

Adaptive computational techniques for parametrized PDEs

(MS submission code 19)

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We deal with efficient methodologies for the solution of parametrized PDEs, which are receiving a growing interest in several fields such as optimization, control and inverse problems.

We focus on parameter space reduction and parameter space sampling techniques, efficient parametrization of domains and shapes, reduced order methods (POD, RB, PGD,...) and their certification of accuracy and stability, computational splitting procedures such as offline-online computing, as well as adaptive techniques for the computation of stability factors, but also on greedy methods. Special interest is devoted to adaptive methods for nonlinear parametrized problems, especially dealing with loss of uniqueness for the solution, bifurcations and instabilities. Another important aspect is the parameter space reduction when dealing with a great number of parameters, operated for example by active subspaces.