15th International Congress on Mathematical Education

7-14 July 2024 • ICC Sydney, Australia

Come and be counted

Second Announcement

Acknowledging Australia's First Nations people

The 15th International Congress on Mathematical Education will be held in Sydney on the traditional lands of the Gadigal people. The Gadigal are a clan of the Eora Nation, which was the name given to the coastal First Nations Australian peoples living around modern-day Sydney. 'Eora' means 'here' or 'from this place.'

The Eora Nation were saltwater people who lived on the rich resources of the harbor and rivers. There were over thirty clan groups among the Eora, and several languages were spoken including Darug and Dharawal.

Prior to the arrival of the British First Fleet in 1788, the ancestors of the Eora had lived in this region for over 60,000 years. Despite the destructive impact of first contact with the British, Eora culture survived. Many places around the harbor remained important hunting, fishing, and camping grounds for the Eora long after British settlement and continue to be culturally significant today.

We acknowledge the Gadigal people of the Eora Nation as the Traditional Custodians of the Country that ICME-15 will be held upon. We recognize their continuing connection to the land and waters and thank them for protecting this coastline and its ecosystems since time immemorial. We acknowledge that they never ceded sovereignty. We pay our respects to Elders past, present, and emerging, and extend that respect to all First Nations people present during ICME-15.

Welcome to ICME-15

Invitation from the International Program Committee

On behalf of the International Program Committee for ICME-15, it is an honor and a great pleasure for me to invite you to what will be a truly unique and exciting initiative for mathematics and statistics education in Australia, the Asia-Pacific region, and the whole world.

Our aim is for ICME-15 to be an inclusive event at which people who are passionate about mathematics and statistics education can come together and connect with like-minded colleagues from around the globe to create lasting local, regional, and global legacies in our field.

The IPC has high ambitions for the Congress. We are working towards a Congress that:

- Addresses geographic and other forms of disadvantage in relation to mathematics teaching and learning,

- Has a central focus on Indigenous mathematics informing global efforts in mathematics education,

- Includes a focus on undergraduate teaching of mathematics and statistics,

- Has an impact in classrooms by informing the work of teachers, and

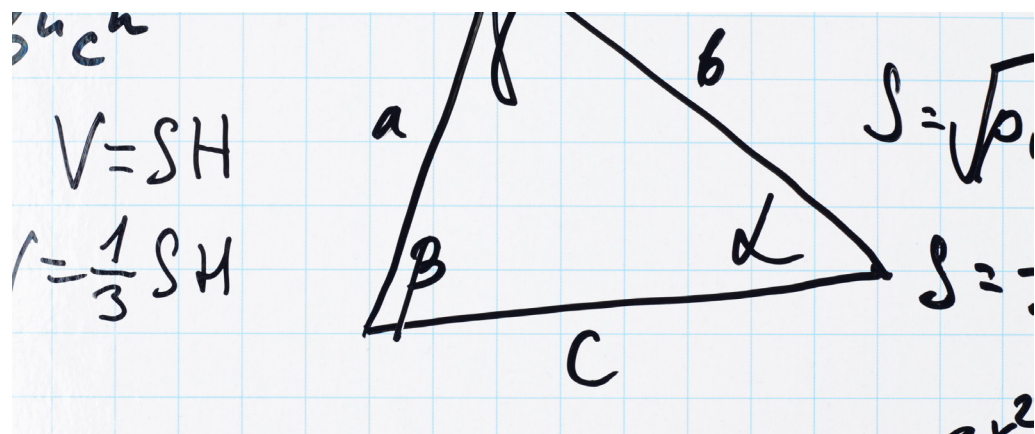- Facilitates and supports people to people connections.

The program of ICME-15 will build on the best of the traditional components of ICMEs that have served to make the past Congresses so successful. We are incorporating some key innovations designed to promote even greater levels of participation. Some of these enhancements to the program are outlined in this Announcement, whilst other initiatives will be revealed as the program takes shape.

The successful bid to host ICME-15 in Sydney was the work of the Consortium for Mathematics Education (CoME), a group of eight leading Australian organizations in the mathematical sciences. This broad base of continuing commitment to ICME-15 is a clear indication of the importance these leading organizations ascribe to supporting the further development of mathematics and statistics education in this country and globally.

I look forward to keeping you informed of progress with ICME-15 over the coming months and, ultimately greeting you to Sydney. Together we will make ICME-15 a resounding success. Come and be counted!

Kim Beswick

Convenor ICME-15
Professor of Mathematics Education
Head, School of Education
The University of New South Wales

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Introduction

ICME-15: Come and be counted

The International Congress on Mathematical Education (ICME) is the largest international conference on mathematics education and is a global meeting point for mathematics educators. Organised under the auspices of the International Commission on Mathematical Instruction (ICMI), ICME congresses are held every four years.

The 15th International Congress on Mathematics Education (ICME-15) will be held at the International Convention Centre (ICC) in Sydney, Australia, from 7 – 14 July 2024. It will be the first time in 8 years that the international mathematics education community will be able to come together in person.

Australia has a substantial core of mathematics educators with extensive experience in delivering and participating in international meetings. These educators truly understand ICMI and its members, as well as the aims of ICME and its scientific program.

ICME-15 will offer delegates an innovative Congress that builds on the well-established ICME program. Headlined by a blend of established and emerging thought leaders from around the world, the emphasis of the Congress is on sharing and discussion among delegates. ICME-15 will also include an interactive, relevant, and dynamic exhibition with hands-on demonstrations and presentations.

ICME-15 delegates will enjoy contemporary meeting spaces and technologies that facilitate enhanced networking capability. Delegates will enjoy a seamless and hassle-free visitor experience in Sydney, a destination that consistently ranks as one of the world's most desirable cities in which to live and work.

Who should attend ICME-15?

ICME-15 is for everyone involved in mathematics education – mathematicians, researchers, teachers at all levels, teacher educators, administrators, curriculum developers, and resource producers. Connected by a shared passion for mathematics and statistics education, this event will bring together colleagues from more than 100 countries around the world.

This will be only the second time the Congress has been held in the southern hemisphere, the other being in Adelaide in 1984. As such, ICME-15 is a particular opportunity for those in the Asia-Pacific region to connect with the global mathematics education community.

Accessibility

ICME-15 is an in-person event and will be conducted in English to ensure all delegates enjoy a rich and fulfilling Congress. There are no plans to provide synchronous online access to the program.

The Congress program has been designed to promote balanced participation from teachers and academics from all over the world. Funding is available to support delegates travelling to ICME-15 from less-affluent countries, which can be reviewed on page 40 of this Announcement. The costs of all activities of the ICME-15 program, including Excursion Day, are included in the registration fee.

The Congress location, ICC Sydney, has been chosen specifically for ICME-15 for its equitable and step-free access, and the accessibility features incorporated into the overall design. In addition, most of Sydney's public transport services are accessible, and support the use of mobility aids, ensuring a stress-free journey to the Congress venue.

ICME-15 is also environmentally friendly. The professional conference organizer, Arinex, is the first Australian event management company to gain carbon neutral certification, whilst the Congress venue is situated in the first precinct in the world to be awarded the highest accolade of 6 stars under the Green Building of Australia's Green Star Communities certification. In addition, Australia is one of 80 countries voluntarily participating in the CORSIA scheme, and Australian airlines offer green ticket options and the ability to fly carbon neutral, empowering delegates to minimize the environmental impact of their Congress travel.

Stay updated on ICME-15 news

The official ICME-15 website, icme15.org, is the best place to stay updated on the latest news on the Congress. Be sure to sign up to the mailing list to receive updates straight to your inbox!

Organizing Committees of ICME-15

International Program Committee

The International Program Committee (IPC) is appointed by ICMI Executive Committee following the successful bid to host ICME. It is the responsibility of the IPC to form the ICME scientific program, select presenters, and oversee the progress of the Congress preparations.

The members of the ICME-15 IPC are:

Kim Beswick	ICME-15 Convenor; Chair of the IPC; University of New South Wales, Australia
Will Morony	Chair of the ICME-15 Local Organizing Committee; Australia
Frederick K.S. Leung	ICMI President; The University of Hong Kong, Hong Kong
Jean-Luc Dorier	ICMI Secretary-General; University of Geneva, Switzerland
Jianpan Wang	Ex officio Congress Chair of ICME-14; East China Normal University, China
Olive Chapman	University of Calgary, Canada
David M. Gómez	Universidad de O'Higgins, Chile
Berinderjeet Kaur	National Institute of Education, Singapore
Boris Koichu	Weizmann Institute of Science, Israel
Nelly León	Universidad Pedagógica Experimental Libertador, Venezuela
Katie Makar	University of Queensland, Australia
Chris Matthews	University of Technology Sydney, Australia
Cristina Ochoviet	Administración Nacional de Educación Pública, Uruguay
Cristina Sabena	Università degli Studi di Torino, Italy
Inge Schwank	Universität zu Köln, Germany
Patrick Scott	New Mexico State University, United States
Yoshi Shimizu	University of Tsukuba, Japan
Moustapha Sokhna	Université Cheikh Anta Diop de Dakar, Senegal
Hamsa Venkatakrishnan	Dublin City University, Ireland
Naďa Vondrová	Univerzita Karlova, Czech Republic
Margaret Walshaw	Massey University, New Zealand

Local Organizing Committee

The Local Organizing Committee (LOC) is responsible for the logistics of the Congress organization in accordance with the scientific decisions of the IPC. This includes finances and budget, venue and room allocation, Congress announcements, publicity, and other organizational matters.

The following leaders in mathematics education have been selected for the ICME-15 LOC. They bring a great deal of experience and complementary expertise to the organization of the Congress.

Will Morony	Chair, Local Organizing Committee; Leader, Marketing Portfolio
Kim Beswick	ICME-15 Convenor
Margaret Bigelow	Leader, Social and Exhibition Portfolio
Janette Bobis	Leader, Publications Portfolio
Katherin Cartwright	Co-Convenor Early Career Researcher Program
Mary Coupland	Leader, Engagement and Outreach Portfolio
Allan Dougan	Leader, Strategic Partnerships Portfolio
Kristen Tripet	Co-Convenor, Early Career Researcher Program

The Local Organizing Committee would also like to acknowledge contributions made by Judy Anderson and Catherine Attard.

The Consortium for Mathematics Education (CoME)

The Consortium for Mathematics Education (CoME) is a group of eight leading national organizations in the mathematical sciences in Australia. The Consortium developed the successful bid for ICME-15 and remains committed to ensuring the success of the Congress.

The members of CoME and their committee members are:

1. Aboriginal and Torres Strait Islander Mathematics Alliance (ATSIMA)

ICME-15 Representative: Chris Matthews

ATSIMA was officially established in 2015 as a not-for-profit organization with the vision that all Aboriginal and Torres Strait Islander learners will be successful in mathematics. The basis of ATSIMA's work is to create innovative pedagogies in mathematics that connect Aboriginal and Torres Strait Islander culture to the teaching and learning of mathematics.

2. Australian Association of Mathematics Teachers (AAMT)

ICME-15 Representative: Allan Dougan

A federation of associations of teachers of mathematics from all Australian States and Territories. AAMT's aims are to support and enhance the work of teachers, promote the learning of mathematics, and represent and promote interests in mathematics education.

3. Australian Council of Heads of Mathematical Sciences (ACHMS)

ICME-15 Representative: Anthony Dooley

With a membership based on the convocation of the heads of mathematical sciences departments in all Australian universities that is augmented by representatives from other key organizations, ACHMS provides a broad base for input to policy and discussion on matters of concern to the mathematics and statistics community.

