

Closing ceremony

The closing ceremony was held on Wednesday, August 30, starting at 18:00 in Auditorium A of the Palacio Municipal de Congresos de Madrid.

Sir John Ball, President of the International Mathematical Union

Welcome to the Closing Ceremony of ICM 2006!

You just saw a longer version of the video that was shown at the Opening Ceremony, concerning the new IMU logo, designed by John Sullivan.

It has been a marvellous International Congress, and we begin by a retrospective look at some of the highlights.

(Showing of video montage of scenes from the ICM.)

Before saying a few words about this Congress, I want to go back to before King Juan Carlos opened ICM 2006, and present a brief report about the IMU General Assembly held in Santiago de Compostela on 19 and 20 August. This was a very successful meeting, which owed much to the care and consideration of the local organizing committee in Santiago chaired by Juan Viaño.

The General Assembly voted to make various changes to the Statutes and the Procedures for Election of IMU. In particular a new independent Nominating Committee structure for the construction of slates for elections was approved. In future the Executive Committee of the International Commission on Mathematical Instruction, concerned with mathematics education, will be elected by the ICMI General Assembly rather than the IMU General Assembly. The number of members-at-large on the IMU Executive Committee is increased from five to six, and a new category of Associate Membership of IMU, with no dues, no votes and limited duration, was introduced to encourage full membership.

Turning to the elections themselves, the new Executive Committee of IMU to serve for the period 2007–2010 will be:

President. László Lovász (Hungary)

Secretary. Martin Grötschel (Germany)

Vice Presidents. Zhiming Ma (China), Claudio Procesi (Italy)

Members at Large. Salah Baouendi (USA), Manuel de León (Spain),
Ragni Piene (Norway), Cheryl Praeger (Australia), Victor Vassiliev (Russia),
Marcelo Viana (Brazil)

I would like to pay tribute to the work of this committee, and especially to the retiring members: Phillip Griffiths, who has completed two terms as Secretary of IMU, Jean-Michel Bismut (Vice-President), Masaki Kashiwara (Vice-President), Jacob Palis (Past-President and Past Secretary of IMU), and M. S. Raghunathan.

And we also will say farewell to Linda Geraci, who has served admirably as the IMU Administrator.

The membership of the Commission on Development and Exchanges, concerned with developing countries, for 2007–2010 will be:

President. S.G. Dani (India)

Secretary. Gérard González-Sprinberg (France)

Members at Large. Graciela Boente (Argentina), Paulo Cordaro (Brazil),

Jean-Pierre Gossez (Belgium), Mary Teuw Niane (Sénégal),

Marta Sanz-Solé (Spain), Jiping Zhang (China)

CDE will be unified with the recently formed Developing Countries Strategy Group (DCSG) to form a new IMU Commission for Developing Countries which will both consider strategy and administer the IMU grants programmes. I would like to thank the members of CDE and in particular Herb Clemens, the outgoing CDE Secretary and the Chair of DCSG, for their excellent work, in which they have been ably assisted by the Developing Countries Administrator Sharon Laurenti.

The new Executive Committee of ICMI for 2007–2009 will be:

President. Michèle Artigue (France)

Secretary-General. Bernard Hodgson (Canada)

Vice Presidents. Jill Adler (South Africa), Bill Barton (New Zealand)

Members at Large. Maria Bartolini Bussi (Italy),

Jaime Carvalho e Silva (Portugal), Celia Hoyles (UK), S. Kumaresan (India),

Alexei Semenov (Russia)

The fact that this Executive Committee will hold office for three rather than four years is related to the transition process towards the new electoral system for ICMI.

The General Assembly also elected two members to the International Commission for the History of Mathematics, Christian Houzel (France) and Peter Neumann (UK).

Although it is appointed rather than elected, I want to show you the membership of the Committee for Electronic Information and Communication (CEIC) for the next two years:

Chair. Jonathan Borwein (Canada)

Members at Large. Michael Doob (Canada), David Eisenbud (USA),

John Ewing (USA), Ulf Rehmann (Germany), Alf van der Poorten (Australia)

and one member from the IMU Executive Committee.

