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Mathematics > Analysis of PDEs

equations

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(Submitted on 21 Jul 2011)

error of \$\ord{\nu^\alpha}\$\,.

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An averaging method is applied to derive effective approximation to the following singularly perturbed

nonlinear stochastic damped wave equation \nu u\_{tt}+u\_t=\D u+f(u)+\nu^\alpha\dot{W} on an open

characterising the singular perturbation, and \$\nu^\alpha\$\,, \$0\leq \alpha\leq 1/2\$\,, parametrises

the strength of the noise. Some scaling transformations and the martingale representation theorem

yield the following effective approximation for small  $\lambda u_t = D u_f(u) + u^{\lambda}(u) + U t a n$ 

bounded domain \$D\subset\R^n\$\,, \$1\leq n\leq 3\$\,. Here \$\nu>0\$ is a small parameter

Averaging approximation to singularly

perturbed nonlinear stochastic wave

## Submission history

From: Yan Lv [view email] [v1] Thu, 21 Jul 2011 07:15:14 GMT (17kb)

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