Robust pointwise a posteriori error estimates for time-dependent singularly perturbed problems

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A singularly perturbed reaction-diffusion problem with a small parameter is considered. The efficiency of standard numerical methods deteriorates as the parameter approaches zero. Bounds for the Green's function are derived that allow the design of robust, with respect to the perturbation parameter, a posteriori error estimators. These in turn enable adaptive grid refinement in both space and time.

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