4. Australian Mathematical Sciences Institute (AMSI)

ICME-15 Representative: Tim Marchant

A joint venture of Australia's universities, government agencies and learned societies. AMSI's mission is to deliver radical improvement of the mathematical sciences capacity and capability in the Australian community through the support of high-quality mathematics education for all young Australians. AMSI aims to improve the supply of mathematically well-prepared students entering tertiary education by direct involvement with schools, support mathematical sciences research and its applications including cross-disciplinary areas and public and private sectors and enhance the undergraduate and postgraduate experience of students in the mathematical sciences and related disciplines.

5. Australian Mathematical Society (AustMS)

ICME-15 Representative: Chris Tisdall

A national society for the mathematics profession in Australia which aims to promote and extend mathematical knowledge and its applications.

6. Mathematical Association of New South Wales (MANSW)

ICME-15 Representative: Darius Samojlowicz

MANSW is the professional association for teachers of Mathematics in New South Wales, and an affiliate of the AAMT. For over 100 years, MANSW has provided professional learning opportunities for teachers, journals, conferences and stimulating activities for students.

7. Mathematics Education Research Group of Australasia (MERGA)

ICME-15 Representatives: Catherine Attard and Katie Makar

An association which aims to promote, share, disseminate, and co-operate on quality research on mathematics education for all levels particularly in Australasia; to provide permanent means for sharing of research results and concerns among all members through regular publications and conferences; to seek means of implementing research findings at all decision levels to the teaching of mathematics and to the preparation of teachers of mathematics; and to maintain liaison with other organizations with similar interests in mathematics education or educational research.

8. Statistical Society of Australia (SSA)

ICME-15 Representative: Peter Howley

A national society representing Australian and overseas statisticians which aims to support and further the work of state statistical societies representing professional statisticians.

Program Overview

What to expect at ICME-15

Our aim is for ICME-15 to be an inclusive event where people who are passionate about mathematics and statistics education can come together and connect with like-minded colleagues from around the globe to create lasting local, regional, and global legacies in our field.

There are three program elements to ICME-15: the Scientific Program, the Early Career Research Program, and the Social Program.

Program elements

Scientific Program

The ICME-15 Scientific Program features a variety of dynamic and interactive activities for Congress delegates. Whilst many of the program activities are managed by the IPC, ICME-15 includes several that are led by Congress delegates. The following pages provide the details of the activities included in the Scientific Program.

Early Career Researchers Program

The Early Career Research Program includes a full-day Workshop prior to the commencement of the official Congress opening, and suite of activities and exclusive tools available during the Congress itself. The Early Career Research Program will provide early career researchers with opportunities to develop their research competencies in various fields, meet and work with international experts in the field, and establish new contacts to build their networks.

Social Program

The ICME-15 Social Program will provide unique experiences and occasions for delegates to create meaningful and lasting connections with people from all over the world whilst enjoying the highlights of Sydney and its surrounds.

Scientific Program

Overview of Scientific Program activities

Formal ICME program activities	Delegate-led activities
Plenary lectures Plenary Lectures recognize substantial and continuing contributions to the growth of the field of Mathematics Education.	**Topic Study Groups** The set of Topic Study Groups (TSGs) provides a coverage of important topics in mathematics education. Each topic is an identifiable area of scholarship relevant to contemporary mathematics education. There is a balance between classic topics and completely new ones, but no intention to be fully comprehensive. The focus for each TSG is provided in the Description Paper developed at the start of the process. The work of each TSG is an opportunity for sharing insights and progress on the topic through the submission of papers, the discussion during the sessions, and the synthesis of a report and potentially other outputs.
Plenary panels Plenary panels promote the development of understanding between different communities of mathematics educators by opening up debate in a contested area of work in the field.	**Discussion Groups** Discussion Groups gather Congress delegates who are interested in discussing, in a genuinely interactive way, certain challenging, controversial, or emerging issues and dilemmas of interest to an international or regional audience. The topics for Discussion Groups are proposed by delegates.
Survey Team Reports Surveys emphasize new developments and progress on key themes or issues that have been emerging in the last three or four ICMEs by surveying the state-of-the-art in relation to the theme or issue. Teams will have a particular emphasis on identifying and characterizing important new knowledge, recent developments, new perspectives, and emergent issues.	**Workshops** Workshops provide hands-on experience to delegates who are interested in learning or trying out something through active participation. They tend to be targeted at a specific type of delegate, for example, teachers (from pre-school to university), graduate students, or researchers. The workshops focus on experiences pertaining to research or teaching concerning a well-defined theme of common interest. The topics for Workshops are proposed by delegates.

Awardee Lectures

ICMI recognizes outstanding contributions to different aspects of the field of mathematics education through prestigious awards – the Felix Klein Award, the Hans Freudenthal Award, and the Emma Castelnuevo Award. The Awards are presented at the Opening Ceremony, and the awardees are invited to present a lecture in a subsequent session.

Invited Lectures

Over 60 lectures will present the work and reflections of both established and emerging researchers from around the world.

National Presentations

A small set of countries or regions will highlight their achievements and challenges in mathematics education by presenting a snapshot of important areas of scholarship and work.

ICMI Study Reports

To report on, and thereby create interest in, the findings and outputs of each study in the series of ICMI Studies.

Plenary Lectures

The International Program Committee is delighted to announce that the following scholars will be presenting Plenary Lectures at ICME-15.

Jill Adler

University of the Witwatersrand

Immediate Past President of the International Commission on Mathematical Instruction, South Africa

Jill Adler is a Professor of Mathematics Education at the University of the Witwatersrand (Wits). Jill was president of the International Commission on Mathematical Instruction (ICMI) 2017-2020 and held the Wits SARChI Mathematics Education Chair from 2010-2019. Jill's research focuses on teaching and learning in multilingual classrooms and teacher professional development. She is the recipient of numerous awards for her work in mathematics education, including the 2012 Academy of Science of South Africa (ASSAf) Gold Medal for Science in the Service of Society and the 2015 ICMI Hans Freudenthal medal in recognition of a major cumulative program of research.

Iddo Gal

Associate Professor (PhD)

Emeritus, Israel

Iddo Gal is an Associate Professor (Retired), Dept. of Human Services, University of Haifa, Israel. Iddo enjoys multidisciplinary interests; his activities focus on the development and assessment of statistical literacy and adult numeracy, and on management of service processes and empowerment of workers and clients of service organizations. Among other things, he chaired the Numeracy Expert Group of the OECD Survey of Adult Skills (PIAAC), is a Past-President of the International Association for Statistical Education (IASE), past-Editor of the Statistics Education Research Journal, and working with UNESCO on assessing adult numeracy for the U.N. Sustainable Development Goals.
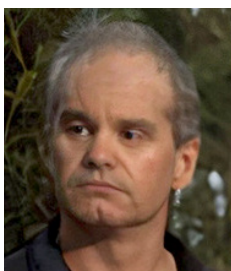
Jason Sharples

Professor, Bushfire Dynamics at University of New South Wales

Director, University of New South Wales Bushfire Research Group

Professor Jason Sharples is a mathematical scientist at the University of New South Wales (UNSW). As an internationally recognized expert in dynamic bushfire behavior and extreme bushfire development, his research has extensively influenced policy and practice in Australia and internationally. He uses complex mathematical and computational models to understand the dynamics of wildfire propagation and to pinpoint geographic features and weather conditions more likely to generate extreme bushfires. Jason is involved in several national research projects and contributes to international professional dialogue. A Bundjalung man, Jason says Indigenous Australians have been innovators and scientists for thousands of years, a heritage that can continue today, especially through fire and land management.

Rina Zazkis

Professor, Faculty of Education

Canada Research Chair in STEM Teaching and Learning

Associate Member, Department of Mathematics, Simon Fraser University, Canada

Rina Zazkis is a Professor of Mathematics Education at the Faculty of Education and associate member in the Department of Mathematics at the Simon Fraser University, Canada. Her research is in the area of undergraduate mathematics education, with a general focus on mathematical knowledge of teachers, and the ways in which this knowledge is developed, modified, and used in teaching. She holds a position of Tier 1 Canada Research Chair, a prestigious recognition of excellence in research and research training. She serves as editor-in-chief of the Journal of Mathematical Behavior.

Plenary Panels

Plenary panels facilitate shared understanding between different communities of mathematics educators by providing a forum to debate a contested area of work in the field. ICME-15 will see eminent scholars address two major challenges currently facing mathematics educators across the globe:

Plenary Panel 1: Mathematics education effectively responds to humanity's problems

This panel will take the form of an Oxford debate. Panelists will explore the interaction between mathematics education and issues of enormous importance to society, such as climate change, pandemics, international conflicts, and ongoing inequities. What role, if any, should and can mathematics education play beyond ensuring that countries have mathematical literate citizens? What are the ethical and practical challenges?

Plenary Panel 2: What counts as evidence in mathematics education?

Policy makers, teachers, and other stakeholders require evidence in support of calls for change in mathematics teaching and learning. This panel will explore what counts as evidence in mathematics education, including forms of evidence, and the implications for research agendas and methodologies that arise from the need for evidence. How can mathematics education researchers influence the understanding of what constitutes quality evidence? How can we ensure that research evidence is heard, understood, and recognized?

Survey Team Reports

Surveys teams are commissioned by the IPC to examine new developments and progress on specific themes and issues that have arisen in mathematics education during recent ICMEs.

Survey teams review identifying and characterizing important new knowledge, recent developments, new perspectives, and emergent issues, and each team will report their findings and recommendations at the Congress.

ICME-15 Survey Report topics

The IPC has commissioned teams to survey developments and progress on the following five key themes:

Survey 1: Challenges and perspectives of mathematics assessment

Educational assessment is a broad and complex task that encompasses the global educational process from the formative and summative assessment of learning to the functioning of the system itself. This study will address the teaching-learning-assessment cycle that teachers handle in their practice of teaching mathematics.

One of the challenges teachers faced during the COVID-19 pandemic was precisely how to assess content learning and the achievement of mathematical skills and competencies in remote education. The situation experienced revealed critical knots in the assessing practice not only in the sense to ensure the validity and reliability of the results, but also in relation to the formative dimension of the evaluation, the relevance of matching the ways of teaching with those of assessing, and the evaluation of capacities that are put into play in complex mathematical tasks such as problem solving and modelling. Considering that remote and hybrid education are here to stay, this survey will address the challenges, perspectives, and the latest trends and developments in the field of assessment in mathematics in these modalities.

Survey 2: Mathematics education and Indigenous perspectives

According to the United Nations, there are over 476 million indigenous people living in 90 countries across the world, accounting for 6.2 per cent of the global population. In most countries they are minority ethnic groups that face threats to their native languages, culture and ways of knowing, economic livelihood, and preservation of their natural environment. Mathematics education, as a cultural and contextualized matter, should promote a close relationship between indigenous learners and their cultural heritage and worldview, which would promote a respectful, equitable, and valued integration into society whilst understanding Indigenous approaches to mathematics, and how that knowledge is used in daily lives and in decision making.

This survey will address issues related to emerging theoretical and methodological perspectives in mathematics education in Indigenous contexts, their challenges, and opportunities, as well as the kind of understanding and learnings that are expected from the Indigenous worldviews of mathematising, and the challenges and opportunities that arise for mathematics teachers, educators, and education researchers when working in Indigenous contexts.

Survey 3: Statistics and data science education as a vehicle for empowering citizens

Data are increasingly pervasive in our daily lives. School statistics has not kept up with the ways in which citizens engage with data such as navigating Twitter feeds, using AI, and streaming GPS data to live feed into Google maps to estimate travel times. Data science has created breakthroughs to make more data more accessible, including data that doesn't fit standard formats.

Data science education has enabled school students to draw from massive public depositories where data are repurposed and wrangled with other data and machine language algorithms in new, creative ways. Privacy, ethics, and awareness of the non-objective nature of data—such as underlying gender/racial bias in how and whose data are used to train algorithms—are at the forefront of data science education.

