

Organization of the congress

Between July 15 and 19, 2024, the 9th edition of the European Congress of Mathematics took place in Seville. Since the council of the European Mathematical Society, meeting in Bled (Slovenia) in July 2020, chose Seville's candidacy as the venue for this edition, the organizing committee had worked diligently, culminating its work during the five days of the congress.

With a total of 1,400 registered participants, in addition to exhibitors, press, volunteers, and companions, the congress was a complete success in terms of attendance, surpassing the previous in-person edition (the 7th ECM, held in Berlin in 2016). The multiple lectures, minisymposia, thematic, and poster sessions, supplemented with other activities, brought together the most prominent researchers in mathematics, both European and from the entire world. For one week, Seville was the world's mathematical hub.

Even though Seville was the main venue of the congress, the participation in the organizing committee of mathematicians from the five Andalusian universities offering degrees in mathematics has given the congress a distinct Andalusian character. The organizing committee consisted of 18 members from the universities of Almería, Cádiz, Granada, Málaga and Sevilla (the list of its members is presented in section [Organizing committee](#) below). Additionally, numerous collaborators from all these universities helped the success of the congress by participating in different roles in its organization (their names are listed in section [Collaborators](#)).

From the very beginning, the organizers have had the support of the main national scientific institution, the Consejo Superior de Investigaciones Científicas (CSIC), and the main mathematical institutions in the country: the Real Sociedad Matemática Española (RSME), the Sociedad Española de Matemática Aplicada (SeMA), the Societat Catalana de Matemàtiques (SCM), the Sociedad de Estadística e Investigación Operativa (SEIO), the Comité Español de Matemáticas (CEMAT), and the major research institutes: the Instituto de Ciencias Matemáticas (ICMAT), the Centre de Recerca Matemàtica (CRM), the Basque Center for Applied Mathematics (BCAM), the Instituto de Matemáticas de la Universidad de Granada (IMAG), the Instituto de Matemáticas de la Universidad de Sevilla (IMUS), and the Centro de Investigación y Tecnología Matemática de Galicia (CITMAga). His Majesty the King Felipe VI agreed to preside over the honorary committee (for the full list of members, see section [Honorary committee](#)), which also included the president of the government, the minister of science, innovation and universities, the president of the Junta de Andalucía, the president of the Diputación de Sevilla, the mayor of the city of Seville, the rectors of the universities involved in the organization, the presidents of the Span-

ish mathematical societies, and other authorities. This long list reflects the great institutional support received by this project.

We have also received an invaluable and generous help from a large number of sponsors (listed in section [Sponsors and exhibitors](#) below).

Thanks to the collaboration of the Comité Español de Matemáticas (CEMAT) and many Spanish faculties and mathematical institutes, we were able to set up an excellent volunteer program through which a total of 100 volunteers, undergraduate, master, and first-year PhD students in mathematics from universities across the country contributed to the organization during the development of the congress, greatly helping it to run smoothly, while also experiencing the unique opportunity to participate in a congress of this magnitude.

It is tradition at European Mathematical Society congresses to support mathematicians from developing countries and young researchers with fewer resources. On this occasion, the congress organization and the European Mathematical Society granted a total of 120 scholarships that allowed as many mathematicians to finance their participation in the congress. The grant committee (see the members' list in section [Grant committee](#)), responsible for selecting the beneficiaries, had the invaluable collaboration of the Centre International de Mathématiques Pures et Appliquées (CIMPA), an organization dedicated to promoting mathematical research in developing countries. CIMPA also collaborated in the organization of the minisymposium *Shared horizons: Collaborations between Europe and the global South*, in which several of the scholarship recipients participated.

In the months leading up to the congress, the scientific committee appointed by the European Mathematical Society, presided by Leonid Polterovich and consisting of 17 members (see their names listed in section [Scientific committee](#)), selected the plenary and invited speakers who would give talks at the congress. In parallel, the local scientific committee, chaired by Juan González-Meneses and consisting of 17 mathematicians from different Spanish universities (see their names in section [Local scientific committee](#)) received various proposals for minisymposia, talks for special sessions and posters, and decided on their acceptance.

