

## Modified Pade regulator for nonlinear SDC systems on a finite time interval

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**Abstract:** On several classes of nonlinear dynamic problems with a parameter the possibility for constructing parametric families of solutions that arise in control theory on the basis of the Padé approximation (PA) is shown using the asymptotic expansions for small and large values of the parameter and finite-dimensional optimization algorithms and also by taking into account the characteristics of the asymptotics on which the PA is based. The possibility for increasing the accuracy of approximations and the enhancement of the interpolation and extrapolation properties of one-point and two-point PAs in comparison with asymptotic approximations is demonstrated.

**Keywords:** SDRE, finite time interval, parameter, small time step, Pade approximation

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