

Contents

Preface	v
Introduction	vii
Chapter 1	
SHOOTING METHODS	
1.1. Linear problems	1
1.2. Separated and partially separated endconditions	2
1.3. Parallel shooting for linear problems; stabilized march	5
1.4. Nonlinear problems; Newton's method	9
1.5. Parallel shooting for nonlinear problems	13
1.6. Continuation or embedding	15
Chapter 2	
FINITE DIFFERENCE METHODS	
2.1. Difference methods for linear problems	21
2.2. One-step schemes; solution procedures	24
2.3. Difference methods for nonlinear problems	29
2.4. Richardson extrapolation and deferred corrections	32
2.5. Collocation and implicit Runge-Kutta	35
Chapter 3	
EIGENVALUE PROBLEMS	
3.1. Analytic eigenvalue problems	39
3.2. Shooting for eigenvalues	42
3.3. Finite differences for eigenvalues	43
3.4. Reformulations of eigenvalue problems	45
Chapter 4	
SINGULAR PROBLEMS	
4.1. Regular singular points	49
4.2. ∞ -intervals; irregular singular points	53
References	59