



Preamble

The International Mathematical Union (IMU) was founded in Strasbourg, France, in 1920. After World War II it was restructured in more or less the present form. Since its inception, a key element in its activities has been to organize the quadrennial International Congress of Mathematicians (ICM), the worldwide flagship event of the best of contemporary mathematics presented by the best mathematicians. Members of the IMU are countries, not individuals, and currently the IMU has about 90 member countries. Among the scientific unions, this makes the IMU one of the larger unions. Since 2011, the IMU has had its permanent Secretariat in Berlin, Germany.

The IMU is an international non-governmental and non-profit scientific organization, with the purpose of promoting international cooperation in mathematics. It is a member of the International Science Council (ISC)¹, which is an umbrella organization for scientific unions and national science foundations. Briefly, the objectives of IMU are:

- To promote international cooperation in mathematics.
- To support and assist the ICMs 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.
- A special focus is the support of the development of mathematical research and education in developing countries, by fostering the training of highly qualified mathematicians, networking and capacity building, both in education and research.

The IMU is responsible for the organization of the ICMs, which are held every four years and which, since 1897, play an important role in the development of mathematics and the celebration of the major achievements in the mathematical sciences around the world. The most important mathematical prizes and awards (Fields Medal, Abacus Medal, Gauss Prize, Chern Medal Award, Leelavati Prize) are awarded at the opening ceremony of the ICM.² At the ICM there is also the Emmy Noether Lecture that honors women who have made fundamental and sustained contributions to the mathematical sciences.

The importance of being a member of the IMU

The IMU works relentlessly to support and promote mathematics and mathematicians worldwide. In brief, the IMU acts like «the UN of mathematics». The IMU decides the scope and format of the ICMs. Furthermore, the IMU selects the recipients of some of the most prestigious prizes in mathematics, notably the Fields Medal and the Abacus Medal.

¹ <https://council.science>

² <https://www.mathunion.org/imu-awards/imu-awards-prizes-and-special-lecture>

In addition, the IMU supports mathematicians in developing countries through a multitude of different programs and is equally engaged in mathematics education at all levels in the educational system. As modern means of publication and communication continue to develop at an unprecedented rate, the IMU can also offer advice to members on best practice in these regards. Most mathematicians also have a considerable interest in the history of their subject, and the IMU is actively engaged in this area.

It is an unfortunate fact that women are underrepresented in mathematics on most levels in the educational system, and the IMU has an active group working to improve the gender gap.

Further details on the above issues can be found below.

As a member of the IMU, your country can influence the future development of mathematics.

The structure of the IMU

In addition to the Executive Committee (EC) – the body in charge of the decisions of the IMU between the quadrennial General Assemblies that take place just prior to the ICMs – the IMU has five further Commissions and Committees (C&Cs):

The IMU **Commission for Developing Countries (CDC)**³ supports mathematics in developing countries through a wide range of projects, including the Volunteer Lecturer Program, the Abel Visiting Scholar Program, IMU-Simons Foundation Travel Fellowships, travel grants to attend the ICMs, and support for conferences, workshops, as well as summer/winter schools. The CDC regularly releases reports on the current state of developing regions of the world and on opportunities for new initiatives to support their mathematical development.

The IMU engages in mathematics education via the **International Commission on Mathematical Instruction (ICMI)**⁴, whose goal is to foster efforts to improve the quality of mathematics teaching and learning worldwide. ICMI fulfils its mission through a variety of publications, the organization of small special purpose conferences and the quadrennial International Congress on Mathematical Education (ICME). An important activity is the Capacity & Networking Projects (CANPs) aiming to enhance mathematics education at all levels in developing countries, e.g., by creating sustained and effective regional networks of teachers, mathematics educators and mathematicians and linking them to international support. ICMI organizes its own General Assemblies but is fully funded by the IMU.

The IMU is involved in the history of mathematics through the **International Commission on the History of Mathematics**⁵, which is the only inter-union commission of the IMU, being joint between the IMU and the Division of History of Science and Technology of the International Union of History and Philosophy of Science and Technology (IUHPST /DHST)⁶. The commission runs conferences and meetings.

³ <https://www.mathunion.org/cdc/>

⁴ <https://www.mathunion.org/icmi/>

⁵ <https://www.mathunion.org/ichm>

⁶ <https://dhstweb.org>

The IMU engages in electronic information and communication through its **Committee on Electronic Information and Communication (CEIC)** ⁷. The field of electronic communication and publishing continues to develop very rapidly, and the CEIC offers advice to the IMU and the mathematics community on best practice. The CEIC is involved in a coordinated effort to digitize past mathematical literature in order to make it available online and thus, in the long run, building the Global Mathematics Digital Library⁸.

The IMU has a **Committee for Women in Mathematics**⁹ with the aim to propose, encourage, and facilitate activities of the IMU that increase the visibility of women in mathematics and lead to an overall increase in their representation worldwide.

The members of the EC are elected at the General Assembly for a four-year term. The difference in the IMU context between a Commission and a Committee is that the terms of reference and membership of a Commission are determined by the General Assembly, while for a Committee the responsibility resides with the EC. The IMU is governed by its Statutes¹⁰ as decided by the General Assembly.