This is one of IMU's most important committees. Examples of its fine work are the new Electronic and Federated World Directories of Mathematicians. If you have not used these important resources you can learn about them on the IMU webpages. IMU is very grateful to this committee and in particular to its Chair Jonathan Borwein.

An important discussion in Santiago concerned IMU's finances. As well as a 5% increase in dues for each of the next 4 years, an increase in the number of units paid by the generally wealthier countries in groups IV and V was agreed. These increases,

though painful, are essential to pay for IMU's increased activities, especially with respect to developing countries.

A further important discussion concerned a new set of guidelines for the scientific programme of future ICMs. This is a quite lengthy and detailed document, that after revision will be made available on the IMU webpages. The new guidelines begin with a description of the purpose of the ICM:

Every ICM should reflect the current activity of mathematics in the world, present the best work being carried out in all mathematical subfields and different regions of the world, and thus point to the future of mathematics. The invited speakers at an ICM should be mathematicians of the highest quality who are able to present current research to a broad mathematical audience.

I think that this is an important statement which should help future Program Committees in the difficult job of choosing a geographically balanced list of speakers of the highest quality.

The General Assembly passed 11 resolutions. I want to show you the four resolutions over which there was some discussion. Resolution 8 concerned mathematical education:

The General Assembly of the IMU reaffirms the importance of the issues treated by ICMI (the International Commission on Mathematical Instruction). It recognizes the importance of continuing and strengthening the relationship of IMU with ICMI and urges the increased involvement of research mathematicians in mathematical education at all levels.

Resolution 9 concerns CEIC:

With the ultimate goal of creating an enduring network of digital mathematical literature, the General Assembly of the IMU endorses the new version of the "Best practices" document of its Committee on Electronic Information and Communication (CEIC), posted June 2005 at <http://www.ceic.math.ca>, as well as the March 2005 draft of "Digital Mathematical Library: a vision for the Future".

The digital mathematical library is a very important project that we need to do as much as we can to further.

Resolution 10 concerns the freedom of movement of scientists and mathematicians:

The General Assembly of the IMU continues to endorse the principle of universality expressed in the International Council for Science (ICSU) ARTICLE 5 of the STATUTES, as adopted by the 1998 General Assembly, and endorses the additional ICSU Statement on the Universality of Science (2004). Notwithstanding heightened tensions, security concerns, etc., the General Assembly urges free exchange of scientific ideas and free circulation of scientists and mathematicians across international borders. The IMU opposes efforts by governments to restrict contacts, interactions, access and travel in the world mathematical community, particularly when such restrictions penalize individual mathematicians for the actions of governments.

Resolution 7 concerns the finances of IMU:

The General Assembly recommends that the incoming Executive Committee of the IMU studies the establishment of stable administrative structure and funding mechanisms, including possible fund-raising, for the support of the expanding IMU activities, and report to the 2010 General Assembly with concrete proposals.

Finally, the General Assembly decided that the location of ICM2010 will be Hyderabad in India.

If you want to learn more about IMU, you can consult the IMU webpages, where a detailed report of the General Assembly will appear, and read the new electronic newsletter IMU-Net. Mireille Chaleyat-Maurel has done a splendid job in the production of the newsletter – can we express our thanks to her.

The planning and bringing together of the many elements that make up the International Congress is a daunting undertaking. In several respects, such as online internet transmission of the plenary lectures and the management of relations with the media, of which I will have more to say in a moment, ICM 2006 has set standards for the future. In addition, the local organizing committee complemented the scientific programme with a tapestry of interesting events and exhibitions, expressing the richness of mathematics through discourse, history and art.

To all those who have lived the Congress over the last few years, and to those who have helped during the Congress itself, together making it such a great occasion, we say that your hard work has really been worth it, and how very much it is appreciated by all who have spent these days in Madrid.

