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Stochastic two-scale convergence in the mean and applications. (English) Zbl 0808.60056
J. Reine Angew. Math. 456, 19-51 (1994).

We study stochastic homogenization of partial differential equations generalizing the method of two-scale convergence. We extend two-scale convergence from the periodic setting to the more general stochastic setting. We establish several compactness and convergence results that are important tools in the solution of homogenization problems for partial differential equations. Applying these results to several examples, we then obtain generalizations of previous results concerning classical linear problems in stochastic homogenization as well as in problems involving monotone operators and nonlocal limits. All these results are obtained with no ergodicity hypotheses on the underlying measures.

Reviewer: [A.Bourgeat \(Saint-Etienne\)](#)

MSC:

60H15 Stochastic partial differential equations (aspects of stochastic analysis) Cited in **53** Documents

Keywords:

stochastic homogenization; method of two-scale convergence; compactness and convergence results; monotone operators; nonlocal limits

Full Text: [Crelle](#) [EuDML](#)