A total of 123 people collaborated in one way or another in the organization of the congress, including organizers, members of the scientific committees, satellite committee, grant committee, and prize committees.

During the weekend prior to the congress, the biennial meeting of the council of the European Mathematical Society was held in Granada, organized by the Vicerrectorado de Investigación y Transferencia and the Instituto de Matemáticas de la Universidad de Granada (IMAG), and coordinated by Magdalena Rodríguez from the Universidad de Granada. At this meeting, among other matters, new vice-presidents (Jorge Buescu and Victoria Gould), secretary (Jiří Rákosník), and executive committee members of the EMS for the 2025–28 period were elected. The vote to

choose the city that would hold the venue for the next European Congress of Mathematics also took place. London and Bologna were the two candidate cities, with Bologna ultimately being selected. Participants in the meeting also had the opportunity to enjoy a mathematical visit to the Alhambra palace.

The day before the official opening of the congress, a conference organized by the European Women in Mathematics association was held at the Faculty of Fine Arts of the Universidad de Sevilla. The conference, attended by a large group of researchers participating in the congress, featured five talks (listed in section [EWM event](#)), followed by a debate and social activities.

As is customary in congresses of this magnitude, several satellite conferences took place during the preceding weeks. On this occasion, a total of 27 congresses were held throughout Spain and Portugal, covering a wide variety of topics (these conferences are listed in section [Satellite conferences](#)), which were selected by the satellite committee (see the list of members in section [Satellite committee](#)).

The congress officially began with the opening ceremony held at the Teatro de la Maestranza in Seville, with Professor Jesús Soto as master of ceremonies, attended by over a thousand participants. Juan González-Meneses and Isabel Fernández, president and vice-president of the organizing committee, spoke first to welcome attendees and express their gratitude to all the people and institutions who collaborated on making the congress a success. Next, the president of the European Mathematical Society, Jan Philip Solovej, took the floor, offering a brief overview of the scientific program of the congress and thanking the organizing committee for their work. Following speeches by the vice-minister for university, research and innovation of the Junta de Andalucía, Lorena Garrido, the deputy mayor of Seville, Álvaro Pimentel, the vice-rector for research of the Universidad de Sevilla, Julián Martínez, finally declared the congress officially inaugurated.

The ceremony continued with a musical interlude by the renowned flamenco pianist David Dorantes, who delighted the audience with a selection of his best compositions, accompanied by a dance performance.

The climax of the ceremony followed: the presentation of the European Mathematical Society prizes, which are awarded at each European Congress of Mathematics to ten mathematicians under 35 years of age in recognition of outstanding contributions in their respective fields. The president of the EMS prize committee (members listed in section [EMS prize committee](#)), Pavel Exner, took the stage to announce the winners (the list of the awardees is presented in section [EMS prize](#) below). All of them (except Maria Colombo and Nina Holden, absent due to their recent maternity) went on stage to receive their award from the president of the European Mathematical Society: an accrediting diploma and an Andalusian-themed tile.

Next, Peregrina Quintela, president of the committee for the Felix Klein prize in applied mathematics (for the list of members, see section [Felix Klein prize commit-](#)

tee), announced the winner (whose name is given in section [Felix Klein prize](#)). Karine Chemla, president of the committee for the Otto Neugebauer prize in the history of mathematics (the members of the committee are listed in section [Otto Neugebauer prize committee](#)), announced the winner of this edition (the name is given in section [Otto Neugebauer prize](#)). Barbara Kaltenbacher, a member of the committee for the EMS/ECMI Lánčzos prize in mathematical software (see section [EMS/ECMI Lánčzos prize committee](#)), spoke next to announce its award (find the name in section [EMS/ECMI Lánčzos prize](#)). Finally, Konstantin Khanin, a member of the committee for the Paul Lévy prize in probability (see section [Paul Lévy prize committee](#)), accompanied by Vincent Piron, Lévy's own grandson, took the stage to present the award to the winner (named in section [Paul Lévy prize](#)).

