



International Study Group on the Relations Between
the HISTORY and PEDAGOGY of MATHEMATICS
An Affiliate of the International Commission on
Mathematical Instruction

**9th EUROPEAN SUMMER UNIVERSITY
ON THE HISTORY AND EPISTEMOLOGY IN MATHEMATICS EDUCATION**

ESU-9

**18-22 July 2022,
University of Salerno – Department of Mathematics
Fisciano (SA), Italy**

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SECOND ANNOUNCEMENT

A *Summer University (SU)* on the *History and Epistemology in Mathematics Education* began as an initiative of the French Mathematics Education community in the early 1980's. From those meetings emerged the organization of a SU on a European scale and became the *European Summer University (ESU) on the History and Epistemology in Mathematics Education*. The first ESU was organized in Montpellier (France), 1993. Since then, ESU has been successfully organized in different places in Europe: Braga (Portugal), 1996; Louvain-la-Neuve and Leuven (Belgium), 1999; Uppsala (Sweden), 2004; Prague (Czech Republic), 2007; Vienna (Austria), 2010; Copenhagen (Denmark), 2014, Oslo (Norway), 2018¹. It has now been integrated into one of the main international activities of the HPM Group, which - from 2010 onwards - is organized every four years. Thus, every two years at least one major international meeting of the Group takes place; namely, ESU and the HPM Satellite Meeting of ICME.

1. Aim

The principal aims of the ESU are:

- to provide a forum for presenting research in mathematics education and innovative teaching methods based on a historical, epistemological and cultural approach to mathematics and their teaching, with emphasis on actual implementation;

¹ A brief account of the history of ESU is available at <http://www.clab.edc.uoc.gr/HPM/HPMinME-TopicalStudy-18-2-16-NewsletterVersion.pdf> §2.1.2.

- to offer an opportunity for mathematics teachers, educators and researchers to share their historical knowledge, their teaching ideas and classroom experience related to this perspective;
- in this way, to motivate further collaboration along these lines, among members of the mathematics education community in Europe and beyond.

2. Rationale

ESU attempts to bring out the following aspects of mathematics:

- Mathematics is a human intellectual enterprise with a long history and a vivid present. Besides its “polished” products, those that can be communicated, criticized and incorporated into the body of mathematical knowledge, the process of “doing mathematics” is equally important, especially from a didactical point of view;
- From this perspective, the meaning of mathematical knowledge is determined not only by the circumstances in which it becomes a deductively structured theory, but also by the procedures that led, or may lead to it and which are indispensable for its understanding.
- Therefore, learning mathematics should include the understanding of implicit motivations, sense-making actions and reflective processes aimed at the construction of meaning, while teaching mathematics should give the learners the opportunity to “do mathematics.”
- As a consequence, perceiving mathematics both as logically structured collections of intellectual products and as processes of knowledge production, should form the core of the teaching of mathematics as well as the image of mathematics spread to the outside world.

Along these lines, emphasizing the integration of historical and epistemological issues in mathematics teaching and learning constitutes a natural way for exposing mathematics in the making. This, in turn may lead to a better understanding of specific parts of mathematics and a deeper awareness of what mathematics as a discipline is. This is important for mathematics education in that it can help students understand that mathematics:

- is the result of contributions from many different cultures;
- has been in constant dialogue with other scientific disciplines, philosophy, the arts and technology;
- has undergone changes over time according to shifting views of what it is and how it should be taught and learnt;
- has constituted a constant force for stimulating and supporting scientific, philosophical, technical, artistic, and social development.

In this way, learning mathematics and stimulating students’ interest in it can be enhanced at all levels of education. Like other approaches, it maintains that mathematics is central to our modern society and a mathematically literate citizenry is essential to a country’s vitality; but it also shows the crucial importance of historical and epistemological issues in mathematics. The harmony of mathematics with other intellectual and cultural pursuits, moreover, makes the subject interesting, meaningful, and worthwhile. In this wider context, history and epistemology of mathematics have an additional important role to play in providing a fuller education of the community: not being a natural science, but a formal science closer to logic – hence to philosophy – mathematics has the ability inherent in itself to connect the humanities with the sciences. Societies, of course, value the sciences and want young people to be scientifically educated. A cultural approach to mathematics and science aims to show how these subjects are deeply connected to the humanities: integrating history and epistemology in mathematics education can make this connection visible to students. This is most important, especially today when there is much concern about the level of mathematics that students are learning and about their decreasing interest in mathematics, at a time when the need is rising for both technical skills and a broader education.