Recently, there has been a considerable increase of attention devoted worldwide to the issues of diversity and inclusion. This includes the IMU. Diversity is essential to the IMU as the IMU appoints many committees that determine the recipients of prestigious prizes and selects speakers for high-profile events such as the ICMs. To consider how the IMU can improve its operation regarding diversity and inclusion, the EC has appointed an ad-hoc **Committee on Diversity (CoD)**, with the remit to assess how the IMU has performed to date, propose how the IMU can improve in the future, and, finally, provide advice to the AOs regarding diversity. The CoD will present its first findings at the General Assembly in 2022 in St. Petersburg, Russia.

IMU membership/associate membership

Members of the IMU are countries, and come in two categories, (regular) members and associate members. In addition, the IMU also has affiliate members that represent geographical regions. They will not be further discussed here.

According to Article 4,

The term "country" is to be understood as including diplomatic protectorates and any territory in which independent scientific activity in mathematics has been developed, and in general shall be construed as to secure the broadest and most effective participation of mathematicians in the scientific work of the Union.

The process for membership application is as follows; upon receiving the application, the EC assesses the application and issues a recommendation before the application is put to a vote by the members of the IMU (Article 6). The member vote is either carried out by delegates in attendance at the General Assembly or otherwise by postal ballot. Adherence to the IMU is in one of the five groups denoted I-V. The application process, including the application review and member vote, can take a number of months.

⁷ <https://www.mathunion.org/ceic>

⁸ <https://imkt.org/gdml-wg/>

⁹ <https://www.mathunion.org/cwm>

¹⁰ <https://www.mathunion.org/organization/statutes>

There is no standard form for membership application. The IMU EC just expects applicant countries to report faithfully about the state of its mathematics in a way that IMU members get a clear picture and have a sound basis for their vote. More specific advice can be found below.

The difference between a (regular) member and an associate member can be summarized as follows:

Associate member

- Has full speaking rights (but no voting rights) at the General Assembly
- Is time-limited to one four-year term, with the possibility to extend it for another and final four-year term. At that time the member is expected to apply for regular membership, otherwise membership in the IMU comes to an end
- Pays no membership dues
- A country can only be an associate member once

Regular member

- Has full speaking and voting rights at the General Assembly
- Pays membership dues and receives votes according to group of adherence

Advice on the application to the IMU

Whenever a country applies for membership (regular or associate), the applicant is requested to report about the state of mathematics in its country. What the IMU EC asks for is an overview of the state of mathematics which includes some statistics and comments about research activities within the country applying. In addition to a general outline (of two pages or so) in descriptive form, applicant countries have typically also submitted statistical material such as:

- the number of universities in the country where mathematics is taught,
- the list of universities with significant research activities in mathematics,
- the (estimated) number of professors in mathematics in the country,
- the (estimated) number of research mathematicians in the country,
- the list of mathematical societies in the country and the number of their members,
- a list of mathematicians whom the country considers well-known in the world-wide mathematical community,
- an estimation of the number of mathematical publications that have been produced by mathematicians living in the country and that have appeared in respected mathematical journals in recent years,
- a list of the names of the mathematical journals published in the country,
- a brief overview of educational activities,
- whatever further information or data a country considers important for the application.

This is a long list, and not every country applying can easily produce such documents, in particular in the case of an application for associate membership. But rest assured that the IMU EC is determined to help every applicant to become an IMU member, even if only reasonable indicators can be reported for a small fraction of the items listed above.

If there is more than one Mathematical Society in a country it may be wise to discuss the plan with all these before an application is made.

Former successful applications can be seen on our website¹¹.

Article 3 states that

A country adheres to the Union through an Adhering Organization, which may be its principal academy, a mathematical society, its research council or some other institution or association of institutions, or an appropriate agency of its government.

It is important to state the designated Adhering Organization in your application. Two critical aspects are the stability of the organization you have in mind, and its ability to commit to paying annual dues for the long term. Another important aspect is to express to what degree the Adhering Organization can be considered to represent the mathematical community in the country.

Furthermore (Article 5),

In each case, the Adhering Organization shall form a Committee for Mathematics and its adherence to the Union shall not become effective until the composition of the Committee has been reported to and recognized by the Members of the Union. The Committee shall act as adviser to the Adhering Organization in matters concerning the Union. The Adhering Organization may, if it wishes, delegate some of its power to the Committee for Mathematics. The Committee for Mathematics shall communicate to the Secretary General of the Union the name of its chair or secretary.

Please also specify the (National) Committee for Mathematics in your application. The remit and terms of office are left to each country to decide.

A typical example can be that the Adhering Organization is a national academy, with the National Committee being a body with nationwide representation associated with a national mathematics society. An alternative is to have the national mathematical society serve as Adhering Organization, with a National Committee that reflects the diversity of the national mathematical community. Yet another alternative is to have the Adhering Organization being a national Ministry. Experience tells us that this is a rather fragile construction. Unless the Adhering Organization has a close link to the mathematical community, support for membership in the IMU can easily dwindle when national financial compromises have to be made.

It is strongly advised to formalize the National Committee with remit and terms of office and make sure that it represents the full diversity of the mathematics community in the country.

Upgrade of group of adherence to the IMU

Any (regular) member of the IMU can at any time apply for an upgrade in their group of adherence to the IMU. Again, there is no formal application form to be filled out, and the procedure is identical to that of applying for membership.

Some general advice

The IMU Secretary General will be happy to discuss with you a preliminary form of application, where you outline what you can deliver and what appears too difficult to obtain. Please do not

¹¹ <https://www.mathunion.org/membership/circular-letters-adhering-organizations>

hesitate to contact the IMU Secretary General so that an application can be worked out that satisfies the standards the IMU EC has in mind and that increases the chance of a positive vote by IMU members.