

# SDFEM for an elliptic singularly perturbed problem with two parameters

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A singularly perturbed problem with two small parameters in two dimensions is investigated. Using its discretization by a streamline-diffusion finite element method with piecewise bilinear elements on a Shishkin mesh, we analyze the superconvergence property of the method and suggest the choice of stabilization parameters to attain optimal error estimate in the corresponding streamline-diffusion norm. Numerical tests confirm our theoretical results.