CONTENTS

Foreword	iii
Preface	
CHAPTER 1	THE PROBLEM AND EXAMPLESl
	1.1 Historical Remarks1
	1.2 Derivation and Meaning of
	Similarity6
	1.3 Examples8
CHAPTER 2	THEORY OF SIMILITUDE27
	2.1 Dimensional Analysis and the
	I-Theorem of Buckingham27
	2.2 Fractional Analysis34
×	2.3 Method of Differential
	Equations48
	2.4 Similarity by Transformation
	of Variables63
CHAPTER 3	GASDYNAMIC SIMILARITY LAWS78
	3.1 Linear Subsonic and
	Supersonic Flow
	3.2 Transonic Flow
	3.3 Hypersonic Flow115
CHAPTER 4	NONEQUILIBRIUM PROCESSES125
	4.1 General Remarks on
	Similarity126
	4.2 Examples of Similarity
	Considerations128

ix

Contents

4.3 Similarity for Small Departures
from Equilibrium129
LIST OF SYMBOLS138
NOTES146
REFERENCES148
INDEX155