom

Shigeru Iitaka, Japan

Victor Katz, USA

Berinderjeet Kaur, Singapore

Christine Keitel-Kreidt, Germany
(on behalf of Survey Team 4)

Christoph Kirfel, Norway

Anna Kristjánsdottir, Norway/Iceland

Pekka Kupari, Finland

Lee, Ngan Hoe, Singapore

Frederick Leung, China – Hong Kong
(on behalf of Survey Team 5)

Romulo Lins, Brazil

Liu, Yizhu, China

Salvador Llinares Ciscar, Spain

Liping Ma, USA

Carolyn Maher, USA

Nicolina Malara, Italy

Maria Alessandra Mariotti, Italy,
(on behalf of Survey Team 2)

John Mason, United Kingdom

Mike Mitchelmore, Australia

Judy Mousley, Australia

Eric Muller, Canada

Richard Noss, United Kingdom

Park, Han Shick and *Shin, Hyunyong,* Korea

Erkki Pehkonen, Finland

David Pimm, Canada

Vladimir Protasov and *Igor Sharygin*, Russia

Luis Puig, Spain

Alexander I. Samylovskiy, Russia

Alan Schoenfeld, USA

Zbigniew Semadeni, Poland

Mamokgethi Setati, South Africa

Evgeniy Shchepin, Russia

Michaela Singer, Romania

Ole Skovsmose, Denmark

Vera W. de Spinadel, Argentina

Heinz Steinbring, Germany

Gilbert Strang, USA

K. Subramaniam, India

Masahiko Suzuki, Japan

Julianna Szendrei, Hungary

Mike O. J. Thomas, New Zealand

Renuka Vithal, South Africa

Jane Watson, Australia

Wong, Ngai-ying, China – Hong Kong

Woo, Jeong-Ho, Korea

Zhang, Dianzhou and *Dai, Zaiping,* China

Topic Study Groups

As the name suggests, a Topic Study Group is designed to gather a group of congress participants who are interested in a particular topic in mathematics education. The word 'study' suggests that the activities of the groups will include presentations and discussions of important new trends and developments in research or practice related to the topic under consideration. Each TSG will be organised by a team of five prominent experts in the field. Two chairs have been appointed for each team. They are listed below with e-mail addresses. The teams will be announced at the web site as soon as they are complete. The purpose of the TSGs is to provide both an overview of the current state-of-the-art in the topic, and expositions of outstanding recent contributions to it, as seen from an international perspective. By their very nature, some of the topics are focused more on research than on practice. For others the opposite will be the case, whereas several topics will have a fairly equal balance of the two.

To some extent, a number of the topics in the list for the Topic Study Groups have mutual overlaps with other topics. Even so, each topic has a well-defined and specific 'centre of gravity' that makes it clearly discernible from the others in the list.

The list of topics is organised into four clusters. The first cluster, TSG 1-7, consists of Topic Study Groups that focus on the target groups of mathematics teaching as reflected in educational levels and special categories of students. The next cluster, TSG 8-21, focuses on matters and issues pertaining to content-related aspects of mathematics curricula, across educational levels, and to teaching and learning in relation to those aspects. The cluster formed by TSG 22-27 deals with the overarching perspectives and facets of mathematics education that are present across different educational levels and different curricula. Finally, TSG 28-29 are the groups in which meta-issues concerning mathematics education itself, as a field of practice and a discipline of research, are the focus of attention.

The TSGs will have three one-hour timeslots and one ninety-minutes timeslot in the congress timetable at their disposal. TSG participants are expected to stay with their group throughout the four sessions. Each TSG organising team will have the responsibility of updating the web site linked to the congress web site. On this site it will be possible to follow the planning process and eventually access all relevant documents including the timetable for TSG sessions. Participants who would like to present papers in a TSG are requested to communicate with the team chairs. The TSG teams are responsible for establishing a scheme for paper presentation by distribution. See "How to contribute" page 5. Typically proposals should be put forward before January 1, but specific guidelines, if such apply, will be made available on the web site.

TSG 1: New development and trends in mathematics education at pre-school and primary level
Team Chairs: *Graham Jones*, Griffith University, Gold Coast, Australia, jones@ilstu.edu
        Sally Peters, University of Waikato, Hamilton, New Zealand, speters@waikato.ac.nz

TSG 2: New development and trends in mathematics education at secondary level
Team Chairs: *Dirk de Bock*, Catholic University of Leuven, Belgium, dirk.debock@avl.kuleuven.ac.be
        Masami Isoda, University of Tsukuba, Japan, msisoda@human.tsukuba.ac.jp

TSG 3: New developments and trends in mathematics education at tertiary levels
Team Chairs: *Derek Holton*, University of Otago, Dunedin, New Zealand, dholton@maths.otago.ac.nz
        Rina Zazkis, Simon Fraser University, Burnaby, Canada, zazkis@sfu.ca

TSG 4: Activities and programmes for gifted students
Team Chairs: *Ed Barbeau*, University of Toronto, Canada, barbeau@math.utoronto.ca
        Hyunyong Shin, Korea National University of Education, Chungbuk, Korea, shin@knue.ac.kr

TSG 5: Activities and programmes for Students with special needs
Team Chairs: *Sinikka Huhtala*, Helsinki City College of Social and Health Care, Finland, sinikka.huhtala@edu.hel.fi
        Petra Scherer, University of Bielefeld, Germany, scherer@mathematik.uni-bielefeld.de

TSG 6: Adult and life-long mathematics education
Team Chairs: *Tine Wedege*, Roskilde University, Denmark, tiw@ruc.dk
        Jeff Evans, Middlesex University Business School, London, United Kingdom, j.evans@mdx.ac.uk

TSG 7: Mathematics education in and for work
Team Chairs: *Henk van der Kooij*, The Freudenthal Institute, Utrecht, The Netherlands, h.vanderkooij@fi.uu.nl
        Rudolf Strässer, Luleå Technical University, Sweden, rudolf@sm.luth.se

TSG 8: Research and development in the teaching and learning of number and arithmetic
Team Chairs: *Julia Anghileri*, University of Cambridge, United Kingdom, jea28@cus.cam.ac.uk
        Lieven Verschaffel, Catholic University of Leuven, Belgium, lieven.verschaffel@ped.kuleuven.ac.be

TSG 9: Research and development in the teaching and learning of algebra
Team Chairs: *Daniel Chazan*, University of Maryland, College Park, USA, dc278@imap.umail.umd.edu
        Eugenio Filloy Yagüe, CINVESTAV, Mexico City, Mexico, smmeef@aol.com

TSG 10: Research and development in the teaching and learning of geometry
Team Chairs: *Iman Osta*, Lebanese American University, Beirut, Libanon, iman.osta@lau.edu.lb
Harry Silfverberg, University of Tampere, Finland, harry.silfverberg@uta.fi

TSG 11: Research and development in the teaching and learning of probability and statistics
Team Chairs: *Li, Jun*, East China Normal University, Shanghai, China, lijun@math.ecnu.edu.cn; cn_sg@yahoo.com
Joseph M. Wisenbaker, University of Georgia, Athens, USA, joe@coe.uga.edu

TSG 12: Research and development in the teaching and learning of calculus
Team Chairs: *Johan Lithner*, Umeå University, Sweden, johan.lithner@math.umu.se
Maggy Schneider, FUNDP, Namur, Belgium, maggy.schneider@fundp.ac.be

TSG 13: Research and development in the teaching and learning of advanced mathematical topics
Team Chairs: *Stephen Hegedus*, University of Massachusetts – Dartmouth, USA, shegedus@umassd.edu
Caroline Lajoie, University of Québec at Montréal, Canada, lajoie.caroline@uqam.ca

TSG 14: Innovative approaches to the teaching of mathematics
Team Chairs: *Claudi Alsina*, Technical University of Catalonia, Barcelona, Spain, claudio.alsina@upc.es; dgu.dursi@gencat.net
Anne Watson, University of Oxford, United Kingdom, anne.watson@educational-studies.oxford.ac.uk

