

International mathematical activities: Projects, networking and cooperation of the International Mathematical Union

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International Mathematical Union (IMU)

<http://www.mathunion.org>



28/11/2011



The IMU is an international non-governmental and non-profit scientific organization, with the purpose of promoting international cooperation in mathematics.

IMU is a member of the International Council for Science (ICSU).

The objectives of the International Mathematical Union are:

- ▶ To promote international cooperation in mathematics.
- ▶ To support and assist the International Congress of Mathematicians and other international scientific meetings or conferences.
- ▶ To encourage and support other international mathematical activities considered likely to contribute to the development of mathematical science in any of its aspects, pure, applied or educational.



- ▶ Foundation of IMU initiated in 1919 and formally completed in 1920 at the International Congress of Mathematicians in Strasbourg.
- ▶ Under difficult political circumstances IMU faded away in the years 1931-1936.
- ▶ IMU came into being again in the years 1950/1952.
- ▶ The first 10 members of the new IMU:
Austria, Denmark, France, Germany, Great Britain, Greece, Italy, Japan, the Netherlands, Norway.
By the end of 1951: Australia, Canada, Finland, Peru, United States.
- ▶ General Assembly in Rome 1952:
The activities of the new Union were inaugurated, first President and Executive Committee elected, and IMU readmitted to ICSU.

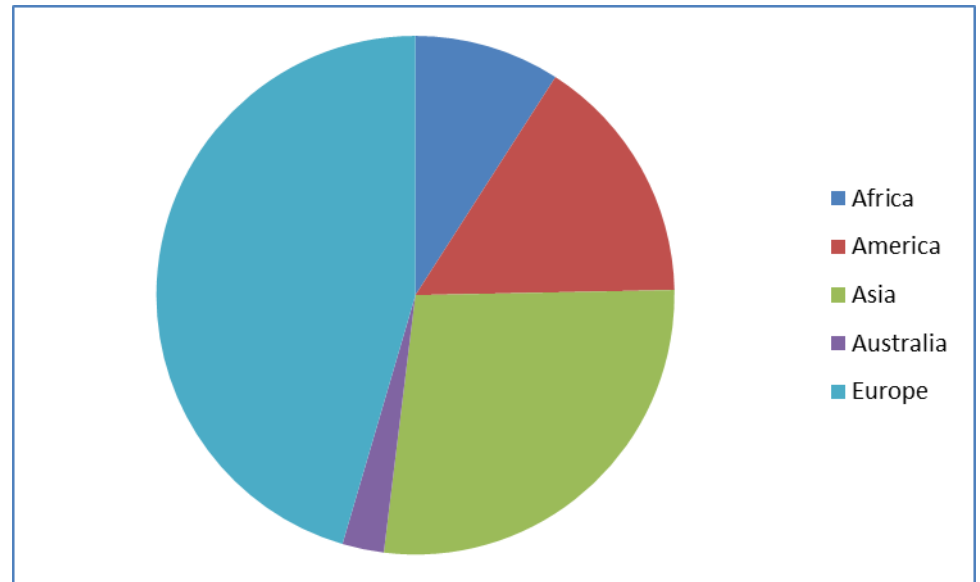




The International Mathematical Union has no personal members. Its **Members** and **Associate Members** are countries, represented through an **Adhering Organization** (e.g. its principal academy, a math society, research council, or a government agency).

Member Countries: 69 Members + 8 Associate Members

Africa	6 + 1
America	11 + 1
Asia	17 + 5
Australia & Pacific	2
Europe	33 + 1 [†]



Affiliate Members: 4

- African Mathematical Union (AMU)
- European Mathematical Union (EMS)
- South East Asian Mathematical Society (SEAMS)
- Unión Matemática de América Latina y el Caribe (UMALCA)



The GA of the IMU consists of delegates appointed by the Adhering Organizations as well as the members of the IMU Executive Committee.