In his closing address, Manuel de León will give us the opportunity to recognize the many individuals who have contributed to the success of this Congress. But with his permission I want to say a few words about the ICM and the media. This was a cooperative effort between IMU and the ICM Press Office. The Congress turned out to be a remarkable news story, and it was remarkably told. I wish to thank Allyn Jackson and Christof Poeppe, who wrote the initial press releases for the prizes, Marcus du Sautoy, who gave invaluable advice, and through articles and interviews contributed greatly to generating media interest, and Anne-Marie Astad for making available distribution lists developed for the Abel Prize. But no praise is too great for the accomplishments of the ICM Press Office itself, which consisted of Monica Salomone and Ignacio Fernandez Bayo of DIVULGA, supported by the splendid team that you see listed in a section of this volume. The result of their untiring and professional work was unprecedented national and international press coverage of the Congress and of mathematics.

Let me end by saying that it has been a great privilege to serve as President of IMU, and to work with my colleagues on the Executive Committee and with the Local Organizing Committee of the Congress. The IMU is very fortunate to have László Lovász as its next President. I wish him every success for his term of office, and thank you all for your participation in the Congress.

I now invite László Lovász to address the Congress.

László Lovász, Elected President of the International Mathematical Union

Ladies and gentlemen,

Let me start with joining John Ball in expressing my sincere thanks and most heartfelt congratulations to the Organizers of the Congress. They have done a tremendous job, and we all benefited from this a lot: not only the participants, but also those colleagues and students to whom we go back and to whom we'll communicate what we have learned here.

I would also like to extend these thanks and congratulations to the Program Committee and the Executive Committee, who also worked very hard over the last 4 years. In particular, I express my thanks to John Ball for his devout, selfless, and I must say, very successful job he did as the President of IMU. It will be very difficult to measure up to his work; one fact that helps me face this task is that as Past President, he'll be a member of the Executive Committee, and I'll count on his advice and help. I'd also extend these thanks to the retiring members of the Executive Committee: Vice Presidents Jean-Michel Bismut and Masaki Kashiwara, Secretary Phillip Griffiths, Madabusi Raghunathan and Past President Jacob Palis. To those members of the Executive Committee who stayed on to serve a second term, Vice president Zhi-Ming Ma, Secretary Martin Grötschel, Ragni Piene and Victor Vassiliev, I am thankful for their willingness to do so, and I am looking forward to working with them.

I also want to express my thanks to the speakers. To be invited to the Congress is a great honor but also a great responsibility. Some areas are easier to talk about to a general mathematical audience than others; but I feel that all our speakers made a great effort to convey the main ideas and results to us.

Let me add a few more personal thoughts. When one arrives at a Congress, one cannot feel but overwhelmed by the number of people and by the variety of mathematics that is presented here. One could walk the corridors for minutes without seeing a familiar face, and one could browse the abstracts long before seeing a topic that one, say, did research in. This is so even for a senior person who attended many previous Congresses, and obviously a young person who has not been to previous Congresses must feel this even more.

It is perhaps because of this feeling that people repeatedly bring up the idea of abandoning these International Congresses. I feel this would be a serious mistake. I talked to scientists working in other fields, and they expressed their envy for the fact that we have a meeting where the best mathematicians tell to all of us what are the main problems, trends, or paradigms of their fields; where we honor the recipients of major prizes, and hear and discuss their work; where we have panel discussions and also corridor discussions about important issues facing our science or our community.

I hope that now, 9 days after the opening, all participants, in particular our young colleagues, go home with a feeling that mathematics is a vibrant, live, beautiful and fruitful science, and this will help them in their research, teaching and popularization of mathematics. And I hope that you'll come back to the next congress. See you at ICM 2010!

Manuel de León, President of the ICM2006 Organizing Committee

Dear colleagues,

Ten days ago in this same auditorium, we opened the 25th International Congress of Mathematicians. Since then we have been meeting here in this impressive Palacio Municipal de Congresos. We hope that this time together has been fruitful, and that you have met old friends and made new ones.

The best way of knowing if an ICM has been successful is if the participants are sorry to depart. If that is the case, then remember that it is not “Goodbye” but “See you soon!”, because the great mathematical family will continue to meet at other congresses all over the World, and in four years time we will all be together again in Hyderabad, India, to enjoy the hospitality of our Indian friends.