This survey will examine work underway to prepare and arm citizens with data-based evidence to influence and improve citizen power. The outcome can influence national curricula as countries become aware of how far the school curriculum must progress to keep up with data usage in the world.

Survey 4: Interdisciplinary exchange among Mathematics Education, Psychology, and Neuroscience

Research in Mathematics Education has increasingly incorporated perspectives from other disciplines, and entire research fields like Numerical Cognition, have emerged from the interaction between Mathematics Education, Psychology, and Neuroscience. Mathematics Education has borrowed concepts from these disciplines such as mindset, working memory, and cognitive inhibition, as well as research methods such as response time paradigms, eye tracking, and neuroimaging.

This Survey aims at mapping these interactions and looking at them from a critical perspective, asking how effective has this interdisciplinary exchange become, how has it supported the advance of Mathematics Education research and theories, what extent have the results of this research been integrated into Mathematics Education, what impact these interactions and findings have had on mathematics teaching and learning in the classroom, and what challenges need to be addressed by these fields in order to foster more effective work in the future.

Survey 5: Design-based research and its role in mathematics education research and practice

The methodology of design-based research plays an important role in mathematics education research. It would be beneficial to ponder on quality issues of such research. When can we say that its results are robust enough so that we could spread them more widely? What are the barriers and important prerequisites for conducting it?

Invited Lectures

The IPC is delighted to announce the following scholars will be presenting Invited Lectures at ICME-15*.

Lawan Abdulhamid	South Africa	Roger Miarka	Brazil
Danielle Amour	Australia	Mikio Miyazaki	Japan
Anna Baccaglini-Frank	Italy	Verónica Molfino	Uruguay
Sarah Bansilal	South Africa	Samantha Morrison	South Africa
Lisa Lunney Borden	Canada	Tracey Muir	Australia
Arindam Bose	India	Lisnet Mzwaadzangati	Malawi
Sylvia Celedon-Pattichis	United States	Oi-Lam Ng	Hong Kong
Man Ching Esther Chan	Australia	Keiichi Nishimura	Japan
Narumon Changsri	Thailand	Samet Okumus	Turkey
Maud Chanudet	Switzerland	Jeongsuk Pang	Korea
Theodore Chao	United States	Ioannis Papadopoulos	Greece
Million Chauraya	Zimbabwe	Hugo Parra	Venezuela
Daniel Chazan	United States	Alon Pinto	Israel
Aurélie Chesnais	France	Anita Rampal	India
Ban Heng Choy	Singapore	Benjamin Rott	Germany
Edward Doolittle	Canada	Ángel Ruiz	Costa Rica
Michiel Doorman	Netherlands	James Russo	Australia
Toya Frank	United States	Luz Manuel Santos Trigo	Mexico
Vince Geiger	Australia	Veronica Sarungi	Tanzania
Pedro Gómez	Colombia	Annie Savard	Canada
Katalin Gosztonyi	Hungary	Carly Sawatzki	Australia
Yufeng Guo	China	Sara Scaglia	Argentina
Anahí Huencho	Chile	Masitah Shahrill	Brunei
Jodie Hunter	New Zealand	Nathalie Sinclair	Canada
Naomi Ingram	New Zealand	Alejandra Sorto	United States
Ladislav Kvasz	Czech Republic	Hassane Squalli	Canada
Woong Lim	Korea	Alphonse Uworwabayeho	Rwanda
Bożena Maj-Tatsis	Poland	Guangming Wang	China
Uldarico Malaspina	Peru	Ting Ying Wang	Taiwan
James A. Mendoza Álvarez	United States	Keith Weber	United States
Siun nic Mhuiri	Ireland	Stefan Zehetmeier	Austria

*This list is correct as of 28 April 2023.

Topic Study Groups

Overview

Topic Study Groups (TSGs) are a unique opportunity to collaboratively explore classic and contemporary topics relevant to mathematics education through the submission of papers, session-based discussions, and report synthesis.

The IPC chooses the topics for TSGs and appoints teams of up to five people to manage each TSG. Each team is supported by an IPC member who acts as liaison between the team and the IPC.

TSG teams develop a Description Paper that outlines the focus of their TSG which is released in advance of the Congress. Submissions for papers and proposals for posters that address the issues identified in the Description Paper can then be prepared and submitted by Congress delegates.

The TSG teams will assess the submissions and develop a program for the sessions of the TSG at ICME-15.

List of Themes and Teams

After much deliberation the IPC has identified the 54 TSGs for ICME-15. These will be run as two separate strands, which allow Congress delegates to participate to two TSGs: one from Strand A, and one from Strand B.

The topics and teams for TSGs at ICME-15 are∗:

TSG 1.1: Teaching and learning of number and arithmetic (Strand A)

Co-Chairs:	Raewyn Eden, Massey University, New Zealand
	Munirah Ghazali, Universiti Sains Malaysia, Malaysia
Members:	Janette Bobis, University of Sydney, Australia
	Jessica Hunt, North Carolina State University, USA
	Lise Westaway, Rhodes University, South Africa
IPC Liaison:	Hamsa Venkatakrishnan, Dublin City University, Ireland

TSG 1.2: Teaching and learning of early algebra (Strand B)

Co-Chairs:	Eric Knuth, University of Texas, USA
	Aisling Twohill, Dublin City University, Ireland
Members:	Işıl İşler-Baykal, Middle East Technical University, Turkey
	Jodie Miller, University of Queensland, Australia
	Alessandro Ribeiro, Universidade Federal do ABC, Brazil
IPC Liaison:	Inge Schwank, Universität zu Köln, Germany

TSG 1.3: Teaching and learning of algebra at secondary and tertiary levels (Strand A)

Co-Chairs:	Lynda Ball, University of Melbourne, Australia
	Ami Mamolo, Ontario Tech University, Canada
Members:	Gervais Affognon, Université d'Abomey-Calavi, Benin
	Minie Rose Lapinid, De La Salle University, The Philippines
	Luis Ramos Palacios, Universidad Pedagógica Nacional Francisco Morazán, Honduras
IPC Liaison:	Jean-Luc Dorier, University of Geneva, Switzerland

TSG 1.4: Teaching and learning of geometry (Strand B)

Co-Chairs: Patricia Marchand, Université de Sherbrooke, Canada
Lijun Ye, Hangzhou Normal University, China
Members: Mark Gronow, Central Queensland University, Australia
Alik Palatnik, The Hebrew University of Jerusalem, Israel
IPC Liaison: Jean-Luc Dorier, University of Geneva, Switzerland

TSG 1.5: Teaching and learning of measurement (Strand A)

Co-Chairs: Christine Chambris, CY Cergy Paris Université, France
Linda Y. Wang, Durham University, United Kingdom
Members: Heather McMaster, University of Sydney, Australia
Lukáš Vízek, University of Hradec Králové, Czech Republic
IPC Liaison: Naďa Vondrová, Univerzita Karlova, Czech Republic

TSG 1.6: Teaching and learning of probability (Strand B)

Co-Chair: Mathieu Thibault, Université du Québec en Outaouais, Canada
Members: Emilse Gómez-Torres, Universidad Nacional de Colombia, Colombia
Ugorji I. Ogbonnaya, University of Pretoria, South Africa
IPC Liaison: Nelly León, Universidad Pedagógica Experimental Libertador, Venezuela

TSG 1.7: Teaching and learning of statistics (Strand A)

Co-Chairs: Peter Howley, Australia
Mauren Porciúncula, Universidade Federal do Rio Grande, Brazil
Members: Yoshinori Fujii, University of Miyazaki, Japan
Zachariah Mbasu, INNODEMS, Kenya
Floriane Wozniak, Université de Toulouse, France
IPC Liaison: Katie Makar, University of Queensland, Australia

TSG 1.8: Teaching and learning of calculus (Strand B)

Co-Chair: Michael Jennings, University of Queensland, Australia
Members: Fernando Hoyos, Universidad de Lima, Peru
Anatoli Kuropatov, Levinsky College of Education, Israel
Guershon Harel, University of California, USA
IPC Liaison: Jianpan Wang, East China Normal University, China

TSG 1.9: Teaching and learning of computational thinking (Strand A)

Co-Chairs: Chantal Buteau, Brock University, Canada
Tay Eng Guan, National Institute of Education, Singapore
Members: Djordje Kadijevich, Institute for Educational Research, Serbia
Simon Modeste, Université de Montpellier, France
Max Stephens, University of Melbourne, Australia
IPC Liaison: Inge Schwank, Universität zu Köln, Germany

TSG 1.10: Teaching and learning of discrete mathematics (Strand B)

Co-Chairs: Miroslav Lovric, McMaster University, Canada
Janka Medová, Constantine the Philosopher University in Nitra, Slovakia
Members: Faiza Chellougui, Faculté des Sciences de Bizerte, Tunisia
Timothy Lehmann, Queensland University of Technology, Australia
Xiadong Zhang, Shanghai Jiao Tong University, China
IPC Liaison: Jean-Luc Dorier, University of Geneva, Switzerland

TSG 2.1: Mathematics education for students with special learning needs (Strand A)

Co-Chairs: Anette Bagger, Örebro University, Sweden
Karen Karp, Johns Hopkins University, United States
Members: Rhonda Faragher, University of Queensland, Australia
IPC Liaison: Inge Schwank, Universität zu Köln, Germany

TSG 2.2: Research on mathematical promise and giftedness (Strand A)

Co-Chairs: Victor Freima, Université de Moncton, Canada
Marianne Nolte, Universität Hamburg, Germany
Members: Kiril Bankov, Sofia University St. Kliment Ohridski, Bulgaria
Marie McGregor, University of New South Wales, Australia
Yeap Ban Har, Pathlight School, Singapore
IPC Liaison: Boris Koichu, Weizmann Institute of Science, Israel

TSG 2.3: Mathematics and creativity; mathematical competitions; mathematical challenge (Strand B)

Co-Chairs: Toh Tin Lam, National Institute of Education, Singapore
Peter Taylor, University of Canberra, Australia
Members: Pi-Jen Lin, National Tsing Hua University, Taiwan
Ingrid Semanisinova, Pavol Jozef Šafárik University, Slovakia
IPC Liaison: Boris Koichu, Weizmann Institute of Science, Israel

TSG 2.4: Culture, language and ethnicity in mathematics education (Strand A)

Co-Chairs: Tony Essien, University of the Witwatersrand, South Africa
Tamsin Meaney, Høgskulen på Vestlandet, Norway
Members: Cris Edmonds-Wathen, Charles Darwin University, Australia
Shintia Revina, SMERU Research Institute, Indonesia
IPC Liaison: Patrick Scott, New Mexico State University, United States

TSG 2.5: Ethnomathematics and First Nations/Indigenous people's mathematics and mathematics education (Strand B)

Co-Chairs: Levon Blue, Queensland University of Technology, Australia
Tony Trinick, University of Auckland, New Zealand
Members: Henry Fowler, Navajo Technical University, United States
Milton Rosa, Universidade Federal de Ouro Preto, Brazil
IPC Liaison: Chris Matthews, University of Technology Sydney, Australia

TSG 2.6: Mathematics education in under-resourced contexts (Strand B)

Co-Chairs: Robert Q. Berry, University of Arizona, United States
Ruchi Kumar, Tata Institute of Social Sciences, India
Member: Wiseman Hlamulo, University of South Africa, South Africa
IPC Liaison: Hamsa Venkatakrishnan, Dublin City University, Ireland

TSG 3.1: Mathematics education at early childhood and primary level (Strand B)

Co-Chairs: Douglas Clements, University of Denver, United States
Raimundo Olfos, Pontificia Universidad Católica de Valparaíso, Chile
Members: Joanne Mulligan, Macquarie University, Australia
Dan Zhang, Beijing Institute of Education Science, China
IPC Liaison: Inge Schwank, Universität zu Köln, Germany