TSG 15: The role and use of technology in the teaching and learning of mathematics
Team Chairs: *Lulu Healy*, Pontifical Catholic University of São Paulo, Brazil, lulu@pucsp.br
Jim Kaput, University of Massachusetts – Dartmouth, USA, jkaput@umassd.edu

TSG 16: Visualisation in the teaching and learning of mathematics
Team Chairs: *Gerald Goldin*, Rutgers University, Piscataway USA, gagoldin@dimacs.rutgers.edu
Walter Whiteley, York University, Toronto, Canada, whiteley@mathstat.yorku.ca

TSG 17: The role of the history of mathematics in mathematics education
Team Chairs: *Man-keung Siu*, University of Hong Kong, China – Hong Kong, mathsiu@hkucc.hku.hk
Costas Tzanakis, University of Crete, Greece, tzanakis@edc.uoc.gr

TSG 18: Problem solving in mathematics education
Team Chairs: *Jinfa Cai*, University of Delaware, Newark, USA, jcai@math.udel.edu
Joanna Mamona Downs, University of Macedonia, Thessaloniki, Greece, mamona@uom.gr

TSG 19: Reasoning, proof and proving in mathematics education
Team Chairs: *Guershon Harel*, University of California, San Diego, USA, harel@math.ucsd.edu
Sri Wahyuni, Gadjah Mada University, Yagyarkata, Indonesia, swahyuni@indosat.net.id

TSG 20: Mathematical applications and modelling in the teaching and learning of mathematics
Team Chairs: *S. K. Houston*, University of Ulster, Jordanstown, Northern Ireland, sk.houston@ulster.ac.uk
Shan-Zhi Wang, Capital Normal University, Beijing, China, wsz@mail.cnu.edu.cn

TSG 21: Relations between mathematics and others subjects of art and science
Team Chairs: *Marta Anaya*, University of Buenos Aires, Argentina, manaya@fi.uba.ar
Claus Michelsen, SDU-Odense University, Denmark, claus.michelsen@dig.sdu.dk

TSG 22: Learning and cognition in mathematics: Students' formation of mathematical conceptions, notion, strategies and beliefs
Team Chairs: *Terezinha Nuñes*, Oxford Brookes University, Oxford, United Kingdom, tnunes@brookes.ac.uk
Dina Tirosh, Tel Aviv University, Israel, dina@post.tau.ac.il

TSG 23: Education, professional life and development of mathematics teachers
Team Chairs: *Milan Hejny*, Charles University of Prague, The Czech Republic, milan.hejny@pedf.cuni.cz
Barbara Jaworski, Agder University College, Kristiansand, Norway, barbara.jaworski@hia.no

TSG 24: Students' motivation and attitudes towards mathematics and its study
Team Chairs: *Philip C. Clarkson*, Australian Catholic University, Fitzroy, Australia, p.clarkson@patrick.acu.edu.au
Markku Hannula, University of Turku, Espoo, Finland, markku.hannula@zpg.fi

TSG 25: Language and communication in mathematics education
Team Chairs: *Norma Presmeg*, Illinois State University, Normal, USA, npresmeg@math.ilstu.edu; npresmeg@msm.com
Siegbert Schmidt, University of Cologne, Germany, siegbert.schmidt@uni-koeln.de

TSG 26: Gender and mathematics education
Team Chairs: *Liv Sissel Grønmo*, University of Oslo, Norway, l.s.gronmo@ils.uio.no
Hanako Senuma, National Institute of Educational Research, Tokyo, Japan, hanako@nier.go.jp

TSG 27: Research and development in assessment and testing in mathematics education
Team Chairs: *Marja van den Heuvel-Panhuizen*, University of Utrecht, The Netherlands, m.vandenheuvel@fi.uu.nl
Tom Romberg, University of Wisconsin, Madison, USA, tromberg@facstaff.wisc.edu

TSG 28: New trends in mathematics education as a discipline
Team Chairs: *Tommy Dreyfus*, Tel Aviv University, Israel, tommyd@post.tau.ac.il
Domingo Paola, Liceo Scientifico "A. Issel", Alassio, Italy, domingo.paola@tin.it

TSG 29: The history of the teaching and the learning of mathematics
Team Chairs: *Gert Schubring*, University of Bielefeld, Germany, gert.schubring@uni-bielefeld.de
Yasuhiro Sekiguchi, Yamaguchi University, Japan, ysekigch@yamaguchi-u.ac.jp

Discussion Groups

As their name suggests, the Discussion Groups are designed to gather congress participants who are interested in discussing, in a genuinely interactive way, certain challenging or controversial issues and dilemmas – of a substantial, non-rhetorical nature – pertaining to the theme of the DG. The organisers will identify more specific issues and questions for the DG, and participants in the group will be invited to propose responses to the issues thus raised, including answers to specific questions and possibly recommendations to relevant categories of policy or decision makers. There will be no oral presentations in a DG, except introductions by the organisers of the group to provide the background and framework for the discussion. Information or position papers are expected to be made available to group participants electronically through a web site forming part of the congress web site, in due time before the congress. Each DG will be allotted two two-hour and one one-hour timeslots. DG participants are expected to stay with their group throughout the three sessions.

Some of the themes may appear to be closely related to topics for the TSGs, but the focus there is on the presentation and sharing of recent trends in research, development and practice, whereas the DGs focus on the examination and discussion of issues that can be dealt with in different ways depending on different experiences, values, norms, and judgements. To illustrate the focus of each DG, the IPC has listed some key questions and issues that the DG is supposed to consider. However, it is in the hands of the organising teams to frame the discussions and to prioritise between the different aspects of their themes. Thus the questions listed below are meant to give an idea of the questions to be faced by each DG and not necessarily to set out the final questions. The DG teams are responsible for establishing a scheme for paper presentation by distribution, see "How to contribute" page 5. Typically proposals should be put forward before *January 1*, but specific guidelines, if such apply, will be made available on the web site.

DG 1: Movements, processes, and policy in curriculum reform
What are the forces that drive or inhibit curriculum reform, and what are the instruments for reform? How do we know whether reform is progress? How do the various agents responsible for mathematics education policy interact?

Team Chairs:
Zalman Usiskin, University of Chicago, USA, z-usiskin@uchicago.edu
Huang Xiang, Chongqing Normal University, China, hx@cqnu.edu.cn

DG 2: The relationship between research and practice in mathematics education
Can we or should we expect results that can be generalised from mathematics education research? How can such results lead to changes in practice? What can researchers learn from practitioners in mathematics education? What can practitioners learn from researchers? Where and how should the interaction between practitioners and researchers take place and be organised? What are the ultimate goals of mathematics education research? What are the forces that govern the evolution of mathematics education research? What are the forces that prevent mathematics teachers from benefiting adequately from research?

Team Chairs:
Luciana Bazzini, University of Torino, Italy, luciana.bazzini@unito.it
Ken Ruthven, University of Cambridge, United Kingdom, kr18@cam.ac.uk

DG 3: Mathematics education for whom and why?
The balance between 'mathematics education for all' and 'for high level mathematical activity'.
Who should receive what kinds of mathematics education, why, and with what goals? Is the dichotomy in the title a genuine one? How can 'mathematics education for all' embrace opportunities for high mathematical achievement? How can instructional practices support the development of highly motivated mathematics learners as well as mathematics education for all? Is there sometimes a tendency to tacitly say 'what not everyone can learn,

nobody should learn'? What is the future of mathematics as an education subject in a changing world dominated by technology? Is more better, or ...? What is mathematical literacy?

Team Chairs:
Martha Villavicencio, Ministry of Education, Lima, Peru, villavicencio.mr@pucp.edu.pe
Lena Lindenskov, Danish University of Education, Copenhagen, Denmark, lenali@dpu.dk

DG 4: Philosophy of mathematics education
What is the significance of philosophy of mathematics education? To what extent are the authorities of mathematics education implicitly or explicitly influenced by 'recognisable' philosophies of mathematics education? What are the relations between philosophy of mathematics education and other kinds of philosophies, such as educational philosophy, philosophy of mathematics, social philosophy, etc.? In what ways do different philosophies of mathematics education influence its theory and practice?

