

Talk announcement

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Robust preconditioners for optimality systems using Isogeometric Analysis

In this talk we consider optimization problems in function space with objective functionals of tracking type and elliptic partial differential equations (PDEs) as constraints, like inverse problems for elliptic PDEs or optimal control problems with elliptic state equations. Such problems typically involve an additional regularization/cost term depending on a regularization/cost parameter. In a recent paper [?] it has been shown that parameter-robust preconditioners for the associated optimality system are available, if the PDE-constraint is treated in strong form rather than in standard weak form. This strategy can be carried over to discretized optimality systems and requires approximation spaces of correspondingly smooth functions. While C^1 finite element spaces were used in [?], we will report on the advantages of Isogeometric Analysis for preconditioning discretized optimality systems.