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*Control of First-Order Matrix Sylvester system.*

In this talk, we shall be concerned with the first order non-homogeneous Sylvester system of the form

T'(t) = A(t)T(t) + T(t)B(t) + C(t)U(t)D*(t)

Y(t) = L1(t)T(t)L2*(t)

Where the matrices involved are of appropriate dimensions and are continuous on R, we address question related to input–output (zero state) behaviour of the linear system, and the minimum realization question of a specified transfer function. Under smoothness conditions we discuss controllability of the system and then present completely controllable and completely observable of the Sylvester System. We address questions related to minimal realization criteria in terms of controllability and observability. The results presented in this talk are more general and include the classical results as particular case. (Received January 13, 2011)