The GA meets once in four years, at a place and date close to an International Congress of Mathematicians (ICM).

Duties:

- Accept report on the activities of the Union.
- Elect the IMU leadership.
- Approve the new budget.
- Approve applications for IMU membership.
- Adopt resolutions.

- Recent GA meetings: in Dresden (Germany), 1998, Shanghai (China), 2002, Santiago de Compostela (Spain), 2006, Bangalore, India, 2010.

- 17th GA in Gyeongju, Korea, August 10-11, 2014
 - Immediately before ICM 2014, Seoul, Korea, August 13-21, 2014



IMU Executive Committee (EC) 2010-2014

President: Ingrid Daubechies (USA)

Secretary: Martin Grötschel (Germany)

Vice Presidents:

Christiane Rousseau (Canada)

Marcelo Viana (Brazil)

Members at Large:

Manuel de León (Spain)

Yiming Long (China)

Cheryl E. Praeger (Australia)

Vasudevan Srinivas (India)

John Francis Toland (United Kingdom)

Wendelin Werner (France)

Ex Officio:

László Lovász (Hungary)

Past President

Appointed by the EC:

Treasurer: Alexander Mielke (Germany)





Since January 2011, the secretariat of the International Mathematical Union is permanently based in Berlin, Germany.

Under the supervision of the IMU Executive Committee, the Secretariat ensures IMU's "day to day business" and provides support for many IMU operations including all activities of the International Commission on Mathematical Instruction (ICMI) and the Commission for Developing Countries (CDC).

The Secretariat also hosts the IMU archive.

For the first time in its almost 100-year history, IMU has a permanent secretariat. In the past, IMU conducted its business at the institution of the IMU Secretary which usually also served as the legal domicile of IMU.

At the General Assembly 2010 in Bangalore, India, the Weierstrass Institute in Berlin, Germany ([WIAS](#)) was elected as the host institution of the permanent secretariat.

The operation of the Secretariat is financed by grants from the German Ministry of Education and Research (BMBF) and the State of Berlin to WIAS.



Address of the IMU Secretariat
International Mathematical Union
Secretariat
Markgrafenstr. 32
10117 Berlin, Germany



- To support and assist the International Congress of Mathematicians (ICM) is an outstanding activity of the IMU.
- The ICM takes place every four years and unites mathematicians from all its branches and from all over the world.
- At the ICM Opening Ceremony the scientific prizes of IMU are awarded:



*Hyderabad 2010:
IMU Prize winners and the President of India*



The ICM and IMU Prizes

- ▶ **Fields Medal** (since 1936)
For outstanding mathematical achievement for existing work and the promise of future achievement.
- ▶ **Rolf Nevanlinna Prize** (since 1982)
For outstanding contributions in mathematical aspects of information sciences.
- ▶ **Carl Friedrich Gauss Prize** (since 2006)
For mathematical research that has had an impact outside mathematics.
- ▶ **Chern Medal** (since 2010)
For accomplishments that warrant the highest level of recognition for outstanding achievements in the field of mathematics.





Next ICM in Seoul, Republic of Korea
August 13-21, 2014.

Preregistration is open:

<http://www.icm2014.org/signup/signup.asp>

Travel Grants for 1,000 Mathematicians

Invitation of 1,000 Mathematicians from
Developing Countries to Korea



About the International Council for Science (ICSU), <http://www.icsu.org/>

ICSU is a non-governmental organization with a global membership of national scientific bodies (121 Members, representing 141 countries) and International Scientific Unions (30 Members).

ICSU's mission

ICSU's mission is to strengthen international science for the benefit of society. To do this, ICSU mobilizes the knowledge and resources of the international science community to:

- Identify and address major issues of importance to science and society.
- Facilitate interaction amongst scientists across all disciplines and from all countries.
- Promote the participation of all scientists—regardless of race, citizenship, language, political stance, or gender—in the international scientific endeavour.
- Provide independent, authoritative advice to stimulate constructive dialogue between the scientific community and governments, civil society, and the private sector.

