As technology and digital resources have become ubiquitous in mathematics education research and practice, it is time to examine the particular ways that digital technology is affecting the different knowledge domains. It is clear that the discerning use of technology requires a deeper understanding of how the mathematics shapes and is shaped by the technology. This prompts a rethinking of curriculum hierarchies and closer examination of the relationship between technological and non-technological approaches.

**Rationale of the Conference**

The CERME conferences in the last 20 years have revealed how research on technology has evolved from its early focus on interactions between mathematics and students, to involve a broader dialectic with theories and, more recently, aspects relating to resource and task design alongside the concepts of teachers’ professional knowledge and practice. Inspired by the contributions to the Thematic Working Groups 15 and 16 in the last CERME 10 in Dublin, which highlighted the diversity of current research and its overlaps with other TWG themes, the ETC 5 MEDA ‘Mathematics Education in the Digital Age’ is an interdisciplinary, multifaceted collaboration that will bring together participants who would normally attend a range of CERME Thematic Working Groups and will provide the opportunity for further in-depth discussion and debate. We propose the following three themes:

**Theme 1 Mathematics teacher education and professional development in the digital age**

Theme 1 will focus on how the digital world has impacted on mathematics teacher education (pre-service and in-service); professional development and teachers’ professional growth; teachers’ professional development practices, collaboration and communities of practice; models and programmes of professional development (contents, methods, and impacts); and the professional development of teacher educators and academic researchers.

**Theme 2 Mathematics curriculum development and task design in the digital age**

Theme 2 will address issues related to digital curriculum materials, resources (including those using digital technology) and e-textbooks with a focus on their design, appropriation, use, and wider dissemination.

**Theme 3 Theoretical perspectives and methodologies/approaches for researching mathematics education in the digital age**

Theme 3 will address how different theories shape research in this field and how they can possibly be combined in a synergic way to address the complexity of teaching and learning processes with digital technology, by providing a particular insight into: the relationship between uses of technology and the development of students’ mathematical knowledge; the role of teachers in a technology-rich environment; and teachers’ professional development needs, for example, concerning task design.
Cross-theme Relationships

Whilst we propose these three themes to support more focused work during the conference, we are acutely aware of the overlaps and relationships between all three. Consequently, we will also work to integrate these themes by scheduling sessions during the conference for the separate groups to come together.

Keynote Speaker

Dame Professor Celia Hoyles, UCL Institute of Education, London

Mathematics Education in the Digital Age: Promise and Reality

In this talk, I will present my vision of what mathematics education in the digital age might comprise in the interests of promoting a broader engagement with mathematics. As a strategy, I will revisit the themes I presented in my ICME Keynote in 2008 on the transformational potential of digital technology use by teachers and learners, and reflect on developments in the educational landscape in the intervening decade through the lens of research and curriculum development.

Proceedings and Publications

Accepted papers, posters and results of workshops will be published as peer reviewed digital proceedings on the HAL Archive (https://hal.archives-ouvertes.fr/).

Selected and invited extended papers will be published in a new title “Mathematics Education in the Digital Age”, to be published after the conference. This book will be shaped by the collaboration, cooperation and communications that take place during the conference and it will aim to draw together the conference themes in a text that has relevance for teachers of mathematics and those who support their wider professional learning.

Ways of working during the conference

During the conference, our working sessions will be organised around the following four themes, which emerged as those most pertinent to our conference theme:

- Networking theories in mathematics education in relation to technology – what are the challenges and why is it so difficult to do this?
- Task and curriculum design – from small scale to large scale contexts.
- Task and curriculum implementations - what happens in real classrooms?
- Implications for pre- and in-service teacher development.

Rather than you choosing one theme and remaining with this theme for the duration of the conference, we have organised the programme so that ALL participants will hear talks and work on ideas that concern all four themes.

During the conference, each accepted paper will be presented through either a 5-minute ‘lightning talk’ to give its key ideas or a longer 15-minute presentation that relates strongly to one of the four themes.
Following these talks, each working group will work on some key questions relating to the appropriate theme, at which you will have the opportunity to contribute your work/ideas/experiences, as relevant.

