

عنوان مقاله:

A robust uniformly convergent scheme for two parameters singularly perturbed parabolic problems with time delay

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خلاصه مقاله:

A singularly perturbed time delay parabolic problem with two small pa-rameters is considered. The paper develops a finite difference scheme that is exponentially fitted on a uniform mesh in the spatial direction and uses the implicit-Euler method to discretize the time derivative in the temporal direction in order to obtain a better numerical approximation to the solu-tions of this class of problems. We establish the parameter-uniform error estimate and discuss the stability of the suggested approach. In order to demonstrate the improvement in terms of accuracy, numerical results are also shown to validate the theoretical conclusions and are contrasted with the current hybrid .scheme

کلمات کلیدی:

Singular perturbation, Two parameters parabolic convection-diffusion problem, Time delay, Fitted operator scheme, the Error estimate

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