The congress venue was the Escuela Técnica Superior de Ingeniería of the Universidad de Sevilla, located in the Cartuja island on the banks of the Guadalquivir river. Plenary and special lectures were delivered in the nearby Barceló convention center, where a lecture hall with more than one thousand seats was available.

Including plenary, invited, award winners', special and public lectures, minisymposia, and thematic sessions, the scientific program of the congress featured over 950 talks, which gives an idea of the magnitude achieved by the event.

The highlight, undoubtedly, were the plenary lectures (listed in section [Plenary lectures](#)): ten top-level speakers selected by the scientific committee. Other highlights were the Abel lecture (see section [Abel lecture](#)), given at each edition by a recipient of the namesake prize, and the Hirzebruch lecture (see section [Hirzebruch lecture](#)), given by renown mathematicians whose work has an important facet of cooperation. All of them were livestreamed and their recordings can be viewed on the online channel of the Universidad de Sevilla: the opening ceremony on July 15,¹ and the plenary sessions on July 16,² July 17,³ July 18,⁴ and July 19.⁵

All 14 prize winners (except Maria Colombo, absent due to her recent maternity) also gave lectures (find the list of the talks in section [Prize lectures](#)).

¹https://tv.us.es/media/OPENING+CEREMONY.+9TH+EUROPEAN+CONGRESS+OF+MATHEMATICS.+15+DE+JULIO+DE+2024/1_ixpcdbt1/231298773

²https://tv.us.es/media/9TH+EUROPEAN+CONGRESS+OF+MATHEMATICS.+16+DE+JULIO+DE+2024/1_r386h4wf/231298773

³https://tv.us.es/media/9TH+EUROPEAN+CONGRESS+OF+MATHEMATICS.+17+DE+JULIO+DE+2024/1_hat837lr/232310953

⁴https://tv.us.es/media/9TH+EUROPEAN+CONGRESS+OF+MATHEMATICS.+18+DE+JULIO+DE+2024/1_eeqd4lh1/232310953

⁵https://tv.us.es/media/9TH+EUROPEAN+CONGRESS+OF+MATHEMATICS.+19+DE+JULIO+DE+2024/1_t1g1lr5y/232310953

Additionally, selected by the scientific committee, a total of 31 invited lectures covered the most important recent advances in various fields of mathematics (find the list in section [Invited lectures](#)).

The congress hosted 64 minisymposia, with a total of 592 oral presentations, far exceeding the largest number of minisymposia organized to date at a European Congress of Mathematics (find the list of minisymposia in section [Minisymposia](#)). These are special sessions proposed and organized by mathematicians from around the world, and accepted by the local scientific committee of the congress. Each organizing team of a minisymposium (a maximum of three people) chooses the speakers, who give talks on an specific topic.

Another important activity of the congress were the contributed sessions: consisting of oral contributions that are not invited or part of a minisymposium. Proposed by the speakers themselves, the local scientific committee decided on their suitability for the congress. A total of 200 oral communications were accepted, distributed in 18 contributed sessions (find the list of contributed sessions in section [Contributed sessions](#)).

A special contributed sessions was organized by the European Mathematical Society Young Academy (EMYA), an association created within the European Mathematical Society to support young researchers in mathematics and promote their participation in activities. This session consisted of 21 lightning talks by young researchers. In addition, EMYA organized an “ice breaking” session, specially aimed at young people who had never participated in a major event like the 9ECM.

Panel discussions also played a major role in the congress: eight in total, all with top-level international speakers (the list of panel discussions can be found in section [Panel discussions](#)).

