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*A multigrid preconditioner for an integral equation of the first kind for acoustics*

We present a multigrid strategy for an integral equation of the first kind arising in acoustics. Such integral equations arise naturally, for example, in the study of screen scattering problems. Unfortunately, the integral operator involved has a spectrum whose behaviour is not directly conducive to multigrid strategies. We present an extension of ideas to circumvent this problem in the positive-definite case due to Bramble et al., and demonstrate how their use leads to a convergent method. We also present some numerical experiments