CONTENTS

PREFACE TO	THE ENGLISH EDITION
PREFACE TO Chapter I	THE RUSSIAN EDITION GENERAL THEOREMS ON STABILITY OF MOTION \$ 1. Formulation of the problem of stability of motion—Basic definitions
Chapter II	Investigation of Transient Processes in Linear Systems with Variable Coefficients 8 6. Necessary and sufficient conditions for stability and asymptotic stability of a definite type 7. Influence of errors in calculating the coefficients of the equation on the behaviour of the solutions and the stability properties 8. The stability of the homogeneous solution of a linear system with respect to given coordinates 9. Investigation of the stability of linear systems by construction of exact solutions 10. Investigation of the behaviour of transient processes in a linear system in a finite time interval by the method of approximate integration 11. New method of constructing the regions of stability in the space of admissible parameters of the automatic control system
Chapter III	ESTIMATION OF THE BEHAVIOUR OF TRANSIENT PROCESSES IN NON-LINEAR SYSTEMS § 12. Method of estimates — Technical stability 13. Stability in a finite interval 14. Stability of nonlinear systems in the first approximation 15. System with lag
Chapter IV	Construction of Solutions for Nonlinear Systems of Differential Equations in the Neighbourhood of a Regular Singularity
Chapter V	ESTIMATION OF THE INFLUENCE OF CONSTANTLY ACTING PERTURBATIONS UPON TRANSIENT PROCESSES IN A NONSTATIONARY SYSTEM § 18. Influence of constantly acting perturbations 19. Constantly acting perturbations of a random nature 20. A method of finding estimates for the correlation functions of a stochastic solution in terms of the correlation functions of the given process

Chapter VI	 Investigation of the Problem of Stability in Doubtful Cases 21. Formulation of the problem — Basic definitions 22. Fundamental theorems on the proposed method of investigating doubtful cases 23. Investigation of the problem of stability of a system of equations in the absence of linear terms in the expansion of their right-hand members 	177 177 179
	right-hand members	1 82 194
Chapter VII Chapter VIII	Periodic and Almost-Periodic Oscillations in Nonlinear Systems 25. Self-oscillations 26. Periodic forced oscillations appearing under the action of external force 27. Periodic and almost-periodic oscillations in nonlinear autonomic systems 28. Methods of approximate construction of periodic behaviours. Application of Electronic Computing Machines to the Analysis and Synthesis of Automatic-Control Systems 29. General features of computing machines and devices 30. Synthesis and analysis of automatic-control systems from stability conditions 31. Automatic optimization of automatic control systems	198 198 213 227 238 243 243 256 269
Appendix I	METHODS OF APPROXIMATING FAMILIES OF SOLUTIONS OF DIFFERENTIAL EQUATIONS	283
Appendix II	THE THEORY OF LINEAR STATIONARY SYSTEMS WITH A LAGGING ARGUMENT	290
Appendix III	THE CORRELATION FUNCTIONS OF STOCHASTIC SOLUTIONS	308
Appendix IV	DESCRIPTION OF THE PROGRAMME	315
Appendix V	SELF-OSCILLATIONS AND CONVERGENCE	317
Bibliography .		320
Index		325