Finally, we highlight the 44 posters presented by attendees at the congress and exhibited throughout the week, complementing the scientific program.

One of the objectives of the congress was the public dissemination of mathematics and related topics. For this, several exhibitions, talks, and events beyond the scientific program were organized. Four exhibitions were organized focusing on mathematics and its cultural role (their list and descriptions are presented in section [Exhibitions](#)). During the afternoons of the congress, and in parallel to the minisymposia and contributed sessions, four public lectures brought to the congress attendees to learn about examples of the excellence of science carried out at the Universidad de Sevilla. The lecturers were researchers from departments of logic and philosophy of science, physiology, atomic, molecular and nuclear physics, and ecology (see section [Public lectures: Beyond mathematics](#)).

During the congress, an outreach lecture (see section [Outreach lecture](#)) was also given by one of the invited speakers. It was attended by several high school students participating in a program to foster mathematical talent, who enjoyed an interactive

lecture based on the *Quintessence puzzle*, a new generation of 3D puzzles based on the geometry and combinatorics of the 120-cell polytope. There was also a special lecture (see section [London Mathematical Society lecture](#)) organized by the London Mathematical Society.

A cultural visit to the Real Alcázar de Sevilla was organized for the congress participants. The Alcázar is the oldest royal palace still in use in Europe. Its history stretches back more than a thousand years, featuring key moments in Spanish history. The Congress dinner was held on Thursday, July 18, at the *Restaurante “El 29”*, located within the María Luisa Park, a historical garden in the center of the city of Sevilla.

There were 17 mathematical societies, publishers, and companies that set up their stands at the congress venue to offer participants information about their activities and products (see section [Exhibitors](#)).

The closing ceremony of the 9th European Congress of Mathematics took place in the afternoon of Friday, July 19, at the auditorium of the Escuela Técnica Superior de Ingeniería of the Universidad de Sevilla, main venue of the congress. The ceremony was presided over by María Isabel Hartillo Hermoso, vice-rector for digital transformation of the Universidad de Sevilla, with interventions by Juan González-Meneses, president of the organizing committee of the 9ECM, María Ángeles Japón, vice-director of the IMUS, Jan Philip Solovej, president of the EMS, Andrés Sáez Pérez, director of the Escuela Técnica Superior de Ingeniería of the Universidad de Sevilla and Eva Ortega Paíno, secretary-general for research of the ministry for science, innovation and universities. The ceremony was officially closed by the vice-rector, María Isabel Hartillo Hermoso.

The press office of the 9ECM was handled by the agency “Divulga”, headed by Ignacio Fernández Bayo. This agency was in charge of the press offices of previous important mathematical events in Spain: the ICM 2006, the IMO 2008 and the ICIAM 2019. They took care of the national and international press coverage of the Congress as well as the communication during the congress. Scientific advisement to the press office was done by Francisco Torres de Lizaur, from the Universidad de Sevilla, and social media communications were in the hands of Ramón Flores, from the Universidad de Sevilla. The official agency of the Congress was “Pacífico”, with a long experience in large scientific events and a magnificent and experienced team.

Weather conditions in Sevilla suggested providing meals and coffee breaks at the conference venue. This was a challenge in view of the large number of participants. The task was perfectly done by a local provider, delivering a total number of 5,000 meals during the conference week.

Despite the bad weather forecasts (given the location and dates of the congress), the expected financial fluctuations, and other organizational setbacks, it turned out that the 9th European Congress of Mathematics was a complete success.

Organizing a congress of this magnitude is a colossal task, requiring the work and involvement of a large number of people. On behalf of the organizing committee, we want to express our deep gratitude to all collaborators, volunteers, and organizations that have supported this project from the beginning, and to the sponsors and public bodies that have provided funding, without whom we could never have successfully carried out this task.

The congress has been a window through which Europe and the world have been able to appreciate the level and organizational capacity of the Spanish, and particularly Andalusian, mathematical community.