No ICM would be possible without the effort of many people, and now is the moment to acknowledge them.

First, those in the different committees:

- Local Program Committee
- Satellite conferences
- Web
- Grants
- Cultural activities
- Social activities
- Infrastructure and logistics
- Publications

The efforts of the Secretariat, under the direction of our General Secretary José Luis González-Llavona, has been fundamental. I hope they will forgive us for any moments of impatience or bad moods during the run-up to the Congress.

The work of our congress agency, UNICONGRESS, has also been essential. We have worked together through thick and thin, but the final result has made it all worthwhile. Our thanks to them, to all our suppliers, and to all the staff at the Palacio Municipal de Congresos.

I believe that if one thing stands out in this ICM2006, it is the extraordinary coverage provided by the press, and for that we have mainly to thank our friends at DIVULGA, led by Ignacio F. Bayo and Mónica Salomone. Their example is one to be followed, to continue the effort of putting mathematics across to the people.

Another crucial help was provided by our over 350 volunteers. Their patient and enthusiasm have contributed to do this ICM unforgettable for all of us. Thank you very much to all of you!

Finally, we express our thanks to all the participants for taking the trouble to come to Madrid in such difficult times, to set this great example of tolerance and peaceful co-existence. Thanks to all of you. Have a safe journey home, and see you again in India in 2010!

See you all soon!

¡Hasta pronto!

Rajat Tandon, University of Hyderabad, India

Sir John Ball,
Professor Lovász,
Professor Manuel de León,
Ladies and gentleman,

Let me first take this opportunity to express my appreciation of the innumerable number of people who have worked so tirelessly for this Congress in Madrid. Let me say 'Gracias' to our Spanish hosts and the local organizing committee under the chairmanship of Prof. Manuel de León whose monumental effort has ensured the unqualified success of this ICM. I say 'Gracias' to the hundreds of volunteers who have been so gracious in rendering their assistance to us. And finally I thank the various committees of the IMU who have presented us with such a strong and exciting academic programme. We recognize that we have our work cut out for us if we are to emulate the success of this Congress in Hyderabad.

We in India feel very privileged to have the honour of hosting the next International Congress of Mathematicians. It gives us enormous pleasure to invite the mathematical community from all six continents to Hyderabad for the ICM2010, to be held from the 19th to the 27th of August.



Hyderabad, like Madrid, is a wonderful composition of the old and the new. This city, founded more than 400 years ago, houses teeming bazaars, old jewelry and fine craftsmen, old forts and mausoleums. Cosmopolitan in its population you find people of all faiths living and learning together here.

Two hundred years ago this city expanded to the twin cities of Hyderabad and Secunderabad with the addition of a cantonment area and today greater Hyderabad is a conglomeration of three cities in one with the modern Cyberabad area which is second only to Bangalore as the information technology heart of India. Here you find not only large research and development centres of the top Indian IT companies like the Tata Consultancy Services or Infosys but also the large multinationals like IBM, Microsoft and Google.

This is the charm of Hyderabad – whilst you will find computer scientists at an international institute of information technology grapple with the intricacies of $P = NP$, you will also find the finest pearl craftsmen in the world – their craft inherited from their forefathers over hundreds of years. Hyderabad is known as the pearl capital of India and perhaps of the world.

The organizing committee for the ICM2010 will be pushing for several satellite conferences in different parts of India – north, south, east and west. So those who wish to visit the Taj Mahal or the Pink city of Jaipur or the temples of Mahabalipuram will always be able to find a satellite conference of their choice near the place they want to visit. We are urging other South Asian countries to hold satellite conferences as well.

It will be our pleasure to host a meeting of the General Assembly of the IMU in Bangalore on the 16th and 17th of August just prior to the ICM.

I urge all delegates here to let it be known to the mathematical community of their countries that an open and democratic India, the home of Ramanujan, with a vibrant community of scholars of its own warmly welcomes them all and urges them to mix mathematics with pleasure and flavour the traditional hospitality of India in the August of 2010. We assure you that it will be a memorable experience.



The granite sculpture created by Keizo Ushio – a beautiful infinity, and the special stamp of the Congress.