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An overview of multilevel methods with aggressive coarsening and massive polynomial smoothing. (English) [Zbl 1327.65058](#)

ETNA, Electron. Trans. Numer. Anal. 44, 401-442 (2015).

Summary: We review our two-level and multilevel methods with aggressive coarsening and polynomial smoothing. These methods can be seen as a less expensive and more flexible (in the multilevel case) alternative to domain decomposition methods. The polynomial smoothers employed by the reviewed methods consist of a sequence of Richardson iterations and can be performed using up to n processors, where n is the size of the considered matrix, thereby allowing for a higher level of parallelism than domain decomposition methods.

MSC:

[65F10](#) Iterative numerical methods for linear systems

[65M55](#) Multigrid methods; domain decomposition for initial value and initial-boundary value problems involving PDEs

Cited in 1 Review
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Keywords:

[multigrid](#); [aggressive coarsening](#); [optimal convergence result](#)

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