

**SPECIAL TRACK PROPOSAL**

**Title:** Instrumental orchestrations of digital tools to improve STEM learning

**Key Organizer(s):**

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**Description and significance of the Special Track:**

It is a fact that “Digital technologies offer powerful tools that support teaching, learning, and education in general”. Although there are various educational resources for STEM learning, many teachers take up little educational benefit from them, despite their potential to help create learning environments with greater student engagement, stimulants and with intellectual challenges (e.g., epistemic learning). These give rise to a problem for researchers in education, in particular in science, technology, engineering, and mathematics (STEM) education: how can teachers orchestrate these tools to improve students’ learning in STEM areas? Recently several studies have appeared showing how digital tools can be used and orchestrated to improve the quality of students learning, in particular improving epistemic learning. Instrumental orchestration is a theoretical approach to frame the use of ICT in educational contexts by focusing on teachers’ educational practices. Although this theoretical framework has developed in the field of mathematics education, we think it can be used in the framework of STEM education.

However, this area of research is still recent and there are many aspects to consider and clarify in order to make it possible in a near future for teachers to take effective advantage of digital tools for student epistemic learning through instrumental orchestration.

With this special track we expect to collect some research experiences using digital tools in STEM teachers’ practices orchestration oriented to enhance students learning, namely their epistemic agency and epistemic practices.