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Almost sure tracking for linear discrete-time periodic systems with independent random perturbations. (English) [Zbl 1152.93482](#)

[Appl. Math. E-Notes 6, 33-40 \(2006\)](#).

Summary: In this paper we solve the tracking problem for linear discrete-time periodic systems with independent random perturbations in Hilbert spaces. Under stabilizability and either uniform observability or detectability conditions we find the optimal control which minimizes the cost function associated to this problem. We extend the results from *A. Halanay, T. Morozan and C. Tudor* [*Int. J. Control* 47, No. 1, 381–392 (1988; [Zbl 0642.93068](#))] to the general case where the stochastic perturbations act both on the state and control variables. We also establish the connection between the uniform observability and the tracking problem.

MSC:

- [93D15](#) Stabilization of systems by feedback
- [93C55](#) Discrete-time control/observation systems
- [93E20](#) Optimal stochastic control
- [93C05](#) Linear systems in control theory

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