TSG 3.2: Mathematics education at tertiary level (Strand A)

Co-Chairs: Nadia Azrou, Yahia Fares University of Médéa, Algeria
Elena Nardi, University of East Anglia, United Kingdom
Members: Helen Alfaro, Universidad de Costa Rica, Costa Rica
Linda Galligan, University of Southern Queensland, Australia
Mitsuru Kawazoe, Osaka Metropolitan University, Japan
IPC Liaison: Jianpan Wang, East China Normal University, China

TSG 3.3: Problem posing and solving in mathematics education (Strand A)

Co-Chairs: Csaba Csikos, University of Szeged, Hungary
Caroline Lajoie, Université du Québec à Montréal, Canada
Members: Konstantinos Tatsis, University of Ioannina, Greece
César Trelles-Zambrano, Universidad de Cuenca, Ecuador
IPC Liaison: Boris Koichu, Weizmann Institute of Science, Israel

TSG 3.4: Mathematical applications and modelling in mathematics education (Strand B)

Co-Chairs: Gilbert Greefrath, Westfälische Wilhelms-Universität Münster, Germany
Gloria Stillman, Australian Catholic University, Australia
Members: Jaime Huincahue Arcos, Universidad Católica del Maule, Chile
Toshikazu Ikeda, Yokohama National University, Japan
Xiaoli Lu, East China Normal University, China
IPC Liaison: Frederick K.S. Leung, The University of Hong Kong, Hong Kong

TSG 3.5: Visualization and embodiment in mathematics education (Strand A)

Co-Chairs: Marcelo Borba, São Paulo State University (UNESP), Brazil
Anna Shvarts, Universiteit Utrecht, Netherlands
Members: Daniela Götze, Technische Universität Dortmund, Germany
Tracy Logan, University of Canberra, Australia
Kassa Michael, Addis Ababa University, Ethiopia
IPC Liaison: Nelly León, Universidad Pedagógica Experimental Libertador, Venezuela

TSG 3.6: Reasoning, argumentation and proof in mathematics education (Strand B)

Co-Chairs: Jill Fielding, University of New England, Australia
Mária Slavíčková, Univerzita Komenského v Bratislave, Slovakia
Members: Kotaro Komatsu, University of Tsukuba, Japan
Judith Njomgang Ngansop, University of Yaounde 1, Cameroon
Cécile Ouvrier-Buffet, Université Paris-Est Créteil, France
IPC Liaison: Jean-Luc Dorier, University of Geneva, Switzerland

TSG 3.7: The role and the use of technology in the teaching and learning of mathematics at primary and lower secondary levels (Strand A)

Co-Chairs: Catherine Attard, Western Sydney University, Australia
Jana Trgalova, Université Claude-Bernard Lyon 1, France
Members: Maria Meletiou-Mavrotheris, European University Cyprus, Cyprus
Marguerite Miheso-O'Connor, Kenyatta University, Kenya
IPC Liaison: Moustapha Sokhna, Université Cheikh Anta Diop de Dakar, Senegal

TSG 3.8: The role and the use of technology in the teaching and learning of mathematics at upper secondary and tertiary level (Strand A)

Co-Chairs: Alison Clark-Wilson, University College of London, United Kingdom
Allen Leung, Hong Kong Baptist University, Hong Kong
Members: Seyum Getenet, University of Southern Queensland, Australia
Karen Hollebrands, New York State University, United States
Gisela Montiel, Instituto Politécnico Nacional de México, Mexico
IPC Liaison: Cristina Sabena, Università degli Studi di Torino, Italy

TSG 3.9: Research on mathematics classroom practice at primary level (Strand B)

Co-Chairs: Lalina Coulange, Université de Bordeaux, France
Shikha Takker, University of the Witwatersrand, South Africa
Members: Ayman Aljarrah, Acadia University, Canada
Aylie Davidson, Deakin University, Australia
Koichi Nakamura, Tokyo Gakugei University, Japan
IPC Liaison: Berinderjeet Kaur, National Institute of Education, Singapore

TSG 3.10: Research on mathematics classroom practice at secondary level (Strand B)

Co-Chairs: Orly Buchbinder, University of New Hampshire, United States
Marita Friesen, Pädagogische Hochschule Heidelberg, Germany
Members: Colin Foster, Loughborough University, United Kingdom
Ida Mok, The University of Hong Kong, Hong Kong
Colleen Vale, Monash University, Australia
IPC Liaison: Naďa Vondrová, Univerzita Karlova, Czech Republic

TSG 3.11: Task design and analysis (Strand A)

Co-Chairs: Lorraine Day, Notre Dame University, Australia
                Hye-Yun Jung, Korean Institute for Curriculum and Evaluation, Korea
Members: Minoru Ohtani, Kanazawa University, Japan
                María Trigueros, Instituto Tecnologico Autonomo de Mexico, Mexico
IPC Liaison: Nelly León, Universidad Pedagógica Experimental Libertador, Venezuela

TSG 3.12: Research and development on textbooks and resources for learning and teaching mathematics (Strand B)

Co-Chairs: Lianghuo Fan, East China Normal University, China
                Jana Visnovska, University of Queensland, Australia
Members: Annalisa Cusi, Sapienza – Università di Roma, Italy
                Moneoang Leshota, University of Pretoria, South Africa
IPC Liaison: Yoshi Shimizu, University of Tsukuba, Japan

TSG 3.13: Language and communication in the mathematics classroom (Strand B)

Co-Chairs: Igor' Kontorovich, The University of Auckland, New Zealand
                Christina Krause, Karl-Franzens-Universität Graz, Austria
Members: Paul Dawkins, Texas State University, United States
                Lisa O' Keeffe, University of South Australia, Australia
                Emily Sum, University of Melbourne,Australia
IPC Liaison: Boris Koichu, Weizmann Institute of Science, Israel

TSG 3.14: Research and development in assessment in mathematics education (Strand A)

Co-Chairs: Marcelo Almeida Bairral, Universidade Federal Rural do Rio de Janeiro, Brazil
                Shai Olsher, University of Haifa, Israel
Members: David Martin, Red Deer Polytechnic, Canada
                Jasmina Milinkovic, Univerzitet u Beogradu, Serbia
IPC Liaison: Will Morony, ICME-15 Local Organizing Committee, Australia

TSG 3.15: Research and development in testing (national and international) in mathematics education (Strand B)

Co-Chairs: Fumi Ginshima, National Institute for Educational Policy Research, Japan
                Stephen Phillip, Australian Curriculum, Assessment and Reporting Authority, Australia
Members: Federica Ferretti, University of Ferrara, Italy
                Valentina Giaconi, Universidad de O'Higgins, Chile
                Lidong Wang, Beijing Normal University, China
IPC Liaison: Will Morony, ICME-15 Local Organizing Committee, Australia

TSG 3.16: Mathematics and interdisciplinary education/STEM education (Strand A)

Co-Chair: Judy Anderson, University of Sydney, Australia
Members: Hollylynne Lee, North Carolina State University, United States
                Guangtian Zhu, East China Normal University, China
IPC Liaison: Hamsa Venkatakrishnan, Dublin City University, Ireland

TSG 3.17: E-teaching and learning/blended teaching and learning (Strand A)

Co-Chairs:	Verónica Hoyos, Universidad Pedagógica Nacional, Mexico
	Jason Silverman, Drexel University, United States
Members:	Kevin Larkin, Griffith University, Australia
	Daniela Pagés, Universidad de la República, Uruguay
IPC Liaison:	Moustapha Sokhna, Université Cheikh Anta Diop de Dakar, Senegal

TSG 3.18: Data science teaching and learning (Strand B)

Co-Chairs:	Daniel Frischemeier, Universität Paderborn, Germany
	Michelle Wilkerson, University of Berkley, United States
Members:	Kym Fry, Griffith University, Australia
	Sibel Kazak, Middle East Technical University, Turkey
IPC Liaison:	Katie Makar, University of Queensland, Australia

TSG 4.1: Preservice mathematics teacher education for the early childhood/ primary level (Strand A)

Co-Chairs:	Sharon McAuliffe, Cape Peninsula University of Technology, South Africa
	Jenni Way, University of Sydney, Australia
Members:	Jennifer Holm, Wilfrid Laurier University, Canada
	Ronald Keijzer, Hogeschool IPABO, Netherlands
	Enriqueta Reston, University of San Carlos, The Philippines
IPC Liaison:	David M. Gómez, Universidad de O'Higgins, Chile

TSG 4.2: Preservice mathematics teacher education for the secondary level (Strand B)

Co-Chairs:	Levi Elipane, Philippine Normal University, The Philippines
	Bronwyn Reid-O'Connor, University of Sydney, Australia
Members:	Rongjin Huang, Middle Tennessee State University, United States
IPC Liaison:	David M. Gómez, Universidad de O'Higgins, Chile

TSG 4.3: In-service mathematics teacher education and mathematics teacher professional development for primary level (Strand B)

Co-Chairs:	Valerie Batteau, Haute école pédagogique du canton de Vaud, Switzerland
	Andrea de Carvalho, University of New South Wales, Australia
Members:	Munira Amirali, The Aga Khan University, Pakistan
	Maitree Inprasitha, Khon Kaen University, Thailand
	Joyce Mgombelo, Brock University, Canada
IPC Liaison:	Berinderjeet Kaur, National Institute of Education, Singapore

TSG 4.4: In-service mathematics teacher education and mathematics teacher professional development for secondary level (Strand A)

Co-Chairs:	Betina Duarte, Universidad Pedagógica Nacional, Argentina
	Ronnie Karsenty, Weizmann Institute of Science, Israel
Members:	Limin Jao, McGill University, Canada
	Luis Rodríguez-Muñiz, Universidad de Oviedo, Spain
	Paulina Sliedrecht, Queensland Association of Mathematics Teachers, Australia
IPC Liaison:	Berinderjeet Kaur, National Institute of Education, Singapore

TSG 4.5: Knowledge in/for teaching mathematics at primary level (Strand A)

Co-Chairs: Stéphane Clivaz, Haute école pédagogique du canton de Vaud, Switzerland
Kristen Tripet, Australian Academy of Science, Australia
Members: Fraser Gobede, University of Malawi, Malawi
Claudia María Lara Galo, La Fundación Desarrollo, Educación y Calidad, Guatemala
Libuše Samková, Jihočeská Univerzita v Českých Budějovicích, Czech Republic
IPC Liaison: Patrick Scott, New Mexico State University, United States

TSG 4.6: Knowledge in/for teaching mathematics at secondary level (Strand B)

Co-Chairs: Sebastián Parodi, Administración Nacional de Educación Pública, Uruguay
Miguel Ribeiro, State University of Campinas, Brazil
Members Greg Hine, University of Notre Dame Australia, Australia
Rasheed Sanni, Lagos State University, Nigeria
Qiaoping Zhang, The Education University of Hong Kong, Hong Kong
IPC Liaison: Olive Chapman, University of Calgary, Canada

TSG 4.7: Affect, beliefs, and identity of mathematics teachers (Strand B)

Co-Chair: Maria Victoria Martinez, Universidad de O'Higgins, Chile
Members: Anne Bennison, University of the Sunshine Coast, Australia
Forster Ntow, University of Cape Coast, Ghana
Gayanthi Wadanambi, Nilwala National College of Education, Sri Lanka
IPC Liaison: Cristina Ochoviet, Administración Nacional de Educación Pública, Uruguay

TSG 4.8: Knowledge and practice of mathematics teacher educators (Strand B)

Co-Chairs: Tracy Helliwell, University of Bristol, United Kingdom
Signe E. Kastberg, Purdue University, United States
Members: Margaret Marshman, University of the Sunshine Coast, Australia
Mónica Olave, Consejo de Formación en Educación, Uruguay
Bettina Rösken-Winter, Humboldt-Universität zu Berlin, Germany
IPC Liaison: Olive Chapman, University of Calgary, Canada

