

Preconditioners for adaptive spaces or spaces for preconditioners?

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Adaptive methods for the numerical solution of PDEs require constructions of discrete spaces in which the resolution varies in the domain of interest. In IGA this has been achieved by breaking the global tensor product structure of multivariate splines as shown by many different spaces such as hierarchical splines and T-spline among others. The available spaces have the desired approximation properties, but they require new or adapted preconditioning techniques, examples for the mentioned spaces can be found in [1, 2, 3].

The talk will present a different take at the construction of the discretization space going backward: from preconditioning techniques for Krylov methods such as fast-diagonalization[4] and subspace-correction[5] to a discretization space for PDEs.

References

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