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Doreen De Leon* (doreend1@csufresno.edu). *A Wavelet Multigrid Method Using Symmetric Biorthogonal Wavelets*. Preliminary report.

The wavelet multigrid method uses a standard wavelet transform and Schur complements to obtain the necessary coarse grid, interpolation, and restriction operators. A factorized sparse approximate inverse improves the efficiency of the resulting method. In this presentation, we discuss a modification to the method using symmetric biorthogonal wavelet transforms to define the requisite operators. Numerical examples are presented to demonstrate the effectiveness of this modified wavelet multigrid method for diffusion problems with highly oscillatory coefficients, as well as advection-diffusion equations in which the advection is moderately dominant. (Received September 13, 2012)