TSG 5.1: Students' identity, motivation and attitudes towards mathematics and its study (Strand A)

Co-Chairs: Lisa Darragh, University of Auckland, New Zealand
Mellony Graven, Rhodes University, South Africa
Members: Jihyun Hwang, Korea National University of Education, Korea
Claudia Lorena Vargas-Díaz, Universidad de Santiago de Chile, Chile
James Middleton, Arizona State University, United States
IPC Liaison: Cristina Ochoviet, Administración Nacional de Educación Pública, Uruguay

TSG 5.2: Mathematical literacy (Strand A)

Co-Chair: Marc North, University of Nottingham, United Kingdom
Members: Leicha Bragg, Victoria University, Australia
Zingiswa Jojo, University of South Africa, South Africa
IPC Liaison: Yoshi Shimizu, University of Tsukuba, Japan

TSG 5.3: Cognition, learning sciences, and neurosciences in mathematics education (Strand A)

Co-Chairs: Mona Nosrati, Norges Teknisk-Naturvitenskapelige Universitet, Norway
Jo Van Hoof, University of Turku, Finland
Members: Florence Gabriel, University of South Australia, Australia
Biyao Liang, The University of Hong Kong, Hong Kong
IPC Liaison: David M. Gómez, Universidad de O'Higgins, Chile

TSG 5.4: The role of the history of mathematics in mathematics education (Strand A)

Co-Chairs: Renaud Chorlay, Sorbonne University, France
Abdellah El Idrissi, Cadi Ayyad University, Morocco
Members: Fredy Gonzalez, Universidade Federal de Rio Grande do Norte, Venezuela
Barry Kissane, Murdoch University, Australia
Dai Qin, Inner Mongolia Normal University, Mongolia
IPC Liaison: Cristina Sabena, Università degli Studi di Torino, Italy

TSG 5.5: Social and political dimensions of mathematics education (Strand B)

Co-Chairs: Yasmine Abtahi, Universitetet i Sørøst-Norge, Norway
Arthur Powell, Rutgers University, United States
Members: Peter Grootenboer, Griffith University, Australia
Pania Te Maro, Massey University, New Zealand
Luz Valoyes-Chávez, Universidad Católica de Temuco, Chile
IPC Liaison: Margaret Walshaw, Massey University, New Zealand

TSG 5.6: Research and development on mathematics curriculum (Strand B)

Co-Chairs: Rakhi Bannerji, Azim Premji University, India
Shelley Dole, Mathematics Education Researcher, Australia
Members: Melissa Adams, California State University, Stanislaus, United States
Sarah Gonzalez, Pontificia Universidad Católica Madre y Maestra, Dominican Republic
Lee Ngan Hoe, Nanyang Technological University, Singapore
IPC Liaison: Will Morony, ICME-15 Local Organizing Committee, Australia

TSG 5.7: Mathematics education in and for work; lifelong mathematics education including adult education (Strand B)

Co-Chairs: Javier Díez-Palomar, Universitat de Barcelona, Spain
David Tannor, Kellogg Community College, United States
Members: Maria da Conceição Ferreira Reis Fonseca, Universidade Federal de Minas Gerais, Brazil
Batseba Mofolo-Mbokane, University of the Witwatersrand, South Africa
Dave Tout, Australian Council for Educational Research, Australia
IPC Liaison: Margaret Walshaw, Massey University, New Zealand

TSG 5.8: Philosophy of mathematics and mathematics education (Strand A)

Co-Chairs: Bronislaw Czarnocha, Eugenio María de Hostos Community College of The City University of New York, USA

Steve Thornton, Charles Sturt University, Australia

Members: Piotr Blaszczyk, Uniwersytet Pedagogiczny im. Komisji Edukacji Narodowej w Krakowie, Poland

Po-Hung Liu, National Chin-Yi University of Technology, Taiwan

IPC Liaison: Cristina Sabena, Università degli Studi di Torino, Italy

TSG 5.9: Theories in mathematics education (Strand B)

Co-Chairs: Mariana Bosch, Universitat de Barcelona, Spain

Members: Kazuya Kageyama, Hiroshima University, Japan

Rodolfo Vergel, Universidad Distrital Francisco José de Caldas, Colombia

IPC Liaison: Margaret Walshaw, Massey University, New Zealand

TSG 5.10: Methods and methodologies in mathematics education research (Strand A)

Co-Chairs: Markku Hannula, Helsingin Yliopisto, Finland

Yasuhiro Sekiguchi, Yamaguchi University, Japan

Members: Christian Bokhove, University of Southampton, United Kingdom

Kath Holmes, Western Sydney University, Australia

Xiang Hu, Renmin University of China, China

IPC Liaison: Naďa Vondrová, Univerzita Karlova, Czech Republic

TSG 5.11: International cooperation in mathematics education (Strand A)

Co-Chair: Arne Jakobsen, University of Stavanger, Norway

Members: Carmel Mesiti, University of Melbourne, Australia

Geoffrey Wake, University of Nottingham, United Kingdom

IPC Liaison: Patrick Scott, New Mexico State University, United States

TSG 5.12: Popularization of mathematics (Strand B)

Co-Chairs: Christian Mercat, Université Claude-Bernard Lyon 1, France

Laura Tuohilampi, University of New South Wales, Australia

Members: Rachel Lui, University of Hong Kong, Hong Kong

Mariam Makramalla, University of New Giza, Egypt

IPC Liaison: Cristina Ochoviet, Administración Nacional de Educación Pública, Uruguay

*TSG team membership correct as of 28 April 2023.

How to contribute to a TSG

The Description Paper for each TSG provides the key themes and areas of interest that will be explored during the Congress. Using the Description Papers as guidance, delegates can submit papers or proposals for posters to TSG team for inclusion in the Congress TSG program.

Paper submissions and posters proposals can be made through the ICME-15 website.

TSG Submission and proposal requirements

	Paper submissions	Poster proposals
Length	Maximum 4 pages, using the template provided below. Some authors may be invited by the TSG team to extend their paper to 8-pages prior to the Congress.	The initial proposal is maximum 1 page, using the template provided below. Posters that are accepted by the TSG team will be developed and submitted by authors prior to the Congress.
Abstract	200-words, in addition to the 4-page submission.	200-words, in addition to the 1-page proposal.
Format	Microsoft Word (.doc). No other formats will be accepted.	Poster proposals should be sent in Microsoft Word (.doc) format. No other proposal formats will be accepted. The TSG teams will advise of finalized poster formats on acceptance of the proposal.
Language	All submissions must be in English	All proposals must be in English
Presenting Authors	The submission should be made by the Presenting Author. Only one Presenting Author can be allocated per submission. All notifications relating to the submission will be sent to the Presenting Author.	The proposal should be made by the Presenting Author. Only one Presenting Author can be allocated per proposal. All notifications relating to the poster proposal will be sent to the Presenting Author.
Limitations	A Presenting Author can only present a paper or poster ONCE in Strand A and ONCE in Strand B. The same submissions should not be made to multiple TSGs.	A Presenting Author can only present a paper or poster ONCE in Strand A and ONCE in Strand B. The same proposal should not be made to multiple TSGs.

To discuss your contribution with members of the TSG teams prior to submission, refer to the ICME-15 website. Email addresses of TSG Co-Chairs are included in the downloadable versions of each TSG Description paper.

What happens to my submission/proposal?

Submissions for papers and proposals for posters will be reviewed by TSG teams in late 2023 for consideration and inclusion in their TSG. Following review, Submitting Authors will receive one of the following responses:

- The paper submission is accepted with minor changes, or with no changes. Paper submissions may also be invited to expand the submission to eight pages. Authors of successful poster submissions will develop and submit their final poster.

- The paper submission/poster proposal has been reallocated to another TSG, having been identified as better suited to that TSG.

- The paper submission/poster proposal is not accepted.

Successful Submitting Authors will have several months to prepare and finalize papers and posters ahead of the Congress: please refer to the Key Dates table on the ICME-15 website to confirm the timeline for this activity.

Discussion Groups

Overview

Discussion Groups gather Congress delegates who are interested in discussing a challenging, controversial, or emerging issue or dilemma of interest with an international or regional audience in a genuinely interactive way.

The IPC consider Discussion Groups as integral to fostering international collaboration and sharing on topics that are of importance and relevance to Congress delegates from different countries.

Topics for Discussion Groups are proposed by Congress delegates. Those responsible for successful proposals will become the Coordinators of the Discussion Group, who assume the responsibility for organizing two 90-minute sessions on their chosen topic during ICME-15. Discussion Groups are included in the formal ICME-15 program. Given the nature of this activity, it is not anticipated that Discussion Groups will involve invited speakers, or a call for papers.

Discussion Groups are an important component of the ICME-15 Scientific Program. A sub-committee of the IPC will actively support Discussion Group Coordinators in the lead up to the Congress to ensure Discussion Groups engage and inform colleagues in a genuinely interactive way.

Discussion Group Proposals

Congress delegates wishing to organize a Discussion Group at ICME-15 are invited to consider proposing a Discussion Group.

The IPC expects that Discussion Groups will be proposed by a group of scholars from at least three different countries in at least two different regions of the world, ensuring that Discussion Groups appropriately promote discussion and sharing between mathematics educators from different countries.

Proposal process

Proposals should include:

- The names of the Coordinators of the Discussion Group

- The name of the Contact Coordinator, who will liaise with the ICME-15 Secretariat on all matters relating to the Discussion Group

- The name of the Discussion Group as it should appear in the ICME-15 program

- A description of the theme, including anticipated aims and a rationale for the topic

The focus of a Discussion Group should not repeat the broad areas covered in the Topic Study Groups.

Role of Discussion Group Coordinators

Coordinators of accepted Discussion Groups will be provided with the ICME-15 Discussion Group Guidelines to help them plan the sessions and prepare information about the Discussion Group for inclusion in the ICME-15 Program. Coordinators will also consider whether and how the Discussion Group might work towards a publication (paper, journal article, monograph etc.).

During the Congress, the Coordinators will facilitate the work of the Discussion Group. Following the Congress, the Coordinators will provide a short report of the sessions held, the outcome/s, and any recommendations that emerged. Further information about features of the Coordinators' report will be included in the ICME-15 Discussion Group Guidelines.

Possible topics for Discussion Groups

We welcome proposals for Discussion Groups on a variety of topics and themes at ICME-15. In addition, the IPC has identified several suitable topics that may facilitate valuable Discussion Group sessions. Some of these topics relate to Plenary Panel 1, which will examine how mathematics education responds to 'issues for humanity'. Discussion Groups could take a closer look at how, in different parts of the world, mathematics education can, or should relate to issues such as:

• Climate change and sustainability

• Social justice, poverty, and inequality

• Citizenship, democracy, and fake news

• Displaced people, peace, and justice

• Indigenous knowledges and decolonizing mathematics

• Contemporary gender issues (transgender, gender diversity etc.)

• Artificial Intelligence

• Pandemics, wellbeing, and resilience

If you have an interest in one of these topics, consider forming a team of colleagues from different countries to propose a Discussion Group.

Timeline

Please refer to the Key Dates table on the ICME-15 website to confirm the dates related to this activity.

Discussion Group reports

Discussion Groups reports may be included in the formal Post-Congress Proceedings of ICME-15.

Coordinators of Discussion Groups are also encouraged to work towards producing other publication(s) based on the group's work and findings. Whilst advice will be available on publication opportunities, the Discussion Group Coordinators will be fully responsible for any such publication.

Workshops

Overview

Workshops provide hands-on experience to Congress delegates interested in learning or trying out something through active participation. Workshops have a well-defined theme that enables delegates to share practical strategies and approaches to their work as researchers, and as teachers.

