

TABLE OF CONTENTS

	Page
FOREWORD.....	iii
PART I. NEW MATHEMATICAL APPLICATIONS AND METHODS	
INTRODUCTION.....	1
NUMERICAL SOLUTION OF BOUNDARY VALUE NONLINEAR ORDINARY DIFFERENTIAL EQUATIONS P. H. McGinnis, Jr.	2
ADJUSTMENT OF EXPERIMENTAL DATA David L. Rippss	8
PART II. PROCESS SIMULATION AND PROCESS DESIGN OPTIMIZATION	
INTRODUCTION.....	15
PROCESS SIMULATION ON A DIGITAL COMPUTER WITH ANALOG METHODS George J. Farris and Lawrence E. Burkhardt	16
A GENERALIZED CASCADE FOR MULTICOMPONENT ISOTOPE SEPARATION Andrés de la Garza, G. A. Garrett, R. L. Hoglund and Edward Von Halle	27
THE STEADY STATE SIMULATION OF CONTINUOUS CHEMICAL PROCESSES Irven H. Rinard and David L. Rippss	34
OPTIMAL DESIGN OF CHEMICAL PROCESSES—VARIATIONAL METHODS Michael L. Trombetta	42
OPTIMAL DESIGN OF CHEMICAL PROCESS SYSTEMS Joel Weisman, C. F. Wood, and L. Rivlin	50
PART III. PROCESS CONTROL	
INTRODUCTION.....	65
THE DESIGN OF A COMBINED FEEDFORWARD-FEEDBACK CONTROL SYSTEM R. E. Bollinger and D. E. Lamb	66
LIAPUNOV STABILITY ANALYSIS OF SYSTEMS WITH LIMIT CYCLES Okan Gurel and Leon Lapidus	78
OPTIMAL CONTROL OF LINEAR SYSTEMS WITH QUADRATIC PERFORMANCE CRITERIA Leon Lapidus	88
PART IV. PROCESS DYNAMICS	
INTRODUCTION.....	101
FLUID-FILLED CONDUIT FREQUENCY RESPONSE Gerald L. Esterson	102
SIMULTANEOUS OPTIMIZATION AND TRANSIENT RESPONSE EVALUATION OF PACKED-TOWER GAS ABSORPTION George M. Hoerner, Jr., and William E. Schiesser	115
EXPERIMENTAL CONFIRMATION OF A PREDICTIVE MODEL FOR DYNAMIC DISTILLATION C. E. Huckaba, F. R. Franke, F. P. May, B. T. Fairchild, and G. P. Distefano	126
APPROXIMATION MODELS FOR THE DYNAMIC RESPONSE OF LARGE DISTILLATION COLUMNS J. S. Moczek, R. E. Otto, and T. J. Williams	136
ANALOG SIMULATION OF DYNAMIC BEHAVIOR IN A MIXED CRYSTAL SUSPENSION A. D. Randolph and M. A. Larson	147
DYNAMICS AND FEEDFORWARD CONTROL OF A FIXED-BED CHEMICAL REACTOR J. D. Tinkler and D. E. Lamb	155
INFORMATION RETRIEVAL ABSTRACTS.....	169