Mathematics > Optimization and Control

Carleman Estimate for Stochastic Parabolic Equations and Inverse Stochastic Parabolic Problems

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In this paper, we establish a global Carleman estimate for stochastic parabolic equations. Based on this estimate, we solve two inverse problems for stochastic parabolic equations. One is concerned with a determination problem of the history of a stochastic heat process through the observation at the final time T, for which we obtain a conditional stability estimate. The other is an inverse source problem with observation on the lateral boundary. We derive the uniqueness of the source.

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