26TH ICMI STUDY CONFERENCE
Reims (France), 23-26 April, 2024

PROGRAM

PLENARY SESSIONS

Plenary conference 1: Research on teaching knowledge in geometry: the case of proof in the United States
Speaker: Patricio Herbst
Presenter: Angel Gutiérrez

Plenary conference 2: Teaching and learning geometry in early grades with technology
Speaker: Nathalie Sinclair
Presenter: Cathy Bruce

Plenary panel 1: Framing geometric representations and practices in culturally diverse settings
Speakers: Zhara Gooya (Iran); Lisnet Mwadzaangati (Malawi); Milton Rosa (Brazil); Natalia Sgreccia (Argentina)
Chair: Tom Lowrie

Plenary panel 2: Teaching geometry in France
Speakers: Isabelle Audra, Mélanie Binet, Bernadette Da Motta, Marie-Paul Foy, Aurélie Marche, Christine Trouillet
Chair: Fabien Emprin

DISTRIBUTION OF PAPERS AMONG THE WORKING GROUPS

Distribution of time for oral paper presentations:

- **Papers scheduled 30/37* minutes: presentation (15 minutes) + discussion (15/22 minutes)**
- **Papers scheduled 45 minutes: presentation (20 minutes) + discussion (25 minutes)**

* The time available for presentations in session S1 is 75 minutes.

WORKING GROUP 1

Co-chairs: Cathy Bruce and Keith Jones

Session	Authors	Title
S1. 11:15-11:30	*Co-chairs and participants*	Introduction of the WG and participants
S1. 11:30-12:07	*Bruce, C., Sinclair, N., Bodnar, J., Jackiw, N.*	Grids as objects and tools for the geometry curriculum
S1. 12:07-12:45	*Freiman, V., Fellus, O.*	Spatial reasoning in authentic contexts of an engeeniring challenge: tapping into children's intuitive understanding of relationships between objects and self
S2. 15:30-16:00	*Fujita, T., Kondo, Y., Kumakura, H., Miyawaki, S., Kunimune, S., Shojima, K., Jones, K.*	Identifying a sequence of core skills for deductive proving in secondary school geometry
S2. 16:00-16:30	*Chicalote-Jiménez, TA., Ortiz-May, D.J., Gómez-Arciga, A.*	Undergraduate mathematics students' reasoning and argumentation in problem-solving geometrical tasks
S2. 16:30-17:00	*Gambini, A., Viola, G., Ferretti, F.*	The role of visual mediators in geometric learning processes in university education
S3. 9:00-9:30	*Harris, D., Logan, T., Lowrie, T.*	Visualization and spatial visualization in geometry
S3. 9:30-10:00	*Herbst, P., Chazan, D.*	From geometric thinking to geometric practice: the potential of representations of practice for teaching and learning geometry in secondary schools
S3. 10:00-10:30	*Jahn, A.P., Leme da Silva, M.*	Proofs in geometry teaching in the Brazilian context: a representation of yesterday and today
S4. 11:00-11:30	*Marchand, P., Sinclair, N., Julien, N.*	A dynamic and spatial approach to enrich the teaching and learning of geometry in primary school
S4. 11:30-12:00	*Watanabe, S.*	Guided play that fosters the development of children's spatial ability
S4. 12:00-12:30	*Miranda, A.*	Building mathematical maturity through algebraic topology challenging paths
S5. 15:30-16:00	*Palatnik, A.*	On the role of shifts of attention and figural apprehension in the evolution of geometric perception
S5. 16:00-16:30	*Resnick, I., Adams, J.*	Spatial reasoning interventions and transfer to geometry: what we know about mechanism
S5. 16:30-17:00	*Miragliotta, E.*	Geometric prediction as a bridging process between transforming and understanding

WORKING GROUP 2

Co-chairs: Roza Leikin and Yukari Okamoto

Session	Authors	Title
S1. 11:15-11:30	*Co-chairs and participants*	Introduction of the WG and participants
S1. 11:30-12:07	*Arnal-Bailera, A., Manero, V.*	Expert judgment for content validation of a questionnaire on the level 5 definition process within the Van Hiele framework
S1. 12:07-12:45	*Carvalho E Silva, J.*	Geometry teaching from Babylon to the computer era
S2. 15:30-16:15	*Eraky, A., Hadad, B.-S., Hel-Or, H., Abboud, E., Leikin, R.*	Exploring creative problem-solving with eye-tracking methodology
S2. 16:15-17:00	*González, G., Shehab, S., Powers, E.*	Teaching geometry to advance design justice
S3. 9:00-9:30	*Karp, A.*	Problem types in geometry textbooks: Russia's experience
S3. 9:30-10:00	*Milinkovic, J., Vorkapic, M.*	Discovering geometry in African ethno artifacts
S3. 10:00-10:30	*Rafiepour, A.*	Geometry education in Iranian school mathematics: current situation and future challenges
S4. 11:00-11:45	*Neubrand, M.*	Multi-perspectivity: a 'red thread' through discussions on geometry for teaching and learning
S4. 11:45-12:30	*Perrin-Glorian, M.-J., Mathé, A.-C., Celi, V., Bulf, C.*	How to teach geometry in continuity along schooling?
S5. 15:30-16:00	*Pieng, P., Okamoto, Y., Weckbacher, L.*	Language and mathematics: a case of geometric shape identification
S5. 16:00-16:30	*Mora, M., Gutiérrez, A., Jaime, A.*	Analysis of visualization as an indicator of mathematical giftedness
S5. 16:30-17:00	*Petitfour, E.*	Approach to teaching geometry to dyspraxia students