Team Chairs:
Bill Higginson, Queen's University, Kingston, Canada, higginsw@educ.queensu.ca
Maria Viggiani-Bicudo, UNESP, Rio Claro, Brazil, mariabicudo@uol.com.br

DG 5: International co-operation in mathematics education
What are the goals of international co-operation? Should co-operation be global or regional? What forms could such co-operation take, and how could it be organised and implemented? What are the barriers to international co-operation? Is there a danger that international co-operation may lead to excessive homogenisation of mathematics education?

Team Chairs:
Bill Atweh, Queensland University of Technology, Brisbane, Australia, b.atweh@qut.edu.au
Paolo Boero, University of Genova, Italy, boero@dima.unige.it

DG 6: The education of mathematics teachers
What would be an appropriate balance between the main components of teacher education – e.g. mathematical, educational, and pedagogical components – for different educational levels? In particular, what mathematical competencies should different kinds of teachers have? What are the advantages and disadvantages of teachers being educated predominantly as generalists with some mathematical background, or primarily in mathematics with separate educational and pedagogical components being added, or in an integrated manner? How should research on the teaching and learning of mathematics be dealt with in teacher education?

Team Chairs:
Claire Margolinas, IUFM d'Auvergne, Clermont-Ferrand, France, cmargolinas@auvergne.iufm.fr
Derek Woodrow, Manchester Metropolitan University, United Kingdom, derek.woodrow@ntlworld.com, d.woodrow@mmu.ac.uk

DG 7: Public understanding of mathematics and mathematics education
What are the problems associated with the prevalent public understanding of the nature, significance, and role of mathematics in culture and society? Does the general public have adequate perceptions of the nature of mathematical literacy, knowledge and competence and of what it means and takes to learn mathematics? What can we, in the mathematics education community, do to effectively counteract these problems? To what extent are attempts to popularise mathematics helpful in these respects? Can they be counterproductive?

Team Chairs:
Chris J. Budd, University of Bath, United Kingdom, cjb@maths.bath.ac.uk
Lim Chap Sam, Malaysia University of Science, Penang, Malaysia, cslim@usm.my

DG 8: Quality and relevance in mathematics education research
What are appropriate criteria for quality and relevance, respectively, in mathematics education research? In actual practice, where and by whom are such criteria established? Are there potential conflicts between the pursuit of quality and the pursuit of relevance in such research? How can criteria be established that pay due respect to the diversity of approaches to mathematics education research?

Team Chairs:
Margaret Brown, King's College London, United Kingdom, margaret.l.brown@kcl.ac.uk
Rosetta Zan, University of Pisa, Italy, zan@dm.unipi.it

DG 9: Formation of researchers in mathematics education
What academic and professional backgrounds should individuals admitted to graduate studies aiming at mathematics education research have? What is an appropriate balance between course work and work for and on the dissertation? To what extent should research students obtain experiences from institutions abroad? Is international harmonisation of the formation of researchers in mathematics education a desirable goal?

Team Chairs:
Gilah Leder, La Trobe University, Bundoora, Australia, g.leder@latrobe.edu.au
Luis Rico Romero, University of Granada, Spain, lrico@goliat.ugr.es

DG 10: Different perspectives, positions, and approaches in mathematics education research
To what extent are the different perspectives, positions, and approaches that exist in mathematics education research mutually antagonistic? How can such different 'schools of thought' learn from one another? Are there fashion waves in mathematics education research, and, if so, what are the implications?

Team Chairs:
Lyn English, Queensland University of Technology, Brisbane, Australia, l.english@qut.edu.au
Anna Sierpinska, Concordia University, Montreal, Canada, sierpan@alcor.concordia.ca

DG 11: International comparisons in mathematics education
Do international comparisons of performance and achievement tend to produce excessive uniformity across countries with respect to curricula, teaching materials, approaches to teaching and learning, and assessment modes? How do international comparisons influence, for better or for worse, national traditions, values, cultures and approaches to mathematics education? How can international comparisons foster and further national development in mathematics education?

Team Chairs:
Bao, Jiansheng, Suzhou University, China, jsbaod325@yahoo.co.uk
Michael Neubrand, University of Flensburg, Germany, neubrand@uni-flensburg.de

DG 12: Assessment and testing shaping education, for better and for worse
Are current assessment and testing modes and instruments compatible with today's goals and aims of mathematics education? How do these modes and instruments influence the teaching and learning of mathematics? How much is too much in assessment and testing? Do the costs of testing match the positive results? What is the balance of positive and negative outcomes of testing? How can assessment and testing be devised and organised so as to serve as means to develop and strengthen the teaching and learning of mathematics? What are the barriers to the adoption of innovative modes of assessment and testing?

Team Chairs:
Glenda Lappan, Michigan State University, East Lansing, USA, glappan@math.msu.edu
Dylan Wiliam, King's College London, United Kingdom, dylan.wiliam@kcl.ac.uk

DG 13: Evaluation of teachers, curricula, and systems
How do current requirements for increased accountability in education, and the ensuing trends of widespread evaluation of teachers, curricula, and systems, influence the teaching and learning of mathematics, as well as teachers and learners? What forms of such evaluation can further and accelerate the development of mathematics education rather than distort it?

Team Chairs:
Claude Gaulin, Laval University, Quebec, Canada, claude.gaulin@fse.ulaval.ca
Max Stephens, University of Melbourne, Victoria, Australia, m.stephens@unimelb.edu.au

DG 14: Mathematics textbooks
To what extents do mathematics textbooks shape the actual teaching and learning of mathematics, for better or worse? What is the balance between textbook impact and that of other forces, e.g. curricula and assessment, which influence mathematics teaching? What are the interests and forces that drive the publication and adoption of textbooks in different countries? Who are the authors of mathematics textbooks in different countries, and what are their backgrounds?

Team Chairs:
Fan, Lianghuo, National Institute of Education, Singapore, lhfan@nie.edu.sg
Stefan Turnau, Rzeszow University, Poland, sturnau@atena.univ.rzeszow.pl

DG 15: Ethnomathematics

What is the relationship between ethnomathematics, mathematics and anthropology and the politics of mathematics education? What evidence is there, and how do we get more, that school programmes incorporating ethnomathematical ideas succeed in achieving their (ethnomathematical) aims? What are the implications of existing ethnomathematical studies for mathematics and mathematics education? What is the relationship of different languages (or other cultural features) to the production of different mathematics?

Team Chairs:
Franco Favilli, University of Pisa, Italy, favilli@dm.unipi.it
Abdulcarimo Ismael, Pedagogical University, Maputo, Mozambique, abdulcarimoismael@hotmail.com

DG 16: The role of mathematical competitions in mathematics education

Do mathematical competitions contribute to widening the gap between 'mathematics for all' and 'mathematics for the élite', or can the opposite be the case? How can competitions motivate and foster mathematical creativity with students at large? To what extent do problems typically set in mathematical competitions adequately reflect the variety and richness of mathematical activity in problem solving? What should the relations be between competitions and mathematics education?

Team Chairs:
André Deledicq, University of Paris VII, France, adeledicq@wanadoo.fr
Peter Taylor, University of Canberra, Australia, pjt@amt.canberra.edu.au

DG 17: Current problems and challenges in pre-school mathematics education

To what extent is it desirable to expose pre-school children to structured or institutionalised mathematics teaching? What are the most important current problems, issues and challenges pertaining to the mathematical education of pre-school children?

Team Chairs:
Ann Anderson, University of British Columbia, Vancouver, Canada, anders@interchange.ubc.ca
Robert D. Speiser, Brigham Young University, Provo, USA, speiser@mathed.byu.edu

DG 18: Current problems and challenges in primary mathematics education

What are the most important current problems and challenges pertaining to the teaching and learning of mathematics at the primary level and where are they located? Are there issues or dilemmas of a controversial nature? How should these problems, issues and challenges be dealt with?