ICSU's Strategic Plan 2006–2011 and Plan II, 2012-2017

- International Research Collaboration
- Science for Policy
- Universality of Science



About the International Council for Science (ICSU), <http://www.icsu.org/>

- 30th General Assembly of ICSU
Rome, Italy, September 26-30, 2011.
- John Ball, Oxford Centre for Nonlinear PDE, Mathematical Institute of the University of Oxford, was elected Ordinary Member of the Executive Board of ICSU.
- John Ball who is Past President of the International Mathematical Union is the first ever mathematician on this board. He will be in office until 2014 when the next ICSU General Assembly will take place.





URL: <http://www.mathunion.org/general/about>



THE INTERNATIONAL MATHEMATICAL UNION IMU

1. About the IMU

IMU, a member of the International Council for Science (ICSU), is a non-governmental, non-profit scientific organization.

Objectives:

- Promote international cooperation in mathematics.
- Support and assist the International Congress of Mathematicians and other international scientific meetings or conferences.
- Encourage and support other international mathematical activities considered likely to contribute to the development of mathematical science in any of its aspects, pure, applied, or educational.

Structure:

- Members are countries who are represented in IMU through Adhering Organizations (AOs). IMU currently has 69 full members, 8 associate members, and 4 affiliate members.
- IMU's governing body is the General Assembly (GA) made up of the AO delegates and representatives and the IMU Executive Committee that is elected by the GA and conducts the business of the Union. The permanent Secretariat, based in Berlin, runs IMU's day to day business, provides support for many IMU operations, and hosts the IMU archive.
- Commissions and Committees: International Commission on Mathematical Instruction (ICMI), Commission for Developing Countries (CDC), International Commission on the History of Mathematics (ICHM), and Committee on Electronic Information and Communication (CEIC).



History in a nutshell:

The foundation of IMU was initiated in 1919 and formally completed in 1920 at the International Congress of Mathematicians in Strasbourg. Under difficult political circumstances IMU faded away in the years 1931-1936. IMU came into being again in the years 1950-1952, at the General Assembly in Rome 1952 the activities of the new Union were inaugurated, the

first President and Executive Committee were elected and IMU was readmitted to ICSU.

2. The ICM and IMU Prizes

To support and assist the International Congress of Mathematicians (ICM) is an outstanding activity of the IMU. The ICM takes place every four years and unites mathematicians from all its branches and from all over the world. At the ICM Opening Ceremony the scientific prizes of IMU are awarded:



Fields, Nevanlinna, Gauss, and Chern medals

- **Fields Medal** – for outstanding mathematical achievement for existing work and the promise of future achievement.
- **Rolf Nevanlinna Prize** – for outstanding contributions in mathematical aspects of information sciences.
- **Carl Friedrich Gauss Prize** – for mathematical research that has had an impact outside mathematics.
- **Chern Medal Award** – for accomplishments that warrant the highest level of recognition for outstanding achievements in the field of mathematics.

ICMs of recent times were in Beijing (China), 2002, Madrid (Spain), 2006, and Hyderabad (India), 2010. The next ICM will be held in Seoul, Republic of Korea, in 2014. Pre-registration is open.



Hyderabad 2010: IMU Prize winners and the President of India

3. The IMU EC 2011-2014

- President: I. Daubechies (US)
- Secretary: M. Grötschel (DE)
- Vice Presidents:
 - C. Rousseau (CA), M. Viana (BR)
- Members at Large:
 - M. de León (ES), Y. Long (CN), C. Praeger (AU), V. Srinivas (IN), J. Toland (UK), W. Werner (FR)
- Ex Officio: L. Lovász (HU)

4. IMU Commissions & Committees and their Objectives

International Commission on Mathematical Instruction (ICMI)

- Advance the development of mathematical education at all levels, offer a forum to promote reflection, collaboration, exchange and dissemination of ideas on teaching and learning of mathematics.
- Facilitate transmission of information on all aspects of theory and practice of contemporary mathematical education from an international perspective.
- Link between educational researchers, curriculum designers, educational policy makers, teachers of mathematics, mathematicians, mathematics educators and others.