3. Focus and main themes of ESU-9

The ESU is more a collection of intensive courses than a conference for researchers. It is a place where teachers and researchers meet and work together. It is also a place where beginners, more experienced researchers and teachers present their teaching experience to the benefit of the participants and get a constructive feedback from them—and it refers to all levels of education, from primary school to tertiary education, including in-service teachers' training.

The programme and activities of ESU-9 are structured around the following *main themes*:

Theme 1: Theoretical and/or conceptual frameworks for integrating history and epistemology of mathematics in mathematics education;

Theme 2: History and epistemology in students and teachers mathematics education: Curricula, courses, textbooks, and didactical material of all kinds - their design, implementation and evaluation;

Theme 3: Original historical sources in teaching and learning of and about mathematics;

Theme 4: Mathematics and its relation to science, technology, and the arts: Historical issues and socio-cultural aspects in relation to interdisciplinary teaching and learning;

Theme 5: Topics in the history of mathematics education;

Theme 6: History of mathematics in Italy.

Emphasis is placed on empirical findings from actual classroom experiments and/or produced teaching & learning materials. Insightful theoretical ideas and/or historical analysis with visible didactical implications, however, are also welcome.

4. Activities during ESU-9

All activities should refer to the ESU-9 *main themes*. Its scientific program will be structured along these themes, consisting of a few *plenary lectures & a panel*, as well as, parallel sessions of *oral presentations, short communications* and *posters*, for participants, who want to speak about their own experience, or research. A major part of the programme, however, consists of *workshops*.

- There will be at most one *plenary lecture* per theme, normally conceived as an introductory lecture for related workshops.
- In the *panels*, participants will work together, well in advance, so that, during the panel session, there is a real discussion among them and/or with the panel coordinator.
- *Workshops* consist in studying a specific subject and having a follow-up discussion. The workshop organizer prepares, presents and distributes the historical/epistemological or pedagogical/didactical material, which motivates and orients the exchange of ideas and the discussion among the participants. Participants read and work on the basis of this material (e.g. original historical texts, didactical material, students' worksheets etc). Workshops will be scheduled in parallel sessions and will vary in duration (1.5 hours for workshops based on didactical – pedagogical material; 2 hours for workshops based on historical and/or epistemological material).
- *Oral presentations* will be allocated a 30-minute time slot each (25 minutes for presentation and 5 minutes for discussion), scheduled in parallel sessions. It is an activity in the spirit of a conventional research conference.
- Parallel sessions for 10-minutes *short oral communications* and *poster presentations*, as well as *exhibitions* of books and other didactical material will also be possible.

5. Target population

Participants are expected to be mostly (elementary or secondary school) teachers who wish to gain

new ideas on how they can integrate the history of mathematics into their teaching. However, there will be also university teachers and students, interested in the integration of the history and epistemology of mathematics into mathematics education, as well as, historians of mathematics, who may give a limited number of lectures and workshops to inform others about recent developments in their domain, and mathematicians with an interest in the relation between mathematics, its history and epistemology, and its role at present and in the past.

6. Time and place

Time: Monday, 18 July – Friday, 22 July, 2022

Place: Department of Mathematics of University of Salerno, Fisciano (SA).

Address: Via Giovanni Paolo II, Fisciano (Salerno)

Map of the campus: (being prepared)

Access: (being prepared)

About Salerno: Please visit <https://www.livesalerno.com/reasons-to-visit-salerno>

Travel Information and Visa requirements: (being prepared)

7. Official Languages

The official languages of ESU-9 are English, French and Italian.