Team Chairs:
Giancarlo Navarra, University of Modena and R. Emilia, Sedico, Italy, ginavar@tin.it
Catherine P. Vistro-Yu, Ateneo de Manila University, The Philippines, cvistro-yu@ateneo.edu

DG 19: Current problems and challenges in lower secondary mathematics education

What are the most important current problems and challenges pertaining to the teaching and learning of mathematics at the lower secondary level and where are they located? Are there issues or dilemmas of a controversial nature? How should these problems, issues and challenges be dealt with?

Team Chairs:
Maryvonne Le Berre, IREM of Lyon, France, leberre.maryvonne@free.fr
Gard Brekke, Telemark University College, Notodden, Norway, gard.brekke@hit.no

DG 20: Current problems and challenges in upper secondary mathematics education

What are the most important current problems and challenges pertaining to the teaching and learning of mathematics at the upper secondary level and where are they located? Are there issues or dilemmas of a controversial nature? How should these problems, issues and challenges be dealt with?

Team Chairs:
Olive Chapman, University of Calgary, Alberta, Canada, chapman@ucalgary.ca
Ornella Robutti, University of Torino, Italy, ornella.robutti@unito.it

DG 21: Current problems and challenges in non-university tertiary mathematics education

What are the most important current problems and challenges pertaining to the teaching and learning of mathematics at the non-university tertiary level and where are they located? Are there issues or dilemmas of a controversial nature? How should these problems, issues and challenges be dealt with?

Team Chairs:
Sergiy Klymchuk, Auckland University of Technology, New Zealand, sergiy.klymchuk@aut.ac.nz
Marilyn Mays, North Lake College, Irving, USA, memays@dcccd.edu

DG 22: Current problems and challenges in university mathematics education

What are the most important current problems and challenges pertaining to the teaching and learning of mathematics at the university level and where are they located? Are there issues or dilemmas of a controversial nature? How should these problems, issues and challenges be dealt with?

Team Chairs:
Oh-Nam Kwon, Ewha Womens University, Seodaemun-gu, Korea, onkwon@ewha.ac.kr
Stavros Papastavridis, University of Athens, Greece, spapast@cc.uoa.gr

DG 23: Current problems and challenges concerning students with special needs

What are the most important current problems and challenges pertaining to the teaching and learning of mathematics for students with special needs and where are they located? Are there issues or dilemmas of a controversial nature? How should these problems, issues and challenges be dealt with?

Team Chairs:
Ann Gervasoni, Australian Catholic University, Ballarat, Australia, a.gervasoni@aquinas.acu.edu.au
Jens Holger Lorenz, University of Education, Frankfurt, Germany, lorenz_jens@ph-ludwigsburg.de

DG 24: Current problems and challenges in distance teaching and learning

What are the most important current problems and challenges pertaining to distance teaching and learning of mathematics and where are they located? Are there issues or dilemmas of a controversial nature? How should these problems, issues and challenges be dealt with?

Team Chairs:
Alexander Afanasiev, The Russian Academy of Science, Moscow, Russia, apa@isa.ru
Nerida Ellerton, Illinois State University, Normal, USA, nellert@ilstu.edu

Thematic Afternoon

During one afternoon, the scientific programme will be organised into five overarching themes of general interest to mathematics educators. The themes, which will run in parallel, will take the shape of mini-conferences, comprising both sub-themes that focus on research and development, and sub-themes that focus on issues and problems. The sub-themes will be scheduled in parallel, but structured in such a way that participants may, if they so want, move between the sub-themes at various times. Organising teams of five prominent experts have been appointed by the IPC. Their chairs are listed below with e-mail addresses. The teams which are announced at the web site will take care of the subsequent organisation of their theme in the Thematic Afternoon. The TA teams are responsible for establishing a scheme for paper presentation by distribution, see "How to contribute" page 6. The planning process of the particular themes can be followed through the congress web site.
The themes are:

A. Teachers of mathematics: Recruitment and retention, professional development and identity
- Recruitment, supply and retention of mathematics teachers
- Pre- and in-service education of mathematics teachers
- Mathematics teachers' identity – their views on, and how they position themselves in relation to, mathematics, teaching and learning
- The mathematical competencies of teachers

Team Chairs: *Glenda Anthony*, Massey University, New Zealand, g.j.anthony@massey.ac.nz
Mellony Graven, University of the Witwatersrand, Johannesburg, South Africa, gravenm@educ.wits.ac.za

B. Mathematics education in society and culture
- Multilingual and multicultural classrooms: Increasing diversity
- Mathematics education within and across different cultures and traditions
- Social and political contexts for mathematics education
- Equity in mathematics education: Culture, gender, and social class

Team Chairs: *Alan Bishop*, Monash University, Australia, alan.bishop@education.monash.edu.au
Pedro Gómez, University of Los Andes, Bogotá, Colombia, p.t. Spain, pgomez@valnet.es

C. Mathematics and mathematics education
- Trends in the mathematical sciences and their influence on mathematics education
- The role of research mathematicians in mathematics education
- New and old mathematical topics, and the balances between them, in mathematics curricula
- The mathematics educator: Mathematician or pedagogue?

Team Chairs: *Jean-Pierre Bourguignon*, IHÉS, Bures-sur-Yvette, France, jpb@daphne.math.polytechnique.fr
Fritz Schweiger, University of Salzburg, Austria, fritz.schweiger@sbg.ac.at

D. Technology in mathematics education
- New developments in information and communication technology for mathematics education
- Advantages and pitfalls concerning technology in mathematics education
- The Internet and mathematics education: Accessibility, use and misuse
- Technology in distance teaching and learning

Team Chairs: *Paul Drijvers*, The Freudenthal Institute, Utrecht, The Netherlands, p.drijvers@fi.uu.nl
Kaye Stacey, University of Melbourne, Australia, k.stacey@unimelb.edu.au

E. Perspectives on research in mathematics education from other disciplines
- The perspective of psychology and cognitive science in research in mathematics education
- The perspective of philosophy in research in mathematics education
- The perspective of anthropology and sociology in research in mathematics education
- The perspective of general education in research in mathematics education

Team Chairs: *Brent Davis*, University of Alberta, Canada, brent.davis@ualberta.ca
Paul Ernest, University of Exeter, United Kingdom, p.ernest@exeter.ac.uk

National Presentations

A national presentation is an activity during which representatives of a given country will make a presentation on the state of and trends in mathematics education in that country. An exhibition, video shows, cd-roms and so forth may accompany a national presentation. ICME-10 will have a combination of regional and national presentations of mathematics education in the *Nordic countries*, Denmark, Finland, Iceland, Norway, and Sweden. *Korea*, *Mexico*, *Romania*, and *Russia* will also make national presentations.

Workshops

Please consult the section "How to contribute to the scientific programme" on page 6. Submission of proposals must be directed to Mogens Niss, Chair of the IPC, and sent to the Congress Secretariat, see page 3. If possible please send proposals electronically through the form available at www.ICME-10.dk. In the case of no access to the Internet please use the standard form on page 27.

Sharing Experiences Groups

Please consult the section "How to contribute to the scientific programme" on page 6. Submission of proposals must be directed to Mogens Niss, Chair of the IPC, and sent to the Congress Secretariat, see page 3. If possible please send proposals electronically through the form available at www.ICME-10.dk. In the case of no access to the Internet please use the standard form on page 27.

Posters

Please consult the section "How to contribute to the scientific programme" on page 6. Submission of abstracts must be directed to Mogens Niss, Chair of the IPC, and sent to the Congress Secretariat, see page 3. If possible, please send proposals electronically through the form available at www.ICME-10.dk. In the case of no access to the Internet please use the standard form on page 27.

Grants for participants from non-affluent countries

It is one of the aims of the ICME congresses to have a balanced representation from all over the world among the presenters as well as among the general participants. In order to achieve this goal ICMI has instigated a general policy of forming a solidarity fund established by setting aside 10% of the registration fees for grants. These grants assist delegates from non-affluent countries to attend the ICMEs.

