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Sergey V Lototsky* (lototsky@usc.edu), Department of Mathematics, USC, 3620 S Vermont Av., KAP 108, Los Angeles, CA 90808. *Linear filtering of stochastic evolution equations.*

Consider a stochastic evolution equation (hyperbolic or parabolic). Assume that the equation is diagonalizable (that is, can be solved by the Fourier series method) and that the coefficients in the equation are unobservable Gaussian processes. If the solution of the equation is observable, then the first N Fourier coefficients of the solution become the observation process in a conditionally Gaussian filtering model. The filter estimate of the coefficients is then constructed using a generalized Kalman-Bucy filter, and the variance of the filter is shown to converge to zero as N grows to infinity. (Received February 24, 2011)