Optimal recovery of linear ordinary differential equations system solutions with self-adjoined matrix of constant coefficients and simple eigenvalues

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We study the problem of optimal recovery of the linear differential equations system solutions from inaccurate data. We have solutions of the system at times t=0 and t=T>0 given with the errors d_0 and d_T in the Euclidean norm. An optimal method of recovery of the solution at time moment $t : 0 < t < T$ is obtained, and the error of optimal recovery is calculated.