An autonomous and anonymous Grants Committee will distribute the funds amongst the successful applicants. Priority will be given to applicants from non-affluent countries who contribute to the scientific programme and to participants who are expected to be the only representative from their part of the world.

Grants will be given as *partial* support to registration fee, accommodation, meals and/or travel costs. All potential applicants are advised to apply for funding from other sources as well.

Application for an ICME-10 grant

Participants who consider themselves eligible for an ICME-10 grant are encouraged to send a grant application to the Congress Secretariat, ICME@congress-consult.com if access to the Internet is available. Applications may also be directed to the Congress Secretariat by post to

Congress Consultants
Martensens Alle 8
DK-1828 Frederiksberg C
Denmark

Applications should be sent as soon as possible and no later the *February 15, 2004*. Applications should include the following information in no more than 500 words:

1. Personal and professional information
2. Description of the applicant's intended contribution to ICME-10
3. Possible dissemination of the congress outcomes in his/her country/local environment
4. Financial assistance anticipated from other sources and an estimate of possible own payment.

Applicants will be informed of the Grants Committee's decision as soon as possible and no later than *March 1, 2004*.

ICME
10
2004

Official meetings, special sessions and other activities

General Assembly of ICMI
will be held Friday July 9, 19.30-21.00

ICMI Studies
There will be report sessions for three recent or almost complete ICMI-Studies, namely, ICMI-study 12; *The Future of the Teaching and Learning of Algebra* ICMI-study 13: *Mathematics Education in Different Cultural Traditions: A Comparative Study of East Asia and the West* and ICMI-study 14: *Applications and Modelling in Mathematics Education*. Each study is allotted a two-hour timeslot.

ICMI Affiliated Study Groups
The five Affiliated Study Groups (ASG) officially affiliated to ICMI are allocated two one-hour and one two-hour timeslots for their meetings during ICME-10. In addition, they may want to make use of the meeting slots after happy hours.

The four ASGs are:

HPM (International Group for the Relations between the History and Pedagogy of Mathematics), www.mathedu-jp.org/hpm/index.htm

ICMTA(International Community of Teachers of Mathematical Modelling and Applications), www.infj.ulst.ac.uk/ictma/

IOWME (International Organization of Women and Mathematics Education), http://www.stanford.edu/~joboaler/iowme/index.html

PME (International Group for the Psychology of Mathematics Education), www.igpme.org

WFNMC (World Federation of National Mathematics Competitions), www.amt.canberra.edu.au/wfnmc.html

The HPM and PME *satellite conferences* will be held subsequent to ICME-10 on the following dates:
HPM, July 12-17 in Uppsala, Sweden, and
PME28, July 15-18 in Bergen, Norway.

Meetings
Groups and bodies within the community of mathematics education are invited to hold business meetings during the congress. Requests of such meetings should be sent to the Chair of the IPC, Mogens Niss, before *January 1* with information regarding the estimated number of participants, number of proposed meetings (three at the most) and length (normally one hour) of the requested meeting slots. These meetings will take place after the happy hours.

Meeting for research students and young researchers
A seminar will be arranged by *Young European Researchers in Mathematics Education* (YERME) in the meeting slot on *July 5*. Young researchers and research students from all over the world are invited to take part in this meeting/seminar ("young" should be interpreted as "new to the field of research in mathematics education"). The seminar will address general questions related to the entrance to mathematics education research and introduce a Sharing Experiences Group on *How to initiate and conduct a research project in mathematics education*.

Newcomers
For participants who are attending an ICME for the first time, we offer a unique opportunity to be part of a small group of fellow newcomers during the congress. A couple of participants who have attended previous ICME-congresses will also be part of each group.

Please tick the *Newcomer* box on the registration form if you want to participate in a newcomers group. The first meeting will take place during the lunch break on the opening day.

If you have already attended one or several ICMEs and are willing to join a group of newcomers as a resource person, then please let us know by indicating your interest in an e-mail to the Chair of the NCC, Gerd Brandell, Gerd.Brandell@math.lth.se (see page 3 for postal address).

Mathematical Circus
As a part of a programme directed towards the general public, a mathematical circus will be arranged on campus during the congress days of ICME-10. The idea is that this should attract local families, teachers, participants and accompanying guests as a light-hearted and welcoming way of experiencing mathematical activities. The circus will be located on campus.

Late afternoons and evenings will be aimed at older children and adults. Mathematicians will be engaged to give popular talks aimed at a general audience.

We invite teachers from all countries to contribute and participate in the circus activities. These should be activities that have been tried out with students in class, at mathematics fairs or other events aimed at engaging the audience in active participation. In this way we will also have a chance to show how outdoor activities might be used as a tool for having fun while dealing with mathematics.

The Mathematical Circus is chaired by Ingvill Holden, Norway, and Vagn Lundsgaard Hansen, Denmark. Suggestions for circus activities and popular presentations of mathematics should be sent to Vagn Lundsgaard Hansen, V.L.Hansen@mat.dtu.dk, by *December 1, 2003*, at the latest. Further information can be found at www.ICME-10.dk.

Non-commercial exhibitions

In relation to the scientific programme the ICME-10 organisers invite proposals for non-commercial exhibitions. Such exhibitions may appear in a variety of different forms but should be of general interest to the mathematics education community. Examples of different types of non-commercial exhibitions could be: the work of teachers' or researchers' associations, developmental projects, manipulative materials, the work of institutions or centres, software, photos, videos, and cultural artefacts used for teaching, etc. The general criterion for the acceptance of a non-commercial exhibition is that the activity is not connected to profit making of any kind.

Proposals (max. one page) for non-commercial exhibitions should be directed to the Chair of IPC, Mogens Niss and sent to ICME@congress-consults.com or post to
  Congress Consultants
  Martensens Allé 8
  DK-1828 Frederiksberg C
  Denmark
preferably before February 15, 2004.

Commercial exhibitions

ICME-10 will include a significant commercial exhibition with displays of books, calculators, computers, software products and other materials relevant for mathematics education.

Requests for commercial exhibitions should be sent to ICME@congress-consults.com or by ordinary mail to
  Congress Consultants
  Martensens Allé 8
  DK-1828 Frederiksberg C
  Denmark

Detailed information on prices and practical matters for both commercial and non-commercial exhibitions will be available at www.ICME-10.dk.

Social Programme

Cultural and social events will form part of the congress, and some activities will also be available before and after the congress. In addition to the excursion on Thursday, July 8, activities during the congress will take place in connection with the lunch breaks and the happy hours. Some of these activities have already been planned, such as 'Walk and talk' (guided walks in the neighbourhood of DTU), sports activities and mathematical walks in central Copenhagen. Other activities are still in the planning process.

The mathematical walks are:

Mathematical walk in the central parts of Copenhagen:

From the central railway station you will be guided through the old parts of Copenhagen. You will see mosaics in streets and on walls, churches and towers and many of the other attractions that Copenhagen has to offer. Your guides will be members of the Danish Association of Teachers of Mathematics. Duration: three hours and, if you are interested, ending with a Danish lunch.

A visit to the Citadel of Copenhagen:

This guided tour round the Citadel of Copenhagen includes many of the spectacular sights surrounding the citadel. Your guides will be members of the Danish Association of Teachers of Mathematics. Transportation: public bus service. A pamphlet in English on Denmark at war and about the citadel will be handed out to participants.
Duration: half a day.

Excursions

Thursday July 8, all participants are invited on a tour (included in the registration fee). All excursions aim at providing enjoyable settings for being together with colleagues and at the same time seeing some of the interesting attractions and aspects of Denmark and the Southern part of Sweden.

Transport time will not exceed 2½ hours for most excursions. Approximate transport time is indicated in cases when it is longer than 2½ hours.

The programme consists of 11 day-tours and 9 half-day tours. For all participants the excursion includes lunch.

Please indicate your choice of excursion on the registration form. Allocation of tours is based on a "first come first served" basis. All excursions may be subject to changes.

