

TABLE OF CONTENTS

CHAPTER

I.	INTRODUCTION	1
II.	ALGEBRAIC PRELIMINARIES	16
	1. k -Reduced Algebras	17
	2. The Zariski Topology	24
	3. k -Spaces	29
	4. Dimension	37
III.	REALIZATION THEORY	42
	5. Volterra Series	42
	6. Construction of Ω and Γ	50
	7. Abstract Response Maps and Systems	54
	8. Polynomial Response Maps and k -Systems	60
	9. Quasi-Reachability	62
	10. Algebraic Observability	63
	11. Existence and Uniqueness of Canonical Realizations	67
IV.	FINITENESS CONDITIONS	69
	12. The Observables of f	69
	13. Finite Realizability and Minimality	75
	14. Polynomial Canonical Systems	77
	15. Bounded Maps	80
	16. Input/output Equations	83
	17. Jacobian Condition	89
	18. Some Examples and Counterexamples	91
V.	STATE-AFFINE SYSTEMS	101
	19. Recognizable Series	101
	20. State-Affine Systems	105
	21. Finite Response Maps and Cascades of Linear Systems	109
	22. Rationality	111
VI.	CLASSES OF QUASI-REACHABLE REALIZATIONS	113
	23. The Lattice $QR(f)$	113
	24. Examples Using the Lattice Construction	115
	25. Some Relevant Sublattices	120
	26. Normal Realizations	126
VII.	OTHER TOPICS	134
	27. The Canonical State Space	134
	28. Unconstrained Realizations	139
	29. Generalizations	146
	30. Suggestions for Further Research	151

TABLE OF CONTENTS (cont'd)

REFERENCES	157
GLOSSARY OF NOTATIONS	164
INDEX	167