TABLE OF CONTENTS

		Page
Forewor	d	IV
From th	e Author	VIII
Introdu	ction	1
Chapter	I Stability of Invariant Sets of a Dynamical System in	
M	etric Space	9
1.	Metric Space [2]. Basic Definitions	9
2.	Operators and Functionals in R	10
3.	Neighborhood of a Set	11
4.	Compactness	12
5.	Normed Linear Spaces	12
6.	Dynamical Systems in n -Dimensional Euclidean Space E_n .	14
7.	Examples of Dynamical Systems in Functional Spaces	17
8.	Dynamical Systems in Metric Space	20
9	Formulation of the Problem of Stability of Invariant Sets.	
	Principal Definitions	22
10.	Uniformly Asymptotically Stable and Uniformly Attracting	
	Invariant Sets of a Dynamical System $f(p, t) \cdots$	27
11.	Qualitative Description, from the Point of View of the Lyapu-	
	nov Stability of a Neighborhood of an Invariant Set	31
12	Necessary and Sufficient Conditions for Stability	41
13	Necessary and Sufficient Conditions for Instability	48
14.	Necessary and Sufficient Conditions for the Existence of	
• • • •	Uniformly Asymptotically Stable and Uniformly Attracting	
	Invariant Sets	52
15	Method of Estimating the Distance from the Motion $f(p, t)$ to	
10.	Cortain Inverient Set M with the Aid of Functionals	61

	Page	
Chapter II Investigation of the Problem of Stability of Motion		
for Systems of Ordinary Differential Equations	67	
1. Stationary Systems of Differential Equations	67	
 Case of Analytic Right Members of the System (2.1) Systems of Differential Equations with Homogeneous Right 	87	
Members	104	
4. Case of k Zero Roots	130	
5. Case of Several Pairs of Pure Imaginary Roots	144	
6. System of Non-Stationary Differential Equations	152	
Chapter III Investigation of a Neighborhood of the Trivial So-		
lution of the Differential Equations with the Aid of Lyapu-		
nov's First Method	166	
1. Auxiliary Theorems from the Theory of Partial Differential		
Equations	166	
2. Representation of Solutions of Systems of Ordinary Differen-	170	
tial Equations in a Neighborhood of a Singular Point3. Analytic Representation of the O-Curves of a Special System	173	
of Differential Equations	179	
Chapter IV Investigation of the Stability of Invariant Sets of		
General Systems	196	
1. General Systems. Basic Definitions	196	
 Conditions for Stability and Instability of an Invariant Set M 	.,,	
of a General System in Metric Space	202	
3. Certain Applications to Non-Stationary Systems of Ordinary		
Differential Equations	224	
Chapter V Solution of the Stability Problem for a System of		
Partial Differential Equations	235	
1. Some General Propositions	235	
2. Stability of Solutions of Quasi-Linear Systems of Special Type3. Stability of the Trivial Solution of a System of Partial Differ-	241	
ential Equations	248	
Bibliography	259	
Index		