A major outcome that is planned for the conference is the production of a new title tentatively called, "Mathematics Education in the Digital Age: Learning, Practice and Theory". Consequently, we are building time into the programme for you to work with old and new colleagues to formulate initial chapter proposals for this book in accordance with the four themes above that integrate your own research interests and experiences.

There will be a special poster session.

An award for the best paper by an early career researcher will be selected. An ‘early career researcher’ is a participant who finished his PhD no longer than three years ago.

The deadline for submissions of papers and posters is already over. However, see the paragraph “Proceedings and Publications”.

Social Events

There will be a conference dinner Thursday evening. We recommend visiting Copenhagen before or after the conference.

Planned programme structure

<table>
<thead>
<tr>
<th>Time</th>
<th>Wednesday, 05.09.18</th>
<th>Thursday, 06.09.18</th>
<th>Friday, 07.09.18</th>
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<tbody>
<tr>
<td>9.30</td>
<td></td>
<td>Session 2: Task and curriculum design – big and small</td>
<td>Session 6: Developing book chapter proposals</td>
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<td>11.00</td>
<td>Break</td>
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<tr>
<td>11.30</td>
<td>Registration begins</td>
<td>Session 3: Task and curriculum implementation – what happens in real classrooms</td>
<td>Summary session: Celia Hoyles and Hans-Georg Weigand</td>
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<tr>
<td>Time</td>
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<tr>
<td>12.30</td>
<td>Announcement of the Award for best paper from an Early Career Researcher Closing ceremony</td>
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<tr>
<td>13.00</td>
<td>Lunch and registration</td>
<td>Lunch</td>
<td>Farewell lunch</td>
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<tr>
<td>14.00</td>
<td>Welcome, aims and objectives and meeting each other</td>
<td>Session 4: Thinking, working and writing</td>
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<tr>
<td>14.30</td>
<td>Opening plenary by Dame Professor Celia Hoyles, UCL Institute of Education, UK</td>
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<td>15.30</td>
<td>Break</td>
<td>Break</td>
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<tr>
<td>16.00</td>
<td>Session 1: Theories and networking theories</td>
<td>Session 5: Implications for teacher development</td>
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<td>17.30</td>
<td>Poster presentations and informal social event</td>
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<tr>
<td>19.00</td>
<td>Conference Dinner</td>
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**Venue:**
The opening of the conference will be at Grand Lecture Theatre
Faculty of Science
University of Copenhagen
Bülowsvej 17
DK-1870 Frederiksberg C

**Accommodation and how to find us:**
For budget accommodation try one of
- DANHOSTEL COPENHAGEN CITY:
- CABINN Scandinavia Hotel
- CABINN Express Hotel
- Wakeup Copenhagen

Travel directions and further hotels can be found on the [webpage](#)
Members of the International Program Committee (IPC):

Chair of the IPC:  Hans-Georg Weigand (Germany)
Co-chairs:  Alison Clark-Wilson (UK)
Ana Donevska-Todorova (Germany)
Eleonora Faggiano (Italy)
Niels Grønbæk (Denmark) – Chair of the LOC
Jana Trgalova (France)
Members:  Paul Drijvers (Netherlands)
Andreas Eichler (Germany) – member of the ERME board
Ghislaine Gueudet (France) – member of the ERME board
Colette Laborde (France)
Mirko Maracci (Italy) – link with TWG 17 (CERME10)
Sebastian Rezat (Germany) – link with TWG 22 (CERME10)
Michal Tabach (Israel)
Melih Turgut (Turkey)
Stefan Zehetmeier (Austria) – link with TWG 18 (CERME10)

Members of the Local Organising Committee (LOC):

Niels Grønbæk – Chair of the LOC
Henrik Bang
Louise Meier Carlsen
Uffe Jankvist
Claus Larsen
Morten Misfeldt
Charlotte Krog Skott