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Analysis of Segmental Refinement Multigrid (SRMG)

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We provide a justification for the fully uncoupled solution of subdomains in SRMG in the simplified setting using a spectral discretization on the square. We estimate all constants, and provide an explicit bound on the halo size necessary at each mesh level in order to reduce algebraic error to the scale of discretization error with one full multigrid cycle, or textbook multigrid efficiency.

1