

Contents

PREFACE	v
INTRODUCTION	ix

CHAPTER I

The General Theory of the Method

1. Construction of the Algorithm	1
2. A Necessary and Sufficient Condition for Convergence of the Method. Neumann's Series	4
3. The Case of a Completely Continuous Operator	12
4. Error Estimates	14
5. The Case of a Hilbert Space	17
6. Another Form of the Algorithm	23
7. Comparison of the Methods of Sokolov and Galerkin	25
8. The Connection between the Operators $\Omega_{k\lambda}$, $L_{k\lambda}$, $\Omega_{m\lambda}$, and $L_{m\lambda}$ ($m < k$)	27
9. Application of the Method to Equations that Can Be Reduced to Equations of the Form (I.I)	29

CHAPTER II

Application of the Method to Linear Integrodifferential Equations

1. Integral Equations in the Space $L^p(a, b)$	34
2. Integral Equations in the Space $L^2(a, b)$	53
3. Integrodifferential Equations in the Space $L^p(a, b)$	60
4. Comparison of the Method of Moments and the Sokolov Method	83

CHAPTER III

Application of the Method to Systems of Linear Integral and Differential Equations

1. Systems of Linear Integral Equations in the Space $L^p(a, b)$	86
2. Systems of Linear Differential Equations	98

CHAPTER IV

**Application of the Method to Systems
of Linear Algebraic Equations**

1. Infinite Systems of Linear Algebraic Equations in the Space l^p	106
2. Finite Systems of Linear Algebraic Equations	114
BIBLIOGRAPHY	131

