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Spatial Besov Regularity of Stochastic Partial Differential Equations on Lipschitz Domains

We study the spatial regularity of the solutions of a certain class of stochastic evolution equations on bounded Lipschitz domains. Motivated by the question which order of approximation can be achieved by *adaptive* numerical schemes we consider the scale $B_{\tau}^s(L_{\tau}(\mathcal{O}))$, $1/\tau = s/d + 1/2$, of Besov spaces. We combine results on stochastic partial differential equations on Lipschitz domains in terms of weighted Sobolev spaces provided by KIM (1) with methods used in DAHLKE, DEVORE (2), where the Besov regularity of (deterministic) elliptic equations on Lipschitz domains is investigated with the help of weighted Sobolev norm estimates and wavelet expansions of the solution.

This is joint work with S. DAHLKE, S. KINZEL, F. LINDNER, T. RAASCH, K. RITTER, R. L. SCHILLING and is part of the project 'Adaptive Wavelet Methods for SPDEs' within the Priority Program 1324 of the Deutsche Forschungsgemeinschaft (project no. 5).

References

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- (2) S. Dahlke, R. DeVore, Besov regularity for elliptic boundary value problems. *Comm. Partial Differential Equations* **22(1&2)**, 1–16, 1997.