MAXIMUM-NORM A POSTERIORI ERROR ESTIMATES FOR SINGULARLY PERTURBED FOURTH-ORDER TWO-POINT BOUNDARY-VALUE PROBLEMS

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ABSTRACT. A singularly perturbed fourth-order boundary-value problem is considered that exhibits sharp boundary layers when the coefficient multiplying the highest-order derivative tends to zero. For such problems the maximum norm is the norm of choice to study convergence. Our approach employs a representation of the error using the GREEN's function associated with the differential operator.

We present first results for the behaviour of the GREEN's function and the resulting a posteriori error estimates.

Keywords: fourth-order boundary-value problems, maximum-norm a posteriori error estimates.

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