Workshop topics are proposed by Congress delegates, with proposers assuming responsibility for organizing 90-minute Workshop(s) during ICME-15.

There is no formal publication of ICME-15 Workshop materials.

Workshop Proposals

Congress delegates wishing to organize a Workshop at ICME-15 will need to submit a proposal.

The person(s) submitting the proposal will be responsible for planning and conducting the Workshop, including supplying any materials or equipment needed for the Workshop.

Proposal requirements

Proposals should include:

- The name of the Workshop Leader

- The names of any other people who will assist with running the Workshop

- The name of the Workshop as it should appear in the ICME-15 program

- A description of the Workshop, including:

  - The Workshop aims

  - The activities that will run: the IPC expect that Workshops will be designed to give delegates a practical and interactive experience.

  - Any other specific requirements i.e., multimedia facilities needed to run the activities.

Workshops will have a professional focus, not a commercial one. Workshops designed primarily to promote a particular product or service can only be delivered through sponsorship arrangements.

Role of Workshop Leaders

Once the Workshop has been accepted the Leader will be provided with the ICME-15 Workshop Guidelines to help them plan the sessions and prepare information about the Workshop for inclusion in the ICME-15 Program.

During the Congress, the Workshop Leader will conduct the Workshop session(s).

Timeline

Please refer to the Key Dates table to confirm the dates related to this activity.

National Presentations

At each ICME, a small set of countries and regions highlight their achievements and challenges in mathematics education by presenting a snapshot of important areas of scholarship and work. These presentations typically consist of a series of oral presentations with time for questions and discussion. The session time will be one and a half hours.

Presenting countries and regions are identified through an application process conducted by the IPC. Three applications for ICME-15 National Presentations have been accepted to date.

Israel

Participants come from all over the world to the ICME to learn from their colleagues about the current status and trends in (i) mathematics teaching practice at all levels and (ii) mathematics education research. Our proposed national presentation is a holistic presentation and seems to serve these expectations well. It facilitates the spread and understanding of information on various aspects of the theory and practice of contemporary mathematical education as carried out in our country.

ICMI has the additional objective of providing a link between educational researchers, curriculum designers, educational policymakers, teachers of mathematics, mathematicians, mathematics educators and others interested in mathematical education around the world. We hope that the presentation will serve as a medium for establishing international collaboration with participants who find mutual interest in the innovations and issues we plan to present. Hopefully, these issues and innovations will strike participants as relevant, addressing challenges similar to the ones they are facing and with which they seek ways to cope.

Kenya

We intend for this presentation to inform, inspire, and excite ICME-15 participants as follows:

- Inform: The Kenyan education system has changed immensely over the past 15 years. These changes have included a transformation of the whole of basic schooling toward a Competency Based Curriculum, an explosion of Kenyan Universities from 7 public institutions to over 30 and of course, a societal transformation through the introduction and increasing availability of technology. This presentation will give an accessible overview of the Kenyan context, which intends to inform the international community of the challenges many African countries face.

- Inspire: The extreme challenges faced in many low-resource contexts will be presented through a lens of optimism and hope, by focusing on innovations that are working in this challenging environment. Given our challenging context, we believe that what works for us may be relevant for others.

- Excite: Although we have a small group of committed researchers, the opportunity for research in Mathematics education in the Kenyan context far outweighs our current capacity. We hope our context may attract international researchers to collaborate with us to draw out deeper learnings of global importance from working in low resource environments on topics like implementing CBC reforms.

Realm of Aotearoa/New Zealand, including Niue and the Cook Islands

This presentation is aligned with two key aims of ICME-15, firstly, to address geographic and other forms of disadvantage in relation to mathematics teaching and learning and secondly, to have a central focus on Indigenous mathematics informing global efforts in mathematics education. This presentation will examine educational systems that have been heavily influenced by colonization and a Eurocentric approach with a resulting negative impact on both Indigenous Māori and Pacific peoples in relation to mathematics teaching and learning. With the underpinning of centering Indigenous knowledge and developing social justice and equitable mathematics classrooms, the presentation will provide an overview of policy, curriculum changes, initiatives, and research projects that have transformative potential. There are many countries that have similar histories of colonization and Eurocentric education systems and this presentation will provide interesting exemplars of the potential for anti-colonization practices in mathematics classrooms and the de-centering colonization.

ICMI Activities

Awardee Lectures

ICMI recognizes outstanding contributions to different aspects of the field of mathematics education through several prestigious awards:

- The Felix Klein Award, named after the first president of ICMI (1908-1920), this award honors lifetime achievement in mathematics education research.

- The Hans Freudenthal Award, named after the eighth president of ICMI (1967-1970), this award recognizes a major cumulative program of mathematics education research.

- The Emma Castelnuevo Award, named after the Italian mathematics educator born in 1913, to celebrate her 100th birthday, and honor her pioneering work, this award recognizes outstanding achievements in the practice of mathematics education.

These awards will be presented at the Opening Ceremony, and each awardee will be invited to present a lecture as part of ICME-15.

ICMI Study Reports

ICMI Studies have been a significant part of ICMI activities since the 1980s. Each Study examines a topic or issue of prominent current interest in mathematics education in order to promote discussion and action at international, regional, and institutional levels.

Affiliated Organization activities

Leaders of both the regional and thematic ICMI Affiliated Organizations are invited to use ICME-15 as an opportunity to promote their work to Congress delegates and raise awareness of the contributions of their organization to mathematics education.

A 90-minute session has been dedicated to the Affiliated Organizations; however, some organizations may arrange further satellite activities in association with ICME-15.

Early Career Researcher Program

At ICME-15 there will be an Early Career Researcher Program (ECRP), an innovation of this Congress that expands upon the Early Career Researcher Day (ECRD) conducted during ICME-13 and ICME-14.

The Early Career Researcher Program will commence with a full-day Workshop on Sunday 7 July, the day prior to the opening of ICME-15, and other events specifically targeted towards the interests and needs of early career researchers will continue throughout the Congress.

The program for the Workshop and subsequent activities will provide early career researchers with opportunities to develop their research competence in various fields, meet and work with international experts in the field, and establish new contacts to build their networks. Early Career Researchers can access a dedicated space to connect with other early career researchers, join exclusive question-and-answer sessions with plenary and other speakers, and use exclusive physical and virtual noticeboards to network and socialize.

The full schedule and features of the ICME-15 Early Career Researcher Program will be available on the Congress website in late 2023. Delegates who are interested in the full-day Workshop on July 7 should select that option when registering for the Congress, and an additional fee of $95AUD will apply. Early Career Researchers who do not attend the Workshop can indicate their interest to take part in other aspects of the program during the Congress when registering for ICME-15.

Social program

The ICME-15 social program will provide unique experiences and occasions for delegates to create meaningful and lasting connections with people from all over the world whilst enjoying the highlights of Sydney and its surrounds.

The ICME-15 Welcome Reception will be an excellent opportunity to meet other delegates over drinks and canapes, whilst daily morning and afternoon teas in the exhibition will provide ongoing opportunities to mingle and share ideas. Delegates can enjoy a variety of local and international cuisines together in nearby restaurants, bars, and food halls, enjoy the city's sights, and visit the nearby parks and sandy beaches that are even more beautiful in Sydney's mild winters.

ICME-15 events

Welcome Reception, Sunday 7 July 2024

The Welcome Reception is the first opportunity delegates have to make connections and build international friendships. Enjoy Australian hospitality, delicious local cuisine, delightful company, and live entertainment on the eve of the opening of ICME-15.

Opening Ceremony, Monday 8 July 2024

The Opening Ceremony sets the stage for the 15th International Congress on Mathematical Education. Live Australian cultural performances kick off an exciting week of connection, collaboration, and learning.

Closing Ceremony, Sunday 14 July

Celebrate a successful Congress with fellow delegates at the ICME-15 Closing Ceremony.

Excursion Day

Thursday 11 July is the designated Excursion Day for ICME-15, and will be a wonderful opportunity to explore Sydney and its surrounds with connections both old and new. A variety of options to explore endless cultural experiences around Sydney will be available on Excursion Day, whether it be an adventure into nature, sailing on the harbor, feeding a kangaroo, cuddling a koala, walking a Mathematics trail through different parts of the city, or joining a guided tour to learn about the history and heritage of the First Nations Australians, the oldest living culture on Earth.

Sydney is one of the most visually stunning cities in the world, built around a majestic harbor that contains some of the most famous landmarks in Australia. There will be a variety of opportunities available on Excursion Day to experience Sydney Harbor - delegates can sail around the harbor on a large cruiser, take a ferry to the famous Taronga Zoo, ride a Rivercat catamaran to the historical city of Parramatta, or board a magnificent sailing ship to experience the significant landmarks on Sydney Harbor. Tours of Sydney Opera House will give delegates the chance to appreciate both the majesty and the history of this remarkable building.

A trip up one of Sydney's high rise observation decks will be one of the best ways for delegates to enjoy the vastness and beauty of the city of Sydney, whilst guided bus tours will help delegates discover some of Sydney's best landmarks. The city also boasts some of the best shopping districts no matter the budget, and are easily explored both by foot and light rail.

Those with a thirst for adventure can explore the vistas of the nearby Blue Mountains and National Parks or visit some of the rural wineries. Walking tours of Sydney city that feature a cultural and/or mathematical focus will also be available to take at leisure.

No matter what delegates choose, Sydney will excite and captivate!

Congress timetable*

Provisional; may be subject to change

	International Convention Centre Sydney (ICC)			
	07-Jul-24	08-Jul-24	09-Jul-24	10-Jul-24
	Day 1	Day 2	Day 3	Day 4
	Sunday	Monday	Tuesday	Wednesday
0800-0830		Registration/ Networking	Sponsored events/ Networking	Sponsored events/ Networking
0830-0900				
0900-0930		Opening Ceremony	Plenary Lecture (PL) 1	Plenary Lecture (PL) 2
0930-1000				
1000-1030			Awardee Lecture (AL)	Invited Lecture (IL) 2
1030-1100				
1100-1130		Morning Tea	Morning Tea	Morning Tea
1130-1200		Invited Lecture (IL) 1	Plenary Panel (PP) 1	Topic Study Group (TSG-B) 2
1200-1230				
1230-1300	Registration	Lunch		
1300-1330				Lunch
1330-1400			Lunch	
1400-1430		Topic Study Group (TSG-A) 1		ICMI Affiliates (IA) / National Presentation (NP)
1430-1500			Workshops (WS) 1 / Survey report (SR)	
1500-1530				
1530-1600		Afternoon Tea		Afternoon Tea
1600-1630		Topic Study Group (TSG-B) 1	Afternoon Tea	Discussion Groups (DG) 1
1630-1700			Topic Study Group (TSG-A) 2	
1700-1730				
1730-1800				
1800-1830	Welcome Reception			
1830-1900				
1900-1930				
1930-2000				

11-Jul-24	12-Jul-24		13-Jul-24	14-Jul-24	Time
Day 5	Day 6		Day 7	Day 8	
Thursday	Friday		Saturday	Sunday	
Excursion Day	Sponsored events/ Networking		Networking	Networking	0800-0830
					0830-0900
	Workshops (WS)	ICMI Study reports (IS)	Plenary Panel (PP) 2	Plenary Lecture (PL) 4	0900-0930
					0930-1000
				Closing Ceremony	1000-1030
	Morning Tea		Morning Tea		1030-1100
	Topic Study Group (TSG-A) 3		Discussion Groups (DG) 2		1100-1130
				Farewell Gathering	1130-1200
					1200-1230
	Lunch		Lunch		1230-1300
					1300-1330
					1330-1400
	Plenary Lecture (PL) 3		Topic Study Group (TSG-B) 4		1400-1430
					1430-1500
	Invited Lecture (IL) 3		Invited Lecture (IL) 4		1500-1530
					1530-1600
	Afternoon Tea		Afternoon Tea		1600-1630
	Topic Study Group (TSG-B) 3		Topic Study Group (TSG-A) 4		1630-1700
					1700-1730
					1730-1800
					1800-1830
					1830-1900
					1900-1930
					1930-2000

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Legacy of ICME-15

Congress Aspirations

The organizers of ICME-15 have identified several key aspirations to ensure ICME-15 is a Congress that achieves local, regional, and global legacies, some of which are explored below.

