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RECENT ADVANCES IN ITERATIVE AND PRECONDITIONING STRATEGIES FOR COMPLEX MULTIPHYSICS PROBLEMS TRACK NUMBER 300 - MULTISCALE AND MULTIPHYSICS SYSTEMS

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ABSTRACT

Many of the real time applications are multiphysics in nature and are characterized by the presence of disparate spatial and temporal scales. In many multiphysics applications we are interested in the evolution of long time scales and in order to follow the relevant physical time scales of interest and not to be constrained by numerical accuracy and stability requirements, implicit/semi-implicit methods are typically required. However, with the implicit methods the presence of disparate scales in the system lead to linear systems of high stiffness and hence require robust, scalable linear solvers/preconditioners to simulate them effectively. This minisymposium focuses on the recent advances in iterative and preconditioning strategies for complex multiphysics applications. This minisymposium attract researchers at the forefront of

- Multigrid, multilevel and block preconditioners for multiphysics applications
- Novel iterative solvers/preconditioners tailored towards emerging HPC architectures
- Theoretical analysis of preconditioners/solvers for multiphysics applications
- Solvers/preconditioners for high-order methods/novel discretization techniques applied to multiphysics problems