

CERME 14: Thematic Working Group 26 Mathematics in the Context of STEM Education

Leader: Michelle Stephan (USA), michelle.stephan@charlotte.edu

Co-leaders: Clelia Cascella (Italy), Nelleke Den Braber (Netherlands), M. Sencer Corlu (Turkey/Qatar)

Scope and focus of the Working Group

Working group 26 first assembled at CERME 11 as a forum for STEM education from a mathematical perspective. STEM education includes a variety of subjects in the fields of science, technology, engineering and mathematics. Since the disciplines of science, technology, engineering, and mathematics were conjoined into the ubiquitous STEM acronym teachers, researchers, policy makers, and funders have worked to integrate them. In the process of attempting to integrate the four disciplines, often mathematics gets relegated to the role of a mere tool for learning the S, T, and E. Thus, each paper or poster should address the role of mathematics in STEM or STEAM as appropriate. The process of integration can include the introduction of new instructional materials and practices, typically through curriculum development, publication of supporting materials, and professional development. The challenge of integrating STEM also lies at the nexus of teacher preparation and in-service teacher professional development.

Call for papers and poster proposals

With this TWG, we invite participants to submit papers based upon a variety of current STEM-related issues. *All papers should address the role of mathematics in STEM or STEAM.*

- Theoretical perspectives on the nature of STEM teaching and learning as interdisciplinary, integrated, and/or transdisciplinary or other ways to conceptualize STEM
- Empirical papers that present clear evidence of successes/failures in using mathematics to integrate/design STEM education
- Empirical papers that present strong findings about successes/failures in designing for STEM teacher professional development (either pre- or in-service teachers)
- Theoretical and empirical papers that address issues of equity/equality and ethics in STEM teaching and learning
- The role of AI, data science and other newer technological fields in STEM teaching, learning, and/or assessing both from a theoretical and empirical perspective
- Cross cultural collaborations and approaches to STEM
- What does the “A” in STEAM mean, particularly strong theoretical and/or empirical papers
- Collaborations with community organizations and/or companies to design for STEM learning
- Theoretical/empirical papers about how mathematics is assessed in STEM learning

Important to consider: *This year’s venue is not as large as usual and there will be a smaller number of attendees possible. In addition, the Organizing Committee has decided that reviewers can no longer suggest that a paper submission be considered as a poster. Thus, if you are submitting a paper, make sure it represents a strong program of research and is written using the paper guidelines. Submit findings from preliminary projects as a poster. Using the Paper/Poster CERME template is not an option and may result in rejection.*

Papers and poster proposals *must use the CERME template*, and conform to the guidelines at <https://www.cerme14.it/>. CERME 14 uses an electronic submission system <https://www.conftool.pro/cerme14/>. The authors submit the initial version of their paper on the website (uploading it both as a .doc and a .pdf file, and providing the required information, in particular the TWG number).

Reviews and decisions

Each paper will be peer-reviewed by two persons from among those who author papers to this TWG. *All co-authors* can be asked to review up to two papers. The group leaders will decide about the acceptance of papers and posters.

Important dates

- See <https://www.cerme14.it/> for important dates