More specifically:

- All plenary talks and panel discussions will be in English.
- It is preferable to organize Workshops in English. Nevertheless, workshop organizers who intend to organize their workshop in another official language are advised and encouraged to prepare copies in English of the material to be distributed to the participants (e.g. slides, worksheets etc). This will certainly increase participation, as well as, facilitate communication among participants.
- Oral presentations can be delivered in any of the official languages. However, for presentations not in English, presenters will be asked to use two sets of slides; one set in the language they are going to give their presentation, and one set in English.

8. Submission of proposals, **Extended deadlines**

9. 30 November 2021: deadline for submitting Abstracts of proposals for all types of activities.

10.31 December 2021: Notification of acceptance or not of the submitted proposals.

11.31 January 2022: Deadline for submission of revised abstracts.

Important: Please, use the Application Form (<https://esu9.unisa.it/proposal-submission/>) and send it in electronic form to esu9.sa@gmail.com

The members of the *Scientific Program Committee* (SPC) are reviewing the submitted abstracts. At this stage, acceptance of a proposal means that the proposed activity will be included in the ESU-8 Scientific Programme. However, this does not imply automatically that a full text based on this activity will be included in the ESU-9 Proceedings, which are going to be published after ESU-8. Full texts for inclusion to the ESU-9 *Proceedings* will be submitted after ESU-9 and will be further reviewed by members of the SPC at the usual international standards. For more details, see *Proceedings*.

12. Proceedings

Publishing the Proceedings of the ESU is also a major task. In fact, Proceedings of the previous ESU have become standard references in this area (cf. reference in footnote 1).

The Proceedings will be published after ESU-9, so that authors are given the opportunity to enrich their text as a result of the feedback they will gain during ESU-9.

Each submitted full text for a workshop, or an oral presentation will be reviewed by at least one member of the SPC at the usual international standards.

More details on the deadline for submitting full texts, their size, the format guidelines and the expected date by which the proceedings will be available and sent to all registered participants, will be announced in due course from the ESU-9 and HPM websites

<http://esu9.unisa.it>

<http://www.clab.edc.uoc.gr/hpm/meetings>

13. The web site

Making known ESU-9 worldwide, is a major task to be realized by the SPC. To this end, a web site is operating at <http://esu9.unisa.it>

This is going to be an efficient tool for providing updated information, allowing for **online registration**, submission of proposals and full texts, supporting the reviewing process, etc.

14. Programme

Plenary Lectures

Abraham Arcavi for Theme 1: Roles of the history of mathematics in the mathematical knowledge for teaching

Dominique Tournès for Theme 2: What history training for future mathematics teachers? Personal experiences and reflections

M. Rosa Massa-Esteve for Theme 3: The use of original sources in the classroom for learning mathematics

Michel Roelens for Theme 4: Algorithms before computers

Ana Milan Gasca for Theme 5: A hidden thread: ideas and proposals on children's mathematics education in history

Maria Teresa Borgato for Theme 6: The History of Mathematics in Italy through the ages: sources, correspondences, and editions

Special lecture

Pedro Palhares: Ethno + mathema + tics: The legacy of Ubiratan D'Ambrosio

Panel Discussion

Snezana Lawrence (UK) *coordinator*, **Jean Michel Delire** (Belgium), **Helena Durnova** (Czech Republic), **Garrod Musto** (UK): The role of history of mathematics in forming an image of mathematics among

students and general public.

15. Registration

(being prepared)

16. Conference fees

Early registration (before **February 28, 2022**): 220 Euro (170 Euro for students and school teachers)

Late registration (before 31 May 2022): 270 Euro (220 Euro for students and school teachers)

Registration will be closed on 31 May, 2022.

Participants who wish to register later should contact esu9.sa@gmail.com

The Organizers make every effort to support a limited number of participants coming from less developed and far away countries by partly waiving their registration fees. Though this has not been fixed yet, interested participants may contact Marta Menghini (marta.menghini@uniroma1.it).

