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Tzanio V. Kolev (kolev1@llnl.gov), P.O. Box 808, L-561, Livermore, CA 94551, **Jinchao Xu** (xu@math.psu.edu), Department of Mathematics, Penn. State University, University Park, PA 16802, and **Yunrong Zhu*** (zhuyunr@isu.edu), 921 S. 8th Ave., Stop 8085, Pocatello, ID 83209-8085. *Multilevel Preconditioners for Reaction-Diffusion Problems with Discontinuous Coefficients.*

We consider multilevel preconditioners for solving the linear systems arising from the linear finite element approximation of the reaction-diffusion problems, where both diffusion and reaction coefficients are piecewise constant functions. We discuss in detail the influence of both the discontinuous reaction and diffusion coefficients to the performance of the classical BPX and multigrid V-cycle preconditioner. (Received February 23, 2015)