Achieving these aspirations is also in the hands of the delegates at ICME-15. Papers and posters submitted to TSGs might highlight work that is relevant to one or more of the aspirations, and delegates also have the opportunity to propose Discussion Groups and Workshops. The International Program Committee is hopeful that some delegate submissions and proposals will also address these aspirations.

ICME-15 will:

Be accessible to delegates from developing countries

The ICME-15 Solidarity Fund will provide 10% of all registrations as grants to delegates from eligible countries. In addition, the Local Organizing Committee has secured additional funding from the New South Wales government to supplement the Solidarity Fund. The Congress venue is located near a wide range of accommodation options that will suit any budget.

Explore how Indigenous mathematics informs global efforts in mathematics education

This will be a direct focus in Plenary Panel 2, Survey 2, TSG 2.5, TSG 2.4, the National Presentation for Aotearoa/New Zealand National Presentation. In addition, the Australian presence will include a contribution from the Aboriginal and Torres Strait Islander Mathematics Alliance (ATSIMA). Excursion options available on the Excursion Day include cultural tours conducted by a local Aboriginal organization and learning about Australian Indigenous navigation, led by the Australian Maritime Museum.

Support the emergence of a new generation of Australian mathematics educators

Early- and mid- career academics have been recruited to leadership roles in many TSGs and other activities of the Scientific Program. Australian teachers who attend ICME-15 will connect with people from across the globe, explore new ideas, and in turn be inspired to further their interest and engagement in mathematics education. Volunteering to assist with practical aspects of ICME-15 will not be restricted to early- and mid- career mathematics educators, and it is expected that many will take the opportunity to assist the Local Organizing Committee in making ICME-15 a memorable experience.

Include a focus on undergraduate teaching of mathematics and statistics

Topic Study Group TSG 3.2 is directly related to this level of education. Many of the TSGs that relate to the teaching and learning of mathematical content such as TSG 1.3, TSGs 1.4, 1.6, 1.7, 1.8, 1.9 & 1.10 will feature contributions from people involved in undergraduate teaching, as will others that relate to more general issues in mathematics education across the levels, including TSG 3.8, TSG 3.16, TSG 5.3 & TSG 5.7.

Address geographic disadvantage in relation to mathematics teaching and learning

Geographic disadvantage is a key theme of TSG 2.6 and TSG 5.5, and an intersecting theme of other TSGs, especially those that relate to Indigenous learners (TSG 2.5 & 2.4) and use of e-learning and technology (TSG 3.7, TSG 3.8 & TSG 3.17). The National Presentation for Aotearoa/New Zealand National Presentation will also highlight issues of, and responses to, geographic disadvantage in the region.

Have an impact in classrooms, and respects and engages teachers

Several of the TSG teams include practicing classroom teachers, and that we will be making efforts to facilitate the attendance of as many teachers as possible e.g., held in school holidays in Australia, seeking support from local education systems.

The organizers are facilitating the attendance of as many teachers as possible by holding the Congress in the Australian mid-year school vacation. Local education systems that employ teachers, and schools themselves are being encouraged to support their staff to attend. A range of strategies, including having teachers as members of several the TSG teams and through the guidelines and advice about the conduct of TSGs will help ensure that classroom perspectives are a key part of the deliberations.

Facilitate and support people-to-people connections

There will be numerous opportunities available during ICME-15 to help delegates connect in an authentic and meaningful way. The Scientific Program includes several interactive, relevant, and dynamic activities that will facilitate discussion and sharing of ideas, as well as a variety of hands-on demonstrations and presentations. An innovation of ICME-15 is the Early Career Research Program, a week-long series of activities that expands upon the Early Career Researcher Day conducted during ICME-13 and ICME-14.

In addition to the ICME-15 Welcome Reception, Opening Ceremony, and Closing Ceremony, daily morning and afternoon teas, and Excursion Day, other special networking opportunities will be available to specific groups including first-time ICME delegates, and teachers. Rooms will also be available periodically during the Congress to enable delegates to run their own informal meetings. The Official ICME-15 Congress app will also include some features that will make it easy to connect with other delegates.

Include opportunities for public engagement in mathematics

A program of engaging mathematical activities is currently under development. This will run alongside the ICME-15 Congress to the benefit of delegates and the general public.

Publications

Official Proceedings

The ICME-15 Official Proceedings will be published with open access on the ICMI website and will include:

- Presentations at the Opening and Closing Ceremonies including the President's Address, the Secretary-General's Report, and the Awardee citations

- Plenary Lectures and Plenary Panels

- Reports from Survey Teams, Topic Study Groups and Discussion Groups

- Invited Lectures

- National Presentations

The Proceedings will be the responsibility of the ICME-15 Editorial Board, appointed at the second meeting of the IPC in February 2023:

- Prof. Kim Beswick, ICME-15 Convenor

- Prof. Frederick K. S. Leung, ICMI President

- Prof. Jean-Luc Dorier, ICMI Secretary General

- Prof. Olive Chapman, Member of IPC

- Prof. Berinderjeet Kaur, Member of IPC

- Dr Cristina Ochiovet, Member of IPC

Negotiation of arrangements with additional publisher(s) for the publication of ICME-15 Proceedings will be finalized during 2023.

Proceedings of the TSGs

Publications originating from ICME-15 will help create local, regional, and global legacies for a broad spectrum of the mathematics education community.

As a new initiative at ICME-15, TSG papers and posters will be made available as published proceedings. Subject to the approval of authors, papers and posters for the TSG will be collated and published online. This publication will be open access, have an ISBN, and be downloadable as a pdf. Copyright of submissions to the TSG proceedings will be retained with individual authors, providing them with increased visibility and reusability of their work.

Other publications

TSG teams are encouraged to produce other publications based on the work of the TSG. Members of the Local Organising Committee are available to provide advice on the available opportunities, but the TSG teams will be fully responsible for any such publications.

Discussion Groups are also encouraged to consider a publication based on their work at ICME-15.

Registration

Registration fees

Delegate

Early bird: $905 AUD

Standard: $995 AUD

Accompanying Person

Early bird: N/A

Standard: $160 AUD

What's included with registration?

• Attendance for one person to the 15th International Congress on Mathematical Education, 7-14 July 2024.

• A ticket to both the Welcome Reception function on Sunday 7 July, the Opening Ceremony on Monday 8 July, and the Closing Ceremony on Sunday 14 July.

• Morning and afternoon tea on 8-14 July at the ICC Sydney (except Thursday 11 July)

• A ticket to an excursion of choice on Thursday 11 July

• Networking and social events run as part of ICME-15.

Please note:

• Registration fees are in Australian Dollars (AUD)

• Early bird registrations will close 31 March 2024

• Registered Accompanying Persons are entitled to attend the Welcome Reception, Opening Ceremony, the Closing Ceremony, an excursion on Thursday 11 July, and other social functions run as part of ICME-15.

Paying the registration fee

Payment can be made via credit card at the end of the online registration process. Alternatively a request can be made at the end of the online registration process for an invoice so payment can be made via direct bank transfer.

Invitation letter

A personalized invitation letter will be generated for delegates on completion and payment of ICME-15 registration fees. This letter can be used to support Australian visa applications; but, it is not a requirement for a visa application. Refer to Visa information on page 44 for more information.

Should an invitation letter be required prior to payment of registration fees, the Arinex will assist with requests as needed.

ICME Solidarity Fund

One of the aims of the ICME Congresses is to have a balanced representation of presenters and delegates from all over the world. Since ICME-8, a 10% levy on all ICME registrations is allocated to the ICME Solidarity Fund.

The Solidarity Fund provides grants to delegates from less affluent regions of the world to support and increase their participation in ICME Congresses. Grants provide partial support with registration fees, accommodation and travel costs incurred in attending ICME-15. All potential applicants are advised to apply for funding from other sources as well.

Delegates from eligible countries who contribute to the Scientific Program of ICME-15 are eligible for support from the Solidarity Fund. This includes members of Plenary Panels and Survey Teams, Invited Lecturers, Co-chairs and members of TSG Teams, Coordinators of Discussion Groups and Workshops, and delegates whose Paper or Poster is accepted for the program of a TSG.

Applications for a Solidarity Fund Grant

Delegates who consider themselves eligible for grants from the Solidarity Fund of ICME-15 are encouraged to submit a grant application. An online form will be available on the ICME-15 website when applications open in mid-2023.

The form requires applicants to provide personal and professional information about themselves, including their contribution to ICME-15.

- Basic personal information, including full name, postal and e-mail addresses

- Current institution, academic position and country

- Academic Curriculum Vitae

- List of publications

- Contribution to ICME-15

- Other financial support obtained to attend ICME-15 (if any)

A recommendation letter from a PhD-supervisor or senior colleague may also be provided as part of the application.

Applications will be assessed by the Solidarity Fund Committee, appointed by the IPC of ICME-15.

Timeline

Please refer to the Key Dates table to confirm the dates related to this activity. All applicants for Solidarity Fund Grants will be informed of the outcome well in advance to the Congress.

Venue

Congress Venue for ICME-15

The International Convention Centre Sydney (ICC Sydney) is Australia's first fully integrated convention, events, exhibition, and entertainment center, giving delegates and exhibitors everything they need to have an outstanding experience at ICME-15.

ICC Sydney features striking contemporary design, leading technology, and excellent meeting and exhibition spaces. Designed with accessibility in mind, ICC Sydney has equitable and step-free access to every conference, exhibition, and entertainment space. Accessible toilets, ramps, and spacious passenger lifts are available throughout the venue, and Braille is provided on room door signage and fixed directional signage. Infra-red emitted hearing augmentation systems are in place in all meeting rooms and theatres.

Situated at the intersection of Sydney's academic, cultural and technology precincts, ICC Sydney provides convenient access to Australia's most cosmopolitan city. The emerging financial, dining and retail precinct of Barangaroo is nearby. There are also numerous galleries, theatres and concert halls within easy reach, and the bustling city center is only a short walk away.

Getting to the venue – travelling within Sydney

Leaving the airport

The ICC is in Sydney's central business district, which is 10km north of the Sydney International Airport and takes approximately 20-30 minutes to reach via car. The standard taxi fare costs from the airport around $50 AUD, depending on traffic. A regular airport-to-city bus service operates between 0600 – 2100 hours but is not recommended for those with large amounts of luggage.

By train

There are train stations located at both the Domestic and International Terminals at Sydney Airport. Airport trains run every 10 minutes on average during weekdays and every 15 minutes on weekends. It takes 20 minutes to reach Sydney's Central Station which is closest to the ICC. Lifts are available at train stations for easy transfer of luggage. Train fares from Sydney Airport terminals to Sydney's central business district are approximately $17 AUD per adult for a one-way journey.

For more information on departures and prices please visit: www.airportlink.com.au.

By taxi

Several taxi companies operate within Sydney. To pre-book a taxi whilst in Sydney, contact one of the following companies:

Taxis Combined: www.taxiscombined.com.au

Legion Cabs: www.legioncabs.com.au

Premier Cabs: www.premiercabs.com.au

Silver Service: www.silverservice.com.au

By Uber

Uber rides can be requested from either the Domestic or the International Terminal of Sydney Airport. Requests are best made after exiting the terminal, and all drivers will wait in the designated terminal pick–up area. A typical UberX (low-cost ride) to Sydney's CBD costs $43-55 AUD and a typical UberBLACK (premium ride) to Sydney's central business district costs $89-114 AUD. For more information on Uber, visit: www.uber.com/airports/syd.