The registration fee will cover, lunch for three days (Friday 19, Saturday 20 and Sunday 21 July), the Conference dinner, the Conference excursion (see *Excursion* below), and the ESU-9 proceedings in digital form.

17. Accommodation

(Being prepared)

18. Excursion

(Being prepared)

19. Final Overall Time Schedule

(Being prepared)

20. The (international) Scientific Program Committee (SPC)

Marta, Menghini, University Roma La sapienza, Italy (chair)

Évelyne, Barbin, University of Nantes, France (co-chair)

Roberto, Capone, University of Salerno, Italy (co-chair)

Michael, N. Fried, Ben-Gurion University of the Negev, Israel (co-chair)

Hélder, Pinto, University of Aveiro & Piaget Institute, Portugal (co-chair)

Francesco Saverio, Tortoriello, University of Salerno, Italy (chair of local committee)

Luis Carlos, Arboleda, Universidad del Valle, Cali, Colombia

Janet, Barnett, Colorado State University, USA

Aline, Bernardes, Federal University of the State of Rio de Janeiro, Brazil

Nathalie, Chevalarias, Lycée Jaunay-Marigny & IREM of Poitiers, France

Renaud, Chorlay, INSPE de Paris, Paris, France

Cecília, Costa, University of Trás-os-Montes e Alto Douro, Vila Real, Portugal

Teresa, Costa, Escola Secundária D. Maria II, Braga, Portugal

Adriano, Demattè, Liceo Rosmini, via Malfatti 2, 38122 Trento, Italy

Olivera, Đokić, University of Belgrade, Serbia

Abdellah, El Idrissi, École Normale Supérieure, Marrakesh, Morocco

Florence, Fasanelli, American Association for the Advancement of Science, USA
 Gail, FitzSimons, University of Melbourne, Australia
 Fulvia, Furinghetti, Dipartimento di Matematica dell'Università di Genova, Genova, Italy
 David, Guillemette, Université du Québec à Montréal, Canada
 Masami, Isoda, University of Tsukuba, Japan
 Ewa, Łakoma, Institute of Mathematics Military University of Technology Warsaw, Poland
 Snezana, Lawrence, Middlesex University, London, England, UK
 Po-Hung, Liu, National Chin-Yi University of Technology, Taichung, Taiwan
 Maria Rosa, Massa-Esteve, Universitat Politècnica de Catalunya. Barcelona, Spain
 Iran, Mendes, Federal University of Pará, Belém, Brazil
 Frédéric, Métin, University of Burgundy, Dijon, France
 Marc, Moyon, University of Limoges, Limoges, France
 Kostas, Nikolantonakis, University of Western Macedonia, Greece
 Antonio M., Oller-Marcén, Centro Universitario de la Defensa de Zaragoza, Spain
 Maurice, O'Reilly, Dublin City University, Ireland
 Johanna, Pejlare, Chalmers University of Technology and University of Gothenburg, Sweden
 David, Pengelley, New Mexico State University & Oregon State University, USA
 Luis, Puig, Universitat de València Estudi General, Spain
 Peter, Ransom, The Mathematical Association, UK
 Leo, Rogers, Independent Researcher, Oxford, UK
 Sebastian, Schorcht, Justus-Liebig-Universität, Giessen, Germany
 Man-Keung, Siu, University of Hong Kong, Hong Kong SAR, China
 Bjørn, Smestad, Oslo Metropolitan University, Oslo, & Volda University College, Volda, Norway
 Yi-Wen, Su, University of Taipei, Taiwan
 Constantinos, Tzanakis, University of Crete, Rethymnon, Greece
 Caterina, Vicentini, Liceo "Buonarroti" Monfalcone (GO), Italy
 Ysette, Weiss, Johannes Gutenberg-University Mainz, Germany
 Greisy, Winicki-Landman, California State Polytechnic University, USA.

21. The Local Organizing Committee (LOC)

Maria Giuseppina Adesso
 Roberto Capone
 Maria Rosaria Del Sorbo
 Oriana Fiore
 Fulvia Furinghetti
 Francesco Saverio Tortoriello

For further information, contact

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