WORKING GROUP 3

Co-chairs: Lisne Mwadzaangati and Milton Rosa

Session	Authors	Title
S1. 11:15-11:30	*Co-chairs and participants*	Introduction of the WG and participants
S1. 11:30-12:00	*Molina, O., Samper, C., Vargas, C., Camargo, L., Perry, P.*	What structure must the statement of a geomentry task have to promote a certain type of argument?
S1. 12:00-12:30	*Stroetmann, E., Kortenkamp, U.*	Designing meaningful tasks to promote argumentation skills in DGE - a concept for a professional development program
S1. 12:30-12:45	*Co-chairs and participants*	General discussion
S2. 15:30-16:00	*Vargas Herrera, J.P., Vanegas, Y., Giménez, J.*	Criteria used by prospective elementary school teachers when approaching a 3D figure classification task
S2. 16:00-16:30	*Morales-Ramirez, G., Caviedes, S., Pino-Fan, L.*	How do prospective secondary school teachers propose and solve geometric tasks?
S2. 16:30-17:00	*Co-chairs and participants*	General discussion
S3. 9:00-9:30	*Caviedes, S., De Gamboa, G., Badillo, E., Pino-Fan, L.*	Definitions of prospective primary teachers concerning the area of 2D figures
S3. 9:30-10:00	*Kondratieva, M.*	Casual and geometric praxeologies in a study of symmetric figures
S3. 10:00-10:30	*Mangiante-Orsola, C., Guille-Biel Winder, C.*	Learning stakes targeted by teachers in a figure restoration activity
S4. 11:00-11:30	*Orey, D.C., Rosa, M., Rosa Filho, O.*	Investigating geometric knowledge in the art of Sisal tapestry in a local community through ethnomodelling
S4. 11:30-12:00	*Rosa, M., Orey, D.C., Da Silva, G.A.P.*	A pedagogical action based on an ethnomathematical perspective for the development of geometric content for visually impaired students to improve the teaching practice of a visually impaired mathematics teacher
S4. 12:00-12:30	*Yevdokimov, O.*	The use of straightedge, compass, and fixed shapes to enhance the content knowledge of mathematics teachers in their professional training in geometry education
S4. 12:30-12:40	*Co-chairs and participants*	General discussion
S5. 15:30-16:00	*Abboud, M., Emprin, F.*	Classroom simulators: a new training approach to investagate teachers professionnal knowledge and support its development
S5. 16:00-16:30	*Baranovic, N.*	Teaching and learning geometry of pre-service primary education teachers based on the visual-analytical method of directed observation
S5. 16:30-17:00	*Mwadzaangati, L., Adler, J.*	Lesson study as a context for teachers' learning of language responsive geometry teaching
S5. 17:00-17:10	*Co-chairs and participants*	General discussion

WORKING GROUP 4

Co-chairs: Jean-Luc Dorier and Oi-Lam Ng

Session	Authors	Title
S1. 11:15-11:30	*Co-chairs and participants*	Introduction of the WG and participants
S1. 11:30-12:07	*Hoyos, V., Robles-Pecina, L.*	Connecting secondary and college geometry: resolution of problems of finding intersections and measures of curves using dynamic geometry software
S1. 12:07-12:45	*Athias, F.*	Dynamic geometry in primary school
S2. 15:30-16:00	*Baccaglini-Frank, A., Funghi, S., Miragliotta, E.*	The notion of angle and the GGBot as a tool-to-think-with ... or without
S2. 16:00-16:30	*Cui, Z., Ng, O.-L., Koo, C.M.*	Learning coordinate geometry with Scratch: task design from an embodied and APOS approach
S2. 16:30-17:00	*Sua, C., Gutiérrez, A., Jaime, A.*	Analogies: a way to promote the learning of proof in 3d geometry using dynamic geometry environments
S3. 9:00-9:45	*Coutat, S., Dorier, J.-L.*	Virtual environment for spatial knowledge, oportunities and learning objectives
S3. 9:45-10:30	*Brandl, M., Hackstein, U., Vinerean, M., Liljekvist, Y.*	The digital interactive mathematical map for geometry
S4. 11:00-11:45	*Aebischer, T.*	Destructuring / restructuring of an artifact: the case of the number line
S4. 11:45-12:30	*Kortenkamp, U., Larkin, K.*	How can virtual geometry manipulatives be used in ways that mitigate their ontological, technological and pedagogical limitations?
S5. 15:30-16:15	*Shao, M.-Y., Trgalova, J., Trouche, L.*	How teachers coordinate students' empirical perception and logical reasoning: Chinese and French cases
S5. 16:15-17:00	*Yerushamly, M., Olsher, S.*	Descriptive automated assessment: facilitating inquiry in geometry

