Singularly Perturbed Turning Point Problems in one Dimension

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We consider singularly perturbed boundary value problems with interior and/or boundary turning points in one dimension. It is well known that the solution of such problems often exhibits certain interior and/or boundary layers.

We give an overview about the a priori estimates of the solution for the several types of turning points. Furthermore, we present some numerical experiments for solving the problem on layer-adapted meshes with FEM or upwind-FDM.

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