

# OSCILLATORY SOLUTIONS FOR 1-D SINGULARLY PERTURBED ELLIPTIC EQUATIONS

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ABSTRACT. We will study the existence and all possible asymptotic behaviors of bounded solutions of certain singularly perturbed elliptic equations. The asymptotic profiles can be described by means of envelopes or, alternatively by adiabatic profiles. We prove that for every envelope, there exists a family of solutions reaching that asymptotic behavior, in the case of bounded intervals. We use a combination of the Nehari finite dimensional reduction together with degree theory. Our main contribution is to compute the degree of each cluster, a key information in order to glue them.

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