WORKING GROUP 5

Co-chairs: Fabien Emprin and Manuel Santos-Trigo

Session	Authors	Title
S1. 11:15-11:30	*Co-chairs and participants*	Introduction of the WG and participants
S1. 11:30-12:07	*Bahramibidkalme, M., Gooya, Z., Gholamazad, S.*	A structured practical activitiy to enhance understanding of circle circum-ference and π approximation
S1. 12:07-12:45	*Sgreccia, N., Schaefer, L., Grossi, S., Di Biaggio, B.*	Development of resources to study geometry reusing materials
S2. 15:30-16:15	*Blanquart Henry, S., Guille-Biel Winder, C., Petitfour, E.*	Knowledge and reasoning in circulation during a situation of figures reproduction by folding
S2. 16:15-17:00	*Douaire, J., Emprin, F.*	Contrubition of gestures to the acquisition of geometric properties
S3. 9:00-9:45	*Kumar, R., Srinivas, S.*	Supporting geometric reasoning for underserved students in India through connected learning initiative
S3. 9:45-10:30	*Maschietto, M.*	Material and digital tools for geometry in mathematics laboratory
S4. 11:00-11:45	*Bernabeu, M., Buforn, A., Castillo, S.*	The development of sequential and discursive apprehension in kinder-garten students when they build polygons
S4. 11:45-12:30	*Sharma, S.*	What makes a shape 2D or 3D? - Use of teaching and learning resources in geometry year 5/6 classroom
S5. 15:30-16:15	*Tavakoli, M., Gooya, Z.*	Challenges of integrating DGS with geometry education
S5. 16:15-17:00	*Vendeira, C., Coutat, S.*	Developing analytical thinking in the recognition of unusual geometrical shapes with young pupils (from 4-8-year-old)

26th ICMI STUDY CONFERENCE – SCHEDULE

	April 22 Monday	April 23 Tuesday	April 24 Wednesday	April 25 Thursday	April 26 Friday	
9:00		Arrival and registration	WG session 3 (parallel groups) (9:00 - 10:30)	WG session 6 (parallel groups) (9:00 - 10:30)	PLENARY 2 N. Sinclair (60 + 15 min.) (9:00 - 10:15)	9:00
9:15						9:15
9:30		OPENING: authorities, ICMI President, co-chairs, LO, …				9:30
9:45						9:45
10:00						10:00
10:15		Conceptualization and guidelines for the WG				10:15
10:30			COFFEEE BREAK			10:30
10:45					Conceptualization of the ICMI Study volume (10:45 - 11:45)	10:45
11:00			WG session 4 (parallel groups) (11:00 - 12:30)	WG session 7 (parallel groups) (11:00 - 12:30)		11:00
11:15		WG session 1 (parallel groups) (11:15 - 12:45)				11:15
11:30						11:30
11:45					CLOSING: ICMI President, co-chairs, LO, …	11:45
12:00						12:00
12:15						12:15
12:30						12:30
12:45		LUNCH (12:30 - 14:00)				12:45
13:00						13:00
13:15						13:15
13:30						13:30
13:45						13:45
14:00	Arrival and registration	PLENARY 1 P. Herbst (60 + 15 min.) (14:00 - 15:15)	PANEL 1 (research) (75 min.) (14:00 - 15:15)	PANEL 2 (teachers) (75 min.) (14:00 - 15:15)		14:00
14:15						14:15
14:30						14:30
14:45						14:45
15:00						15:00
15:15						15:15
15:30		WG session 2 (parallel groups) (15:30 - 17:00)	WG session 5 (parallel groups) (15:30 - 17:00)	WG session 8 (parallel groups) (15:30 - 17:00)		15:30
15:45						15:45
16:00						16:00
16:15						16:15
16:30						16:30
16:45						16:45
17:00		Welcome cocktail (17:00 - 18:00)				17:00
17:15						17:15
17:30						17:30
17:45						17:45
18:00						18:00
18:15						18:15
18:30	INSPé building closed					18:30
18:45						18:45
19:00				SOCIAL DINNER (Hotel Mercure)		19:00
19:15						19:15