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A h-p Algebraic Multigrid Method for Discontinuous Galerkin Methods

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Recently the application of discontinuous Galerkin methods to elliptic problems has gained renewed interest. Consequently, efficient solution methods for the arising discrete problem are a field of active research.

In this talk an algebraic multigrid method for discontinuous Galerkin discretizations will be discussed. The coarsening approach used is a hybrid one. For the first coarse level an auxiliary (less complex) function space is used, namely, the space of piecewise linear functions. At this level the coarsening scheme is switched and aggregation algebraic multigrid is used to construct the other coarser levels.