Abstract.
The turning point problem

$$\begin{cases} -\varepsilon\Delta u + x\dfrac{\partial u}{\partial x} + y\dfrac{\partial u}{\partial y} = 0 & (x,y) \in [(-1,1)\times(-1,1)] \\ u(-1,y) = V_a, \qquad u(1,y) = V_b, & \\ u(x,-1) = V_c, \qquad u(x,1) = V_d, & \end{cases}$$

is known to have some extremely small eigenvalues. No successful numerical solution to this problem has been reported. In this paper, a numerical procedure is proposed. All four boundary layers are well defined and the numerical singularity is successfully removed.

Key words. boundary layer, domain decomposition, overlap, Schwarz Alternating Method(SAM), turning point problem

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