Light rail

Sydney's Light Rail travels right through several Darling Harbour stations including Convention Centre, which is the stop to alight at for the ICC Sydney. The easiest way to get around Sydney, the Light Rail network begins at Sydney's Central Station and stops in several places around Sydney's central business district. Light rail trains run every 8 to 10 minutes during weekday peak hours (7am to 10am and 3pm to 7pm) and every 15 minutes at other times.

For a Light Rail Network Map, visit: transportnsw.info/sydney-lightrail-network-map

Accommodation options

Sydney and its beautiful surrounds offer an extensive choice of accommodation to suit every style and budget within walking distance of the ICC Sydney. Whether it is affordable student accommodation, traditional hotel suites, contemporary serviced apartments, or boutique hotels, Sydney can meet the needs of all ICME-15 delegates.

As the official accommodation provider for ICME-15, Arinex will be providing negotiated, specially discounted rates on a wide range of hotels near the Congress venue. Accommodation options can be reviewed and selected using the Congress Registration form, and will be sold on a first come, first served basis.

Catering and food options

While Sydney is famous for its fine dining and internationally renowned chefs, our multicultural city also boasts an affordable variety of delicious cuisines. Within walking distance of the ICME-15 venue there are dozens of takeaways venues, restaurants, cafes, and cocktail bars to explore around Darling Harbour. The nearby busy streets of Haymarket's Chinatown, which is Australia's largest Chinatown, is another popular dining and entertainment precinct with restaurants, bars, and shops pulsating into the night and just a short stroll from the Congress venue.

Travel and visas

Visas

All visitors travelling to Australia must have a valid visa to travel to and enter Australia. An ICME-15 Invitation Letter is not required to obtain an Australian visa. Once registration is complete and registration fees paid in full, a confirmation of registration, or the tax invoice for payment of the registration fees is sufficient to lodge a visa application. For VISA information please visit the Australian Immigration Office website: https://immi.homeaffairs.gov.au/visas/getting-a-visa/visa-finder

It is strongly recommended that Australian visa applications are lodged at least two months prior to departure. New Zealand passport holders can travel to Australia without a visa and obtain a visa on arrival at the airport.

Travelling to Australia

Sydney airport is the busiest in Australia and one of the world's oldest continuously operated commercial airports, with more than 35 airlines flying into Sydney Airport.

During your stay

Insurance

ICME-15 registration fees do not include insurance coverage. Taking out an insurance policy from the country of origin is strongly recommended before travelling to ICME-15. The policy should include:

- Loss of fees/deposit through cancellation of participation in the Conference or through cancellation of the Conference,
- Loss of international/domestic air fares through cancellation for any reason,
- Loss of tour monies through cancellation for any reason including airline or related services strikes within Australia,
- Failure to utilize tours or pre-booked arrangements due to airline delay,
- Force Majeure or any other reason,
- Medical expenses (including sickness and accident cover),
- Loss or damage to personal property,
- Additional expenses and repatriation should travel arrangements have to be altered,
- Medical expenses.

ICME-15 cannot take any responsibility for any participant failing to arrange their own insurance.

Weather

In Sydney, the average temperatures in July are 8-17ºC (46-62ºF).

Australians are generally informal dressers, but semi-formal attire is appropriate for special occasions or events. A light jacket is recommended for evenings.

Tourism opportunities

Sydney

Built around the largest, most beautiful harbour in the world, Sydney is undoubtedly the most exciting hub in the southern hemisphere. It is the largest and oldest city in Australia and home to over 4.5 million people. From the iconic, heritage-listed Opera House to the golden beaches stretching into the Pacific Ocean, Sydney is a place for everyone.

Sydney city offers an exciting variety of attractions, including designer boutiques, fine restaurants, chic bars and lavish department stores. Climb the Sydney Harbour Bridge to see panoramic views from the top of this Australian icon, visit The Rocks – the ancestral home of the Gadigal people, and the site of the first British settlement – or take a surfing lesson at Bondi Beach, famous for its golden sands and turquoise waters. There's so much to see and do!

Sydney is a cosmopolitan city, a major industrial, business, and commercial centre and is endlessly fascinating in its variety and beauty – make the most of what it has to offer.

Explore the top 10 Things to do in Sydney via this link: www.australia.com/en-ie/places/sydney/top-10-things-to-do

For general information about Sydney, visit: www.sydney.com

Beyond Sydney

Explore the history and natural beauty of New South Wales

Home to about 40 per cent of the state's population, regional NSW is diverse, with high levels of natural beauty and accommodating a range of lifestyles and regional locations and attractions.

The Blue Mountains

The vast sandstone plateau of the Blue Mountains features iconic scenery, bushwalking trails, delightful gardens, heritage hotels, galleries, and artisans to visitors. The Greater Blue Mountains is a World Heritage-listed area of diverse landscapes filled with plants, wildlife, caves, and rock formations in New South Wales national parks. It's also an area of cultural significance, with six First Nations Australian groups having connection to the Country of the Area, which is tied with Dreaming and rock art.

For more information, visit: https://www.visitnsw.com/destinations/blue-mountains

Country New South Wales

Experience quintessentially Australian settlements founded by gold miners, graziers and farmers int country New South Wales, loved by visitors today for their old-world ambience and friendly welcome. There are also several observatories located in rural New South Wales.

For more information, visit: https://www.visitnsw.com/destinations/country-nsw

South Coast

The unspoilt beauty of the New South Wales' southern coastline unfolds in a series of pristine beaches and bays backed by a hinterland of more than 30 national parks. Go camping in the hinterland or explore an underwater world of soft coral, tropical fish, and cheeky fur seals at Montague Island in Narooma.

For more information, visit: https://www.visitnsw.com/destinations/south-coast

The Hunter Valley

The Hunter Valley is a popular destination for Sydneysiders to visit on weekends. Indulge in great wines from world-renowned brands and family-run boutique wineries, breweries and distilleries, and gourmet delights and seasonal produce including grass-fed beef, smoked fish, cheeses, and olive oils. There is also a host of activities available from hot-air balloon flights, championship golf courses, and pampering spas.

For more information, visit: https://www.visitnsw.com/destinations/hunter/hunter-valley

Snowy Mountains

The Snowy Mountains provides a great choice of sporting activities all year round. In July, winter sports of skiing and snowboarding are popular, and there are several walking trails to explore.

For more information, visit: https://www.visitnsw.com/destinations/snowy-mountains

Sponsorship and Exhibition Opportunities

Creating a legacy

Through ICME-15, we can share our practices and experiences, learn from each other, and find common ground for advancing mathematics education across the globe by providing a platform to address the challenges for mathematics education shared by many countries.

As the largest international conference on mathematics education, this Congress will be a global meeting point for over 3,000 mathematics educators, mathematicians, researchers, teachers, and resource producers. There is a huge amount of excitement and anticipation ahead of the first in-person ICME Congress in eight years.

A successful Congress relies on the valued support provided by sponsors and exhibitors, and with your support, we can champion the goals of the Congress together. ICME-15 will:

- Inspire and challenge a new generation of mathematics educators

- Celebrate First Peoples' culture and connections to mathematics

- Focus on ways to grow, develop and strengthen the current and emerging STEM workforce

- Contribute to ensuring every student has a positive mathematics education

- Foster equity and diversity in mathematics education from school to tertiary level

- Create public engagement in mathematics through industry and business engagement and partnership

- Create new and strengthen current global connections

- Promote content and thinking that can be used as tools for integrative STEM problems

We look forward to sharing the possibilities of this once-in-a-generation opportunity with you: let's create a legacy together.

If you would like to share in our journey and discuss ways in which your organization can leverage from this meeting, please contact Katherine Robinson, our Sponsorship Manager, via email: krobinson@arinex.com.au.

The ICME-15 Sponsorship Prospectus can be viewed on the Congress website.

Reference

About the International Mathematical Union (IMU)

The International Mathematical Union (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 Council for Science (ICSU) and has endorsed repeatedly ICSU's Principle of Freedom, Responsibility & Universality of Science.

The objectives of IMU 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.

Detailed information about the organization of IMU can be found in its statutes. Legally, IMU is an unincorporated association, recognized as a charitable organization by the internal revenue service of Berlin, Germany (Finanzamt Berlin-Charlottenburg). Ongoing activities concerning IMU are published in IMU Bulletins and in the bimonthly newsletter IMU-Net to which everybody can subscribe.

The International Commission on Mathematical Instruction (ICMI) became a commission of the International Mathematical Union (IMU) in 1952.

About the International Commission on Mathematical Instruction (ICMI)

The International Commission on Mathematical Instruction (ICMI) is devoted to the development of mathematical education at all levels. The quadrennial International Congress on Mathematical Education is held under the auspices of ICMI, being one of many activities that ICMI is responsible for worldwide.

Founded at the International Congress of Mathematicians in Rome, 1908 with the initial mandate of analyzing the similarities and differences in the secondary school teaching of mathematics among various countries, ICMI has considerably expanded its objectives and activities in the years since.

ICMI offers a forum to promote reflection, collaboration and the exchange and dissemination of ideas on the teaching and learning of mathematics from primary to university level. ICMI works to stimulate the creation, improvement, and dissemination of recent research findings and of the available resources for instruction (e.g., curricular materials, pedagogical methods, the appropriate use of technology, etc.).

The Commission aims to facilitate the spread and understanding of information on all aspects of the theory and practice of contemporary mathematical education from an international perspective. ICMI has the additional objective of providing a link between educational researchers, curriculum designers, educational policy makers, teachers of mathematics, mathematicians, mathematics educators and others interested in mathematical education around the world.

ICMI takes the initiative in inaugurating appropriate activities, publications and other programs designed to further the development of mathematical education and to improve the public appreciation of mathematics. It is also charged with the conduct of IMU's activities on mathematical or scientific education. In the pursuit of its objectives, ICMI cooperates with various thematic and regional groups formed within or outside its own structure.

Among international organizations devoted to mathematics education, ICMI is distinctive because of its close ties with the professional communities of mathematicians and mathematical educators as well as its breadth – thematic, cultural, and regional.

About the International Congress on Mathematical Education (ICME)

A major responsibility of ICMI is to plan for the quadrennial International Congress on Mathematical Education (ICME), held under the auspices of ICMI. The ICMI Executive Committee (EC) chooses the hosting country, appoints an International Program Committee (IPC) to form the scientific program and select presenters, and oversees the progress of the Congress preparations.

The IPC works independently from ICMI, but the ICMI President and ICMI Secretary-General are ex officio members of the IPC. The practical and financial organisation of an ICME is the independent responsibility of a Local Organising Committee (LOC), again under the observation of general ICMI guidelines. The ICME Chair or the Convenor chairs the IPC, and the head of the LOC participates in the IPC meetings.

The aim of the Congress is to present the current states and trends in mathematics education research and in the practice of mathematics teaching at all levels. It also aims to facilitate the spread and understanding of information on all aspects of the theory and practice of contemporary mathematical education from an international perspective. ICMI has the additional objective of providing a link between educational researchers, curriculum designers, educational policy makers, teachers of mathematics, mathematicians, mathematics educators and others interested in mathematical education around the world.

The Congress will gather a broad spectrum of delegates, such as researchers in mathematics education, teacher trainers, practicing teachers, mathematicians, and others interested in mathematics education.

The series of ICMEs was launched at the initiative of ICMI President Hans Freudenthal, with the first Congress in Lyon, France. ICME is held every four years, with the most recent, ICME-14, being held in Shanghai in 2021 (delayed from 2020 due to the COVID-19 pandemic).