Commission for Developing Countries (CDC)

- Manage, strengthen, and promote the programs of the IMU in developing and economically disadvantaged countries.
- Search for funding to support the corresponding activities.
- Establish institutional partnerships with scientific organizations with common goals.

International Commission on the History of Mathematics (ICHM)

- Inter-union commission joining the International Mathematical Union and the Division of the History of Science (DHS) of the International Union for the History and Philosophy of Science (IUHPS).
- Encourage the study of the history of mathematics.
- Promote a high level of historically and mathematically sophisticated scholarship in the field.



Commissioner and Committees of IMU

Committee on Electronic Information and Communication (CEIC)

- Standing committee of the IMU EC with the mandate to advise on matters concerning information & communication.
- Review the development of electronic information, communication, publication, and archiving. Publicise relevant developments to the wider community.
- Advise about potential opportunities to endorse standards on publication & communication related issues, to foster the growth of electronic infrastructure, create tools for this purpose.

International Mathematical Union



International Mathematical Union – IMU

The International Mathematical Union is a non-governmental and non-profit scientific organization devoted to promoting the development of mathematics in all its aspects across the world. IMU is a member of the International Council for Science – ICSU.

The objectives of the International Mathematical Union are:

- To promote international cooperation in mathematics.
- To decide on the location and assist the organization of the International Congress of Mathematicians.
- To support other international scientific meetings or conferences.
- To acknowledge outstanding research contributions to mathematics by awarding scientific prizes.
- To encourage and support other international mathematical activities considered likely to contribute to the development of mathematical science in any of its aspects, pure, applied, or educational.

IMU was founded in 1920 and reborn after World War II in 1951. Detailed information about IMU, its history, and its activities can be found at IMU's website www.mathunion.org.

A valuable history source is the book by Olli Lehto, *Mathematics Without Borders: A History of the International Mathematical Union*, Springer-Verlag, 1998.

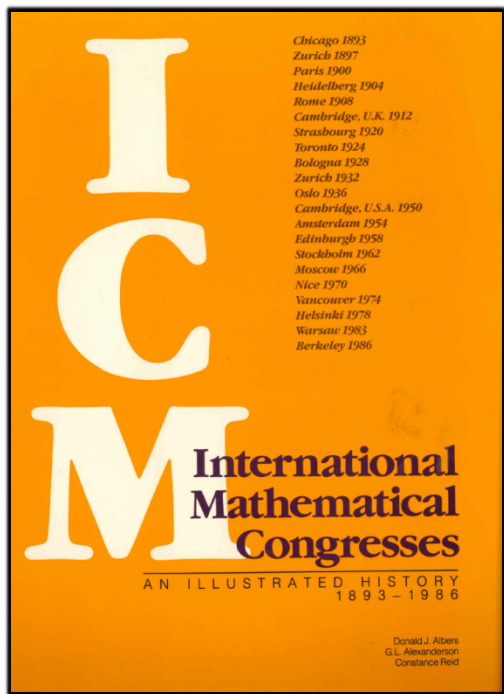
International Congress of Mathematicians – ICM

The ICMs are the largest mathematical conferences worldwide. They cover all areas of mathematics and are held once every four years. The last four ICMs were in:

