

ADVANCED SPACE-TIME SOLUTION METHODS: THEORY, SOLVERS AND APPLICATIONS

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ABSTRACT

This minisymposium invites contributions on cutting-edge developments in the numerical approximation of time-dependent partial differential equations. The focus is on innovative high-order space-time discretization techniques, including finite element methods and isogeometric analysis, as well as domain decomposition and parallelization strategies, and advanced iterative solvers and preconditioners.

The minisymposium aims to foster exchange between theoretical advances and real-world applications, bringing together researchers interested in pushing the boundaries of large-scale computational science.

Confirmed speakers:

1. Davide Palitta (Università di Bologna): *Towards efficient matrix equation-based solvers for nonlinear space-time problems.*
2. Marcella Bonazzoli (Inria and Institut Polytechnique de Paris): *Unmapped tent pitching for the heterogeneous wave equation*
3. Matteo Ferrari (Univeristà di Pavia): *A space-time sparse-grid method for the wave equation*
4. Martin Gander (University of Geneva): *Why the time parallelization of optimal control problems is different from classical PinT.*
5. Bernhard Endtmayer (Leibniz University Hannover): *Goal-driven space-time hp adaptivity for time-dependent problems*
6. Nils Margenberg (Otto von Guericke University Magdeburg): *Time-Parallel Schur-Complement Newton-Krylov Solvers for Tensor-Product Space-Time Discretizations of the Navier-Stokes Equations*

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7. Stefano Massei (Università di Pisa): *Exponential sums preconditioners for structured space-time discretizations*
 8. Sander Rhebergen (University of Waterloo): *A space-time discontinuous Galerkin method for advection-dominated flow.*
 9. Giancarlo Sangalli (Università di Pavia): *Isogeometric Space-Time solvers.*