Day tours

1. **Kronborg**. Hamlet's castle in Helsinore is one of the largest Renaissance castles of Northern Europe. *Culture*.

2. **Louisiana**. Museum of contemporary modern art, and in itself an architectural masterpiece, followed by a guided walk in the royal deer park north of Copenhagen. *Art and nature*.

3. **The Vikings in Roskilde**. The Roskilde Viking Ship Museum and the Cathedral of Roskilde, west of Copenhagen, where the Danish kings are buried. *History*.

4. **Viking sailing**. The Roskilde Viking Ship Museum and sailing in open Viking boats in the fjord of Roskilde, west of Copenhagen. *History and outdoor activity*.

5. **Lejre**. Archaeological experimental centre and Ledreborg Castle west of Copenhagen. *History and culture. Outdoor activity*.

6. **Ven**. A Swedish island, home of the famous astronomer Tycho Brahe. *Nature, culture and history*.

7. **Skåne**. Tour in Österlen, South Scania, Sweden, with its many charming low white farmhouses and its special light which has inspired many artists. *Culture and nature*. 4 hours transport.

8. **The white cliffs of Møn**. The island of Møn with its high cliffs is of great geological interest and has many churches with beautiful medieval wall paintings. *Nature and culture. Outdoor activity*. 3½ hours transport.

9. **Odense.** Birthplace of Hans Christian Andersen and visit to Brandts Klædefabrik, Odense, which is an international centre for art and culture. *Culture*. 5 hours transport.

10. **Ecology and organic farming**. Visit to one of the country's largest producers of organic vegetables. *Agriculture*.

11. **The Danish idea of A People's College.** An international faculty teaches interdisciplinary and creative subjects to students from all over the world residing at the college. *Culture and education*.

Half-day tours

12. **Scandinavian design**. Walk in Copenhagen to the Danish Design Centre and the Royal Copenhagen Porcelain Factory.

13. **Royalty's Copenhagen**. Walk in Copenhagen to different places and buildings that belong, or have belonged, to the Danish royal family.

14. **Copenhagen tourist tour**. Boat tour in the harbour and canals of Copenhagen, the little mermaid, the royal palace and the Danish house of parliament.

15. **Science**. The extraordinary Round Tower observatory, the Jens Olsen astronomical clock, Niels Bohr, Ole Rømer, H. C. Ørsted.

16. **Another Copenhagen**. Walk in Copenhagen observing Danish everyday life and the non-tourist sights.

17. **Architecture**. Guided tour in Copenhagen of places and buildings of architectural interest.

18. **Copenhagen on your own** including a ticket to the Tivoli gardens.

19. **Mathematical walk in central Copenhagen** See description above.

20. **A visit to the Citadel of Copenhagen** See description above.

It will be possible to join tours no. 19 and 20 at various times during the congress.

Registration

On-line registration is available on the ICME-10 web site www.ICME-10.dk and participants are kindly requested to register on-line, or on the attached registration form (page 26). Registration is valid only when accompanied by confirmation of payment. Payment is possible only in Danish Kroner (DKK) or Euro. The Euro amount shown is calculated on the basis of the exchange rate at the time of publication. However, the currencies are subject to minor fluctuations.

Registration fees:	DKK	Approx €
Before Feb. 28, 2004	3.100	418
Before May 31, 2004	3.600	486
After June 1, 2004	4.100	553
Accompanying persons	1.100	149

Entitlements
Included in the registration fee:

Participants
Final programme and abstract book (upon arrival). Admission to all scientific sessions, admission to public transport between city centre and venue, social arrangements including happy hours, and one chosen excursion including lunch (see page 20). Congress proceedings when published.

A 10% contribution to the solidarity fund is included in the fee. Further contributions are very welcome and can be indicated on the registration form.

Accompanying persons
Admission to social arrangements and one chosen excursion including lunch (see page 20). Accompanying persons do not have access to scientific sessions.

Confirmation of registration
Confirmation of registration including a detailed travel guide and, if requested, accommodation will be sent by e-mail, if possible, or letter within one week of receipt of payment. If payment is received within the last week prior to the congress, confirmation cannot be guaranteed. Please bring proof of payment to the registration desk.

Cancellation conditions
Cancellation must be made in writing to the Congress Secretariat. Cancellations postmarked before April 4, 2004 will incur a cancellation fee of DKK 500/67€. Refunds in case of cancellation postmarked after April 4, 2004 will not be possible. The cancellation conditions concern registration as well as accommodation. If unable to attend, you will be given the opportunity to send a colleague in your place. A replacement fee of DKK 500/67€ will then be charged.

If, for reasons beyond the control of the organisers, the congress is cancelled, the registration fee will be refunded after deduction of expenses related to the handling of the registration.

Methods of Payment
Payment or proof of payment must accompany all registration forms. The total charges of the registration must be paid in Danish Kroner (DKK) or Euros (€); all costs incurred with cheques and transfers must be covered by the participant.

Please note that the name of the participant must appear on all cheques and transfers!

The following means of payment are accepted:
- Credit cards: American Express, Dankort, Euro Card, JBC, Master Card, VISA
  Please note when paying with American Express the amount will be charged in DKK.

- International cheque in DKK or € made out to ICME-10 and forwarded to the Congress Secretariat.
- Bank transfer to the account of ICME-10, BG-Bank
  Noerrevoldgade 68, 3
  PO Box 1193
  DK-1011 Copenhagen K
  Denmark.
  BIC/Swift code DABADKKK.

  Payment in Danish Kroner:
  IBAN no: DK62 3000 4777 0695 19.

  Payment in Euros:
  IBAN no: DK90 3000 4777 0695 00.

Accommodation

Hotels and other types of accommodation are located in Copenhagen and the very near suburbs. Accommodation in Copenhagen has the advantage of city life. The so-called "course facility hotels" are located north of Copenhagen.

Price and payment

The rate is stated per night except for the home stays, dormitory halls, and student homes that state the rate for the entire period, July 4-11.

For home stays, dormitory halls, and student homes full payment is needed on booking, extra nights cannot be guaranteed and deduction cannot be offered for stays less than the full period.

As a guarantee of payment for accommodation the Secretariat will need credit card information. Upon receipt of credit card information a confirmation with all relevant information of the reservation will be sent to the participant.

Payment of accommodation must be settled directly with the hotel upon departure.

For home stays, dormitory halls, and student homes accommodation is guaranteed only when payment has reached the Congress Secretariat, and for hotels and youth hostels when credit card data has been given to the Secretariat.
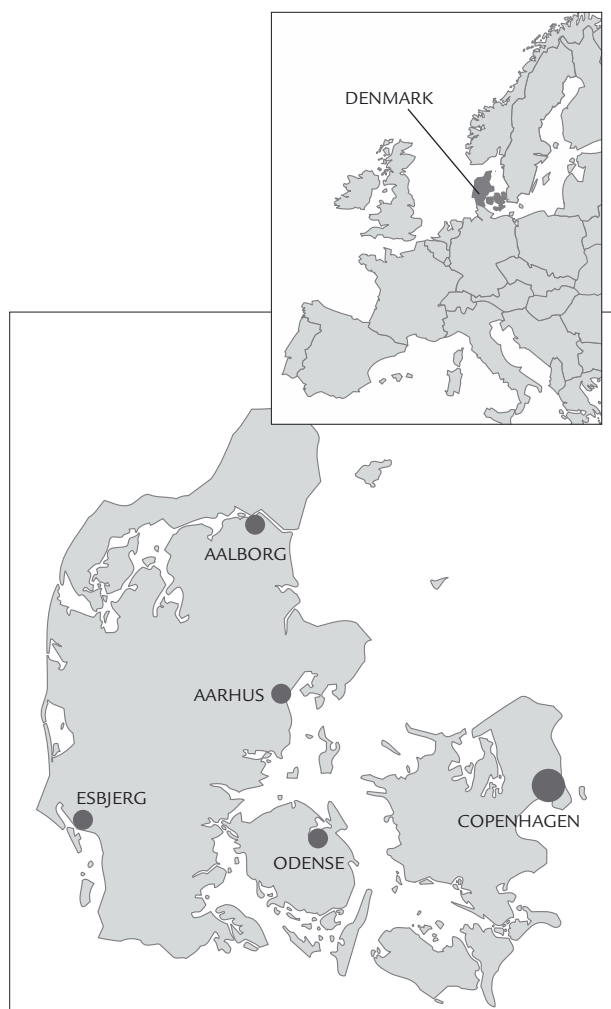
On-line booking

