First Announcement – Call for Papers

Synergies and **CO**nnections for the Future in STEM Education from a Mathematical [modeling] **PE**rspective **– SCOPE-Math**

ERME Topic Conference

22–25 September 2026, Julius-Maximilians-Universität Würzburg, Germany

www.scopemath.org

Scope and Rationale

Teaching, learning and assessment practices across all levels of mathematics education have undergone profound changes due to disruptive global events, rapid digitalization, and growing interconnectedness within STEM disciplines. At the same time, research priorities have increasingly shifted toward the exploration of mathematics within interdisciplinary STEM contexts—particularly through the lens of mathematical modeling.

The SCOPE-Math conference aims to provide an in-depth space for discussion, collaboration and exchange among researchers who work at the intersections of mathematics education, STEM education, modeling, digitalization, sustainability, and teacher professional development. It brings together participants who would typically contribute to several CERME Thematic Working Groups (notably TWG 6 and 26), as well as researchers from outside the ERME community.

The conference theme, “Seeking connections and synergies for the future in STEM education from a mathematical modeling perspective”, reflects the need for timely and responsive research that acknowledges both the potential and the limitations of mathematical models in addressing educational, technological, and societal challenges in the coming decades.

Call for Papers

We invite theoretical, methodological, empirical, and developmental research papers as well as poster proposals related to the four main conference themes. These themes will also guide the structure of the conference working groups and their intended scholarly outcomes.

Theme 1: ***Digitalization in Disruptive Times***

Mathematical modeling is deeply embedded in societal and scientific processes—often invisibly so. Increasingly powerful digital technologies, and more recently AI-driven tools, shape how models are created, interpreted, and acted upon. Contributions may address:

- The role of mathematical modeling within STEM education in times of disruptive technological change
- The influence of AI and digital resources on modeling processes in teaching and learning
- Ethical, inclusive and critical perspectives on the use of digital modeling tools
- Conceptual or practical approaches to deepen understanding of digitalized modeling in classroom and out-of-school STEM contexts

Theme 2: ***Aspects of Sustainability (Education for Sustainable Development – ESD)***

Global challenges require mathematical and STEM-based knowledge for informed decision-making. Contributions may address:

- The role of mathematics and modeling within ESD across school levels
- Competencies to understand, evaluate and critique sustainability-related models
- Interdisciplinary STEM practices addressing socio-ecological systems
- Classroom practices that foreground sustainability through modeling

Theme 3: ***Integrity of Mathematics in STEM***

This theme focuses on keeping mathematics visible, meaningful and conceptually grounded within integrative STEM settings. Contributions may address:

- The positioning of mathematics within STEM and STEAM curricula
- Mathematical modeling as a driver for STEM integration
- Design and evaluation of innovative STEM assessment practices
- Conceptual frameworks clarifying when mathematics is foregrounded
- STEM teacher preparation and professional learning

Cross-Cutting Theme: ***Mathematical Modeling in STEM***

We especially welcome contributions bridging multiple themes, including:

- Development of modeling competencies across STEM fields
- Technology-enhanced modeling in authentic STEM problem settings

- Curriculum design integrating modeling
- Professional development for modeling-based STEM teaching
- Students' opportunities to analyse and critically examine real-world STEM problems

Submission Guidelines

- Paper proposals: 8 pages
- Poster proposals: 2 pages
- Submissions must follow the CERME template (available at www.scopemath.org).
- Peer review will involve author-to-author reviewing.
- Acceptance decisions will be made by the Organising Committee in consultation with the IPC.

Conference Format and Activities

The programme includes:

- Early Career Researchers' Day with Workshops and Roundtables
- Thematic Working Groups
- Plenary talks and panel discussions
- Poster session
- Cultural visit, walking tour, and conference dinner

Proceedings and Publications

Proceedings will be published on HAL Archive. Additional opportunities include:

- Journal special issue
- ERME Series edited volume
- Contributions to ERME TWG webinar series

Organising Committees

Organising Committee (OC): Hans-Stefan Siller, Michelle Stephan, Jonas Ärlebäck

International Program Committee (IPC): Jana Trgalova, Berta Barquero, Susanna Carreira, Britta Eyrich Jessen, Katrin Vorhölter, Carina Spreitzer, Christian Andersson

Local Organising Committee (LOC): Hans-Stefan Siller, Wolfgang Weigel, Alissa Fock, Nina Unshelm, Deborah Lehrmann, Norbert Noster, Christian Heinz, Janina Just, Angela Bezold, Kristina Appell

Important Dates

22.02.2025	Deadline for the submission of full papers - Closing Pre-Registration
03.05.2026	Deadline for the submission of revised full-text papers
31.05.2026	Closing of early bird registration