

ADVANCES IN ITERATIVE METHODS FOR SOLVING COUPLED PROBLEMS

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ABSTRACT

Coupled problems are ubiquitous across many applications in computational science and engineering. The coupling between different physical phenomena and spatio-temporal scales can give rise to strongly non-linear, non-convex, non-smooth, or highly ill-conditioned large-scale systems of equations, which require efficient coupling and solution strategies. In this minisymposium, we discuss the state-of-the-art and emerging trends in designing efficient and robust iterative methods for solving such systems of equations on modern computing architectures.

We invite contributions related, but not limited to:

- Preconditioning strategies
- Domain decomposition and multilevel methods
- Field-split methods
- Acceleration techniques
- Novel coupling strategies
- Parallel algorithms and high-performance computing
- AI enhanced numerical methods