On-line registration will give you the opportunity to book a specified hotel whereas the Congress Secretariat cannot offer this service when using the registration form in this announcement. On-line, availability of the chosen hotel will be shown when making the booking.
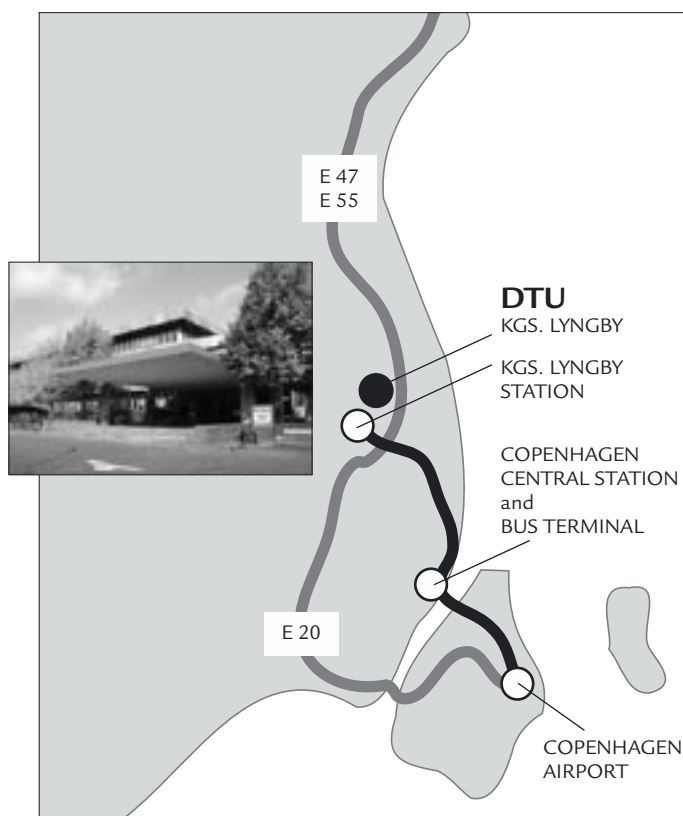
Paper version of registration form

The paper version of the registration form offers only the different accommodation categories. The Congress Secretariat will allocate the specific accommodation according to the category chosen. If the category is fully booked alternative accommodation will be arranged in the available category closest to your choice. The rate will be within the range specified for each category and includes service, taxes, and breakfast (except for student homes and dormitory halls).

Cancellation of Accommodation

Cancellation may be made until April 4, 2004. Changes or cancellations of bookings will incur a handling fee of 500 DKK/67€. Refunds in case of cancellation postmarked after April 4, 2004 will not be possible and credit card will be charged the full amount.

Group booking

If you register on-line as a group, all rooms must be booked at the same time (preferably by one contact person). If you do not register online, please contact the Congress Secretariat in order to get at group number. This group number will serve as reference for all members of a group and must be indicated on the registration form.

Accommodation will be offered in the following categories:

Hotels		
A. Hotel: 4-5 ☆	1595-1850 DKK per night 215-249€ per night	Hotels in different categories are available (from 2 to 5 stars). All hotels are centrally located, close to shops and local transportation. All hotels have toilet and bath/shower as well as a breakfast restaurant.
B. Hotel: 3-4 ☆	1250-1460 DKK per night 169-197€ per night	
C. Hotel: 3 ☆	815-1240 DKK per night 110-167€ per night	
D. Hotel: 2-3 ☆	450-800 DKK per night 61-108€ per night	
E. Course facility hotel	700-915 DKK per night 94-123€ per night	Course facility hotels have been booked for the exclusive use of ICME-10 participants. Standards are almost the same as hotel standards. The rooms are similar to rooms in a regular hotel, with toilet and shower. The course facility hotels are located north of Copenhagen in green and beautiful surroundings within 20 mins. drive from the city centre.
F. Youth hostel	225-300 DKK per night 30-40€ per night	The youth hostels supply bed, linen, towel, and breakfast. The rooms have access to toilets and showers. The rooms might be shared with 2-7 other persons.
G. Student hostel	1500 DKK the week 202€ the week Total amount to be paid upon registration	During the summer vacation it is possible to rent a student room. These rooms are "one room apartments" with toilet and shower and access to a kitchen. Final confirmation of student home rentals cannot be guaranteed until three months prior to arrival.
H. Home stays	1500 DKK the week 202€ the week Total amount to be paid upon registration	The option of staying in a private home is also offered. It is our aim to find suitable homes preferably with people working in education. A home stay offers a unique opportunity to meet the local people and to get to know them. Please note that only a limited number of home stays will be available.
I. Dormitory halls (in a gymnasium)	500 DKK the week 68€ the week Total amount to be paid upon registration	Dormitory halls, if available, will be located near the congress venue or in the suburb of the venue. Dormitory halls are gymnasiums in public schools with access to toilets and showers. They will be divided according to gender. Please note that participants must bring their own sleeping bag, mattress, towels etc.

Accomodation that can be arranged by the participant him/herself:

In Copenhagen and the area around the venue it is also possible to make use of camping sites.
Booking is the responsibility of the participant.
Please contact camping sites directly or see www.dcu.dk or www.campingdanmark.dk for further information.

General Information

Congress language
The official congress language is English.

Travel Information
Copenhagen Airport is the nearest airport. There is a direct train connection, 12 minutes, from the airport to the city centre.

ICME-10 has made an aggreement with Star Alliance which offers 10 to 15% discount on all fares to Copenhagen in relation with ICME-10. When booking please quote event code SK10154. See announcement on page 25. The registration fee includes admission to the flexible and well functioning public transportation from the city centre to the venue and back on all congress days.

A detailed travel guide will be forwarded with the confirmation of registration.

Visa
Non-EU participants should find out whether they need a visa for their stay in Denmark.

Applications for visas (stays for less than 3 months) must be submitted to Danish missions abroad, i.e. all Embassies and certain Consulates General. Visa rules can be found on the web site of the Danish Ministry of Foreign Affairs: www.um.dk/english/. You are advised to apply well in advance of the congress.

Letter of invitation
Upon request, a letter of invitation will be sent to all submitters of scientific material, invited speakers and invited participants from countries in which a visa is needed.

Other participants are kindly asked to forward official documentation of their professional affiliation with mathematics education. Upon receipt of such confirmation, the registration is actioned and an official letter of invitation will be forwarded. Due to the "first come, first served" scheme applied to accommodation and excursions, applicants are advised to register and make payment even if a visa application is still in process.

Currency
The currency in Denmark is Danish Kroner (DKK).
One DKK = 100 Øre
Notes: 50, 100, 200, 500, 1000 Kroner.
Coins: 25, 50 øre and 1, 2, 5, 10, 20 Kroner.
Denmark is not a member of the European Monetary Union, and the Euro is therefore not legal tender. However, certain places may accept Euros. Payment in Euros of registration fees is accepted.

The current exchange rate is
1€ = 7,42 DKK (at time of publication).

Health insurance
Congress participants should be insured as business travellers and take out individual insurance. Details may be obtained from your travel agency.

Time zone
Denmark is on Greenwich Mean Time (GMT) + 2 hours in summer.

Climate
In July, weather conditions may vary, and you may expect sunshine and scattered showers. Average temperature is +16 C. Daytime temperatures may rise to 20-25 C and night temperatures may drop to 10 C. We recommend a variety of clothing in order to make the most of your stay.

Tourist information
Further information on Copenhagen can be found on the official tourist sites of Copenhagen: www.visitcopenhagen.dk, or at www.ctw.dk. These sites contain all basic tourist information. The official site of Denmark is www.visitdenmark.com. For further information or brochures, please call +45 33 11 14 15.

