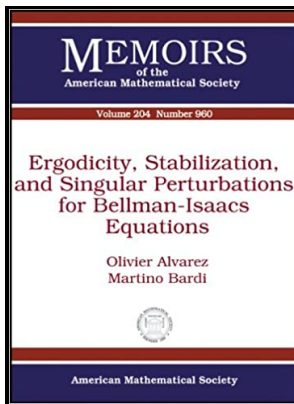


# Singular perturbations: a model equation

Aeronautical Research Laboratories - Singular perturbation theory



Description: -

-Singular perturbations: a model equation

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Aeronautical Research Laboratories. Aerodynamics note --

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Notes: Bibliography: p. 13.

This edition was published in 1957



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Tags: #Methods #for #solving #singular #perturbation #problems #arising #in #science #and #engineering

## Methods for solving singular perturbation problems arising in science and engineering

Through a singular perturbation technique, we can make these two subsystems independent of each other, thereby simplifying the control problem.

### Singular Perturbation Problem

These reductions could, for example, simply be to a lower order polynomial in an algebraic problem, or could be more significant, such as in the reduction of a PDE to an ODE, or a functional equation to one of algebraic form. In a singular perturbation problem we often cannot use the term unperturbed problem because the solution to the problem with  $\epsilon$  set to 0 may not exist.

### Singular Perturbation Problem

These problems are encountered in various fields such as solid mechanics, fluid dynamics, quantum mechanics, optimal control, chemical reactor theory, aerodynamics, reaction—diffusion processes, geophysics etc. Perturbation theory in quantum mechanics is fairly accessible, as the quantum notation allows expressions to be written in fairly compact form, thus making them easier to comprehend. In view of the positivity of  $A_0$ , adding the estimates 4.

### Initial Value Approach for a Class of Singular Perturbation Problems

WKB theory is used to solve singular perturbation problems in which the solution becomes discontinuous throughout an extended region.

### CiteSeerX — Singular vector perturbation growth in a primitive equation model with moist physics

An alternative setting consists of considering weak solutions of the problem. It is not possible to provide an exhaustive list, but we discuss some of the common features below and provide references for further reading.

## Related Books

- [Retrospect of western travel](#)
- [Occupational safety and health act - its goals and its achievements /Robert Stewart Smith.. --](#)
- [Camino de Wakefield](#)
- [Record of American history: interpretive readings. - Edited by Irwin Unger, David Brody \[and\] Paul G](#)
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