Solution of the Problem of Constructing Liapunov Matrix Function for a Class of Large Scale Systems

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Received: February 15, 2000; Revised: March 25, 2001

Abstract: New sufficient conditions for the Liapunov stability of a class of large scale systems described by ordinary differential equations are established. In all cases we proposed a new construction for matrix-valued Liapunov function and the objective is the same: to analyze the stability of large scale systems (nonautonomous and autonomous) in terms of sign definiteness of specific matrices. In order to demonstrate the usefulness of the presented results several examples are considered.

Keywords: *Large scale systems; Liapunov function construction; stability; asymptotic stability; nonautonomous oscillator.*

Mathematics Subject Classification (2000): 34D20, 93A15, 93D05, 93D30.