

ICM-9006-01 Semianalytic Solution of Boundary Value Problems by Using Approximated Operators, E.C. Gartland, Jr. and Ch. Grossmann, ZAMM, 72(1992) 12, pp. 615-619.

ABSTRACT: This paper analyzes a discretization technique for two-point boundary value problems that is based on the *exact* solution of *approximated* problems. It uses compact schemes of any prescribed order of accuracy, and it only requires local (not global) smoothness of the data. The method is useful in constructing upper and lower bounds for solutions of such problems. A solution is viewed as the exact solution of a “nearby” problem; the error analysis is then reduced to perturbation theory.