

**APPLICATION OF M-MATRICES IN
CONSTRUCTION OF EXPONENTIAL ESTIMATES
FOR SOLUTIONS TO THE CAUCHY PROBLEM FOR
SYSTEMS OF LINEAR DIFFERENCE AND
DIFFERENTIAL EQUATIONS**

N. V. Pertsev

We construct a family of exponential estimates for solutions to the Cauchy problem for systems of linear difference and ordinary differential equations and differential equations with aftereffect whose matrices are of a special form. We use the monotone method and properties of nondegenerate M-matrices. We also study some specific examples of systems of equations.

Key words and phrases: systems of linear difference and differential equations, systems of linear differential equations with aftereffect, exponential stability, exponential estimates, nonnegative matrices, nondegenerate M-matrices, monotone method.

Pertsev Nikolaj Viktorovich

Omsk Division of
Sobolev Institute of Mathematics,
Omsk, 644099 Russia.
E-mail: homlab@ya.ru

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