

# Richardson Extrapolation for Reaction-Diffusion Singularly Perturbed Interface Problems

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The accuracy of finite difference approximations can be increased either by using higher order finite difference approximations or Richardson extrapolation. However, a problem arise when the interface is treated. We propose different expressions for one-sided finite difference approximations on a line interface for a singularly perturbed reaction-diffusion equation in two-dimensions. Numerical experiments on fitted meshes (Bahvalov's, Shishkin's) illustrate the effect of the Richardson extrapolation.

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