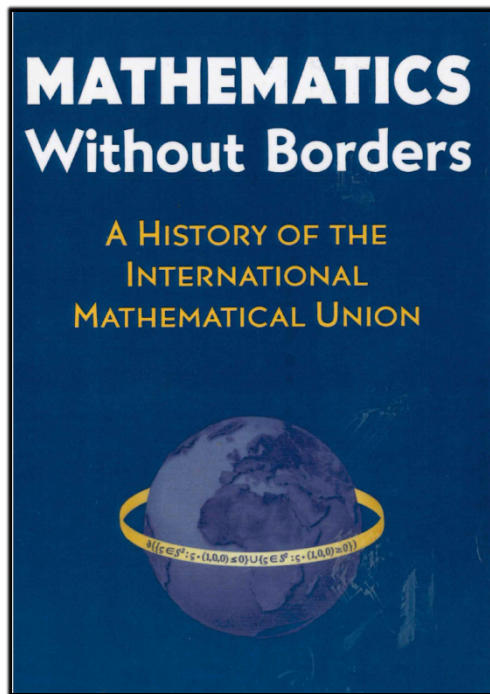
- Berlin 1998
- Beijing 2002
- Madrid 2006
- Hyderabad 2010



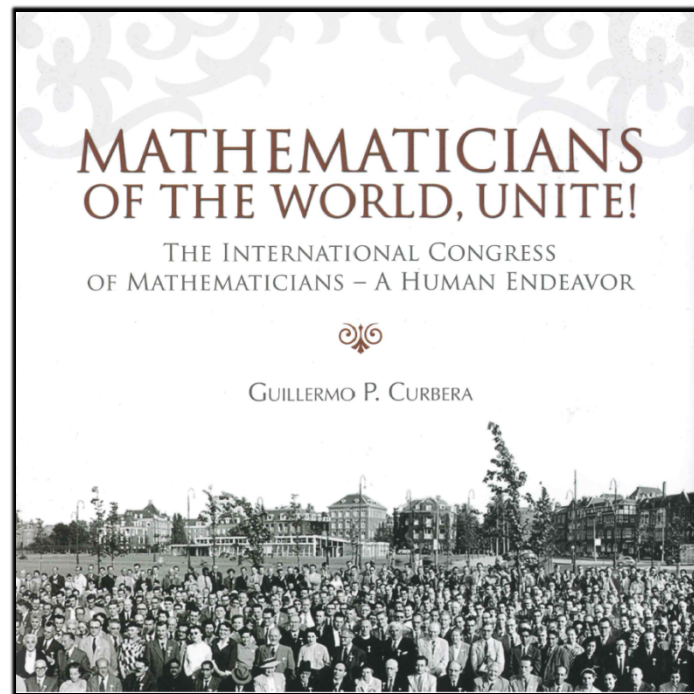
Publications specially focusing on the history of IMU



The book "An Illustrated History 1893-1986" by A. J. Albers, G. L. Anderson, C. Reid informs about the International Congresses of Mathematicians.



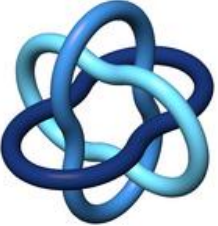
Olli Lehto has written the book "Mathematics without borders, a history of the International Mathematical Union", that is warmly recommended to those interested in the history of IMU.



A fresh look at the IMU history is provided by "Mathematicians of the World, Unite! The International Congress of Mathematicians — A Human Endeavor" by Guillermo P. Curbera.





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



International Mathematical Union (IMU)

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Selection of IMU Reports and Recommendations:

- ▶ Report of the IMU/ICIAM Working Group on Journal Ranking
(Rating of mathematical journals ?)
- ▶ Best Current Practices for Journals
(How should a good mathematics journal be organized and managed?)
- ▶ Contribution to ICSU's SURVEY ON ACTIVITIES AND EXPERIENCES IN SCIENCE EDUCATION
(Describes the ideas of the worldwide community of mathematical educators.)
- ▶ Mathematics in Africa: Challenges and Opportunities
(Current state of mathematics in Africa and opportunities for new initiatives.)
- ▶ Citation Statistics
(Use and misuse of citation data in the assessment of scientific research.)



