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## **Control of Some Linear Stochastic Equations in a Hilbert Space Driven by a Fractional Brownian Motion with a Quadratic Cost**

A finite time horizon linear-quadratic control problem for some infinite dimensional controlled stochastic equations with a fractional Brownian motion is formulated and solved. The optimal control is the sum of the well known linear feedback control for the associated deterministic linear quadratic control problem and a prediction of the response of the adjoint optimal system to the future fractional Brownian motion. Some examples of linear controlled stochastic partial differential equations including those with only boundary control and noise are given.