

INFINITE DIMENSIONAL UNCERTAIN DYNAMIC
SYSTEMS ON BANACH SPACES AND THEIR OPTIMAL
OUTPUT FEEDBACK CONTROL

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Abstract

In this paper we consider a class of partially observed semilinear dynamic systems on infinite dimensional Banach spaces subject to dynamic and measurement uncertainty. The problem is to find an output feedback control law, an operator valued function, that minimizes the maximum risk. We present a result on the existence of an optimal (output feedback) operator valued function in the presence of uncertainty in the system as well as measurement. We also consider uncertain stochastic systems and present similar results on the question of existence of optimal feedback laws.

Keywords: partially observed, uncertain systems, stochastic systems, operator valued functions, feedback operators, existence of optimal operators in the presence of uncertainty.

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