- [Report of the IMU/ICIAM Working Group on Journal Ranking \(June 2011\)](#)

The International Mathematical Union and the International Council for Industrial and Applied Mathematics (ICIAM) jointly constituted a Working Group to study the issue of whether and (in the affirmative case) how both organizations should go forward with a Ranking of Mathematical Journals. After discussing the report at ICIAM 2011 in Vancouver IMU and ICIAM decided to start a [blog on mathematical journals](#) which became operational on November 18, 2011. Please consider a contribution to the ongoing discussion.

<http://blog.mathunion.org/journals/>

Blog On Mathematical Journals

Input can be submitted by scrolling to the bottom of the blog page and typing into the "Comments" window. Alternatively, you can also send email to journalblog@mathunion.org.

The International Mathematical Union and the International Council for Industrial and Applied Mathematics (ICIAM) jointly constituted a Working Group to study the issue of whether and (in the affirmative case) how both organizations should go forward with a Ranking of Mathematical Journals. The Report of the Working Group is available [here](#).

Rating | 18.11.2011 16:05

BLOG on Mathematical Journals

Mathematical journals are an important and precious resource for our community. They embody, to some extent, our joint "intellectual property". They provide a way for mathematical researchers to distribute the results of their work. The peer reviewing process, when it works well, gives some guarantee to readers that the published papers are worthwhile and (most likely) correct.

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BLOG on Mathematical Journals
18.11.2011 16:05

Categories

Rating → (1)



▷ **International Commission on Mathematical Instruction (ICMI)**



- Advance the development of mathematical education at all levels, offer a forum to promote reflection, collaboration, exchange and dissemination of ideas on teaching and learning of mathematics.
- Facilitate transmission of information on all aspects of theory and practice of contemporary mathematical education from an international perspective.
- Link between educational researchers, curriculum designers, educational policy makers, teachers of mathematics, mathematicians, mathematics educators and others.

▷ **Commission for Developing Countries (CDC)**



- Manage, strengthen, and promote the programs of the IMU in developing and economically disadvantaged countries.
- Search for funding to support the corresponding activities.
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- Inter-union commission joining the International Mathematical Union and the Division of the History of Science (DHS) of the International Union for the History and Philosophy of Science (IUHPS).
- Encourage the study of the history of mathematics.
- Promote a high level of historically and mathematically sophisticated scholarship in the field.

▷ **Committee on Electronic Information and Communication (CEIC)**



- Standing committee of the IMU EC with the mandate to advise on matters concerning information & communication.
- Review the development of electronic information, communication, publication, and archiving. Publicise relevant developments to the wider community.
- Advise about potential opportunities to endorse standards on publication & communication related issues, to foster the growth of electronic infrastructure, create tools for this purpose.



Devoted to the development of mathematical education at all levels, the International Commission on Mathematical Instruction (ICMI) is a commission of the International Mathematical Union (IMU).

Founded in 1908 in Rom, ICMI offers today a forum to promote reflection, collaboration, exchange and dissemination of ideas on the teaching and learning of mathematics, from primary to university level.

ICMI is also charged with the conduct of IMU's activities on mathematical or scientific education.



International Commission on
Mathematical Instruction



Some of ICMI activities:

ICMI Conferences:

The International Congress on Mathematical Education (ICME)

A major event in the life of the international mathematical education community, the quadrennial ICME is held under the auspices of ICMI and typically gathers more than three thousand participants from all over the world.

ICMI Studies

Each ICMI Study addresses an issue or topic of particular significance in contemporary mathematical education, and is conducted by an international team of leading scholars and practitioners in that domain appointed by the Executive Committee of ICMI. Each ICMI Study has an international conference associated with it.

ICMI Regional Conferences

The Commission offers moral and sometimes financial support to facilitate the organisation of regional meetings on mathematical education, especially in less affluent parts of the world. Many of these ICMI Regional Conferences are taking place at regular intervals.



