

A Criterion for Stability of Nonlinear Time-Varying Dynamic System

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Abstract: In this paper, based on the assumption that both the leading principal submatrix of r -order and its complementary submatrix in $A(t)$ have eigenvalues with only negative real parts, we establish a criterion for the stability of a class of nonlinear time-varying dynamic system $dx/dt = A(t)x + f(t, x)$. Also a feasible method for decomposition and aggregation of large-scale system is provided. Moreover, we shall show the efficiency of the presented criterion by a numerical example.

Keywords: *Vector Liapunov function; nonlinear time-varying dynamic system; stability of system.*

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