Price level
Prices in Denmark are rather high compared to many other countries. Nevertheless, a low budget stay is possible if you register before *February 28* and choose accommodation category F-I. Excluding travel costs participation in ICME-10 on this basis is estimated at approximately 5.000 DKK/610€ including lunch for the entire week.

Lunch is available at the venue in the price range of 60 DKK/8€ to 150 DKK/20€.

ICME-10 has the pleasure of announcing the following organisations, ministries and other bodies that are kindly supporting the congress:

Public bodies

The congress is supported by all relevant universities, departments and professional associations for teachers from all educational levels in Denmark and in the other Nordic countries. Many parties are supporting the congress directly by paying travel expenses for members of Nordic Contact Committee, the Local Organising Committee and the International Programme Committee and by means of supplying manpower (please visit www.icme-10.dk/organisation for further information).

In particular the following institutions have contributed to the congress:

Technical University of Denmark (DTU)
Roskilde University, IMFUFA
Centre for Research in Learning Mathematics
Danish Ministry of Education
Lyngby Taarbæk Municipality
Ministry of Education and Research in Norway
Ministry of Education and Science in Sweden
Ministry of Education, Science and Culture in Iceland
Ministry of Education in Finland
Danish Research Council for the Humanities
Nordic Council of Ministers

Private companies and foundations

Carlsbergs Mindelegat for Brygger J.C. Jacobsen

Main sponsors

CASIO

Texas Instruments

Registration form

If possible please register on-line at www.ICME-10.dk
Registration on-line will allow you to choose among
all available hotels and book a specific hotel.

ICME 10 2004

Participant (MANDATORY) *Please type or fill in form in capital letters.*

Title: _____ First name: _____

Surname: _____

Institution: _____

Department: _____

Institution Address: _____

City: _____ Postal code: _____ State/province: _____

Country: _____ E-mail: _____

Phone: _____ Fax: _____

Accompanying Person: _____

☐ Newcomer: *Please indicate if you wish to attend a small group of fellow newcomers during the congress. (See page 18 for further information.)*

Programme

Please fill in your choice of Topic Study Groups, Discussion Groups, and Thematic Afternoon

Topic Study Groups TSG (TSG1–TSG29) (MANDATORY)	**Thematic Afternoon TA** (TA-A – TA-E) (MANDATORY)	**Discussion Groups DG** (DG1–DG24) (OPTIONAL)
_____ 1st Choice (e.g. TSG 5)	_____ 1st Choice (e.g. C)	_____ 1st Choice (e.g. DG 3)
_____ 2nd Choice	_____ 2nd Choice	_____ 2nd Choice
_____ 3rd Choice	_____ 3rd Choice	_____ 3rd Choice
		☐ I do not wish to attend a DG.

Registration Fee (MANDATORY)

☐ Before February 28, 2004: 3100 DKK/418 €
☐ Before May 31, 2004: 3600 DKK/486 €
☐ After June 1, 2004: 4100 DKK/553 €
☐ Accompanying person: 1100 DKK/149 €

Hotel

Please indicate choice of accommodation based on the list page 23 (room prices are based on single rooms only – additional charge for double is appr. 300 DKK per night). If requested category is not available the Congress Secretariat will allocate accommodation from the category nearest to the one chosen. Please note that accommodatioon cannot be confirmed until credit card information has been received by the Congress Secretariat as a guarantee of payment.

☐ I do not wish to book accommodation.

Category

A. Hotel: 4-5☆	1595-1850 DKK per night 215-249 € per night	
B. Hotel: 4-3☆	1250-1460 DKK per night 169-197 € per night	
C. Hotel: 3☆	815-1240 DKK per night 110-167 € per night	
D. Hotel: 2-3☆	450-800 DKK per night 61-108 € per night	
E. Course facility hotels	700-915 DKK per night 94-123 € per night	
F. Youth hostel	225-300 DKK per night 30-40 € per night	
G. Student hostel	1500 DKK the week 202 € the week	Total amount to be paid upon registration
H. Home stays	1500 DKK the week 202 € the week	Total amount to be paid upon registration
I. Dormitory hall (in a gymnasium)	500 DKK the week 68 € the week	Total amount to be paid upon registration

Arrival (DD-MM-YY) _____

Departure (DD-MM-YY) _____ ☐ Single ☐ Double

Total no. of nights _____ Preferred category _____

_____ Group no. (If known)

Excursions (MANDATORY)

Tour included in registration fee (Tour 1-19, see page 20)

_____ 1st Choice (e.g. 1) _____ 2nd Choice _____ 3rd Choice

☐ I do not wish to attend a tour.

Payment (MANDATORY)

Please make sure that your name appears clearly on your payment.

☐ A cheque made out in DKK or € to ICME-10.

Please indicate cheque no: _____

☐ A Bank transfer to: BG-Bank, Noerrevoldgade 68, 3, PO box 1193, DK-1011 Copenhagen K, Denmark
BIC/Swift Code DABADKKK
DKK Account no.: IBAN DK62 3000 4777 0695 19.
€ Account no.: IBAN DK90 3000 4777 0695 00.

Credit card: ☐ American Express ☐ Euro Card ☐ JBC
☐ Master Card ☐ VISA ☐ Dankort

Credit card no: ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Exact name and initials on the credit card: _____

If you have a three or four digit number on the reverse of your card, please enter it here: ☐☐☐☐

Expiry date (MM-YY): ☐☐☐☐

By signing below, I authorise Congress Consultants to debit this credit card account for the total amount due.

Full participant reg. fee	_____	**Grand Total**
Acompanying person(s) reg. fee	_____	☐ DKK ☐ €
G-I hotel payment	_____	
I would like to contribute to the solidarity fund with the amount of	_____	_____

By signing below I confirm that I have read and am fully aware of the cancellation conditions indicated in the general information.

Date (DD-MM-YY): _____ Name: _____

Signature: _____

Comments: _____

_____

Please return this form by fax (+int): +45 70 20 03 15 or mail to this address:

Congress Consultants
Martensens Allé 8
DK-1828 Frederiksberg C
Denmark

Application and Proposal Form

If possible please use application form at www.ICME-10.dk

Please type or fill in form in capital letters.
Please indicate which presentation form you apply for (Workshop – WS, Sharing Experience Group – SEG or Poster).
If applying for more than one activity, please copy this form.

☐ Workshop WS ☐ Sharing Experience Group SEG ☐ Poster

Contact person: First name: _____

Surname: _____

Institution: _____

Department: _____

Institution Address: _____

City: _____ Postal code: _____ State/province: _____

Country: _____ E-mail: _____

Phone: _____ Fax: _____

Title: _____
_____

Name and affiliation of proponent(s): _____
_____
_____
_____

WS or SEG Application form	Poster application form

Proposed WS or SEG chair(s):

Poster title:

Target audience(s):

Include on one page a poster abstract of no more than 150 words.

☐ I wish to have my poster discussion in a Round Table session

Topic Study Group(s) or Discussion Group(s) to which my poster corresponds most closely:

Special equipment requested (ICME will do its best to try to accommodate your requests within availability and budget constraints):

AND/OR
Five key words describing the theme of my poster:

Provide the following descriptions:

Rationale/Purpose of the activity – 300 words

Description – 300 words

> Workshop: activities and nature of the interaction between WS chair(s) and participants and amongst the participants.

> Sharing Experience Group: description of themes or issues to be dealt with in the SEG and the proposed format of the discussions/interaction amongst the participants.

Paragraph for final programme – 100 words
Provide a draft paragraph describing the WS or SEG for publication in the final programme.

Please direct this form to Mogens Niss, Chair of the IPC, and address to
Congress Consultants, Martensens Alle 8,
DK-1828 Frederiksberg C, Denmark.,
e-mail: ICME@congress-consult.com
*before **January 1, 2004**.*

CASIO

TEXAS INSTRUMENTS

DTU, Kgs. Lyngby