- ICMI Publications
- Awards
- Outreach to Developing Countries
- Research Projects about Mathematics Education
- Experiencing Mathematics — A Travelling Exhibition

More information about ICMI: <http://mathunion.org/icmi/home>



Commission for Developing Countries

Nine member Commission- at least one member has to come from Africa, Asia and Latin America.



CDC's mandate is to manage all IMU initiatives in support of mathematics in the developing world.



Selected Activities:

Since 1978, IMU has supported mathematicians in the developing world, through

- **Grants** for
 - Research travel support
 - Conference support
 - CIMPA Schools
 - ICMI Studies Conferences
- **Financial Support of Local Initiatives** e.g.
 - African Mathematics Millennium Science Initiative (scholarship program for African graduate students)
 - Mentoring African Research in Mathematics (MARM) which supports mathematics and its teaching in the countries of sub-Saharan Africa through a mentoring partnership between mathematicians in the United Kingdom and African colleagues, together with their students.



- **Volunteer Lecturer Program**

CDC seeks mathematicians interested to lecture for intensive 3-4 week courses at universities in the developing world, at the advanced undergraduate or master level in topics such as statistics, differential equations, numerical analysis, etc. All costs are covered by CDC, but no salary is paid.

CDC also seeks universities in developing countries who would like to invite lecturers to their institution.

Courses have been given in:

Algeria, Benin, Cambodia, El Salvador, Laos, Nigeria, Tanzania.





- **IMU Mathematics Library Assistance Scheme for Developing Countries**

Shipment Support for Donated Books to Libraries in Developing Countries.

CDC offers (limited) financial support for shipment costs for individual scientists or institutions wishing to donate books in the mathematical sciences to libraries in developing countries.

Libraries in universities/research institutions in developing countries can apply for assistance under this scheme.



Prof. Robert Pour (USA) donated books to the National University of Laos.



- **Education:** Support for the Work of the International Commission on Mathematical Instruction in the Developing World

Capacity & Networking Project (CANP) which aims to develop the educational capacity of those responsible for mathematics teachers, and create sustained and effective regional networks of teachers, mathematics educators and mathematicians, also linking them to international support.

CANP consists of an on-going series of programs in a different developing region each year.

- First program Mali in September, 2011
- Second program Central America in 2012
- Third program South East Asia in 2013



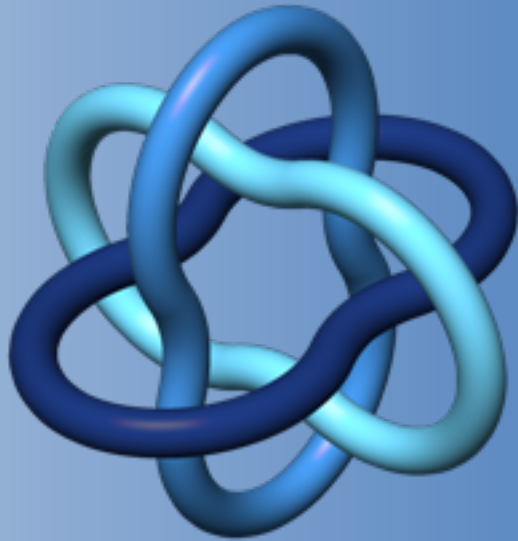
- **Workshop Support: Finding Online Information in Mathematics**

As an initiative from the European Mathematical Society Committee for Developing Countries (EMS-CDC), workshops have been initiated on the topic on how to find and access online information resources in mathematics.

Workshops have so far been held in:

- Addis Ababa University, Ethiopia, October 19-21 2010
- Bamako, Mali, November 20-21 2010
- Universidade Eduardo Mondlane, Maputo, Mocambique, June 6-10, 2011
- Phnom Penh, Cambodia, Aug 8-12, 2011

More information on CDC: <http://www.mathunion.org/cdc>



The International Mathematical Union

Thank you very much for your attention!

International Mathematical Union (IMU)

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28/11/2011