## A National Presentation at ICME-14 of Mathematics Education in France

July 14, 16:00–18:00 Location: T219

**Edwige Godlewski** (Sorbonne Université – President of CFEM)
**Michèle Artigue** (Université de Paris – in charge of international relations at CFEM) CFEM Commission Française pour l'Enseignement des Mathématiques-French commission for mathematics teaching

16:00-16:05 Introduction and welcome (Edwige Godlewski)
16:05-17:45 Recorded video
17:45-18:00 Q&A

**Description**

We propose to provide a global and synthetic description of the French educational context, making clear which specificities of this context directly influence mathematics education, and reflecting on its main strengths and weaknesses. The presentation will begin by a short introduction to the CFEM, the French sub-commission of ICMI, and then it will be structured around five themes representing important aspects of this educational context (current state and future directions), while of interest for the international community of ICME participants: (i) recent curricular evolutions; (ii) teacher education; (iii) research in mathematics education; (iv) the 50-year old original network of research institutes on mathematics teaching (IREM), an essential component of the mathematics education landscape in France; (v) popularization and enrichment activities, the number and variety of which regularly increases.
For each theme, there will be a focus on some recent evolutions or achievements. Moreover, we will try to emphasize the many international collaborations that the French community of mathematics education increasingly develops all around the world.

## Regional Presentation of Andean Countries: Peru, Bolivia, Ecuador and Colombia

July 14, 16:00–18:00 Location: T225

**María del Carmen Bonilla** (International Study Group on Ethnomathematics- Peru)
**Victoria Mamani Choque** (Pedagogical University-Bolivia)
**Eulalia Calle Palomeque** (University of Cuenca-Ecuador)
**Huber Castro** (Centro Indígena de Investigaciones Interculturales de Tierradentro-Colombia)
**Aldo Parra** (University of Cauca-Colombia)

16:00-16:05 Introduction and welcome
16:05-16:24 Recorded video
16:24-18:00 Q&A

**Description**

Peru, Bolivia, Ecuador, and Colombia are characterized by a multicultural, multiethnic, and multilingual reality. All of them converge in manifestations that express the development of science and mathematics, based on local rationalities and worldviews. These characteristics make possible several and particular understandings of the natural world and of the human

being. The vast territory of the Andes has been the cradle of great civilizations, as old as those of the old world, with a permanent cultural development until the Spanish invasion. At that time, there was a cultural collapse, in which the Andean culture had the worst part; most of its tangible and intangible cultural heritage was wiped out. As a result of this destruction, the identity of the native Andean peoples has long been marginalized. The great scientific and technological development that is expressed in monumental architectural constructions, irrigation canals, metallurgical, agricultural, genetic development, domestication of plants and animals, as well as their ability to identify with the natural environment was made invisible. Science and mathematics developed with astonishing effectiveness and efficiency. Much Andean-Amazon sociocultural knowledge has been lost, or has been made invisible by the official culture, a situation that has been tried to overcome through governmental educational policies that recognize, revalue, and claim such legacy.

## Mathematics Education in Hungary

July 14, 16:00–18:00 Location: T223

**Márta Barbarics** (Budapest Semesters in Mathematics Education)
**Eszter Bóra** (ELTE Doctoral School of Mathematics-Didactical Program, Szent István Gimnázium)
**Csaba Csapodi** (Mathematics Education Centre of Eötvös Loránd University, Budapest)
**Katalin Gosztonyi** (Mathematics Education Centre of Eötvös Loránd University, Budapest)
**Péter Juhász** (Alfréd Rényi Institute of Mathematics)
**Anna Kiss** (Mathematics Education Centre of Eötvös Loránd University, Budapest)
**István Lénárt** (Eötvös Loránd University, Budapest)
**Réka Szász** (Budapest Semesters in Mathematics Education)
**Ödön Vancsó** (Mathematics Education Centre of Eötvös Loránd University, Budapest)
**Eszter Varga** (ELTE Doctoral School of Mathematics - Didactical Program, Bornemisza Péter Gimnázium)

16:00-16:05 Introduction
16:05-16:18 Institutional frames of mathematics education in Hungary
16:18-16:33 Hungarian traditions of teaching by "guided discovery"
16:33-16:38 Q & A
16:38-16:50 Concept building through games and manipulatives (video)
16:50-17:10 Discovery and problem solving through intertwined problem threads
17:10-17:25 Adaptation of the Hungarian approach to current educational trends (technology, complex instruction, cooperative learning and gamification)
17:25-17:30 Q & A
17:30-17:35 Talks and Workshops of the Hungarian team
17:35-17:45 Comparative Geometry on the Lénárt Sphere: What is it and what is it for? (video)
17:45-18:00 Q & A, Discussion

**Description**

The aim of our presentation session is to present the specific traditions of mathematics

education in Hungary, and ways these are blended with present international trends to face the goals and challenges of the 21st century.
We will start with an overview of the institutional frames of mathematics education in Hungary: its structure and characteristics on the primary, secondary, and higher level, including teacher training and research. Then we will describe the Hungarian tradition of teaching by guided discovery whose most internationally known representative is György (George) Pólya, and two key trends in this tradition: Tamás Varga's concept building through games and manipulatives (Gosztonyi, 2018) and Lajos Pósa's discovery and problem solving through intertwined problem threads (Győri & Juhász, 2017). Finally we will describe how the Hungarian approach is used hand in hand with current educational trends.

## Sweden – A National Presentation

July 14, 16:00–18:00 Location: T319

**Johan Prytz** (Uppsala University)
**Ida Bergvall** (Uppsala University)

16:00-17:10 Recorded video
17:10-18:00 Q&A

**Description**

The presentation is focused on the mathematics education in Sweden in school years one to twelve. First, there is a section on the history of Swedish mathematics education (1850–2021), which highlights the content of the curricula, but also organisational, sociological and cultural issues. The aim is to provide a context of Swedish mathematics education of today. We continue to a brief section on the current organization of the Swedish school system. This is followed by a lengthier section on teaching methods and philosophies of teaching in the last 25 years. This is a turbulent period in the Swedish school system. It began with a very deep economic crisis and at the same time the school system was decentralised in new ways, which included implementation of new public management, free school choice and a general voucher system. During the 20 first years of the same period of time, the Swedish results in TIMSS and PISA plummeted. The aim of this section is to describe the main trends in Swedish mathematics teaching during this period of time. After that there is a section on the mathematics syllabus and teaching material of today. The content of the current syllabi is described more thoroughly along with a more general description of textbooks. The development of the textbook market is also considered. The presentation ends with a brief discussion about the future and how Swedish mathematics can or should develop. This includes also more recent and general challenges related to for instance a major shortage of teachers and a relatively great number newly arrived immigrants.