



# CONTENTS

LIST OF CONTRIBUTORS

vii

## Chapter 1 **Fin-Line Characteristics and Circuits**

*Prakash Bhartia and Protap Pramanick*

I. Introduction	2
II. Methods of Analysis	6
III. Synthesis	45
IV. Discontinuities in Fin-Lines	50
V. Passive Components Made of Fin-Lines	57
VI. Active Devices	75
VII. Conclusions	92
References	94

## Chapter 2 **Millimeter Wave Planar Integrated Circuit Filters**

*Cam Nguyen and Kai Chang*

I. Introduction	99
II. Planar Integrated Circuit Transmission Lines	100
III. Lowpass Filters	120
IV. Bandpass Filters	134
V. Bandstop Filters	174
VI. Multiplexer	186
VII. Conclusions	200
References	200

## Chapter 3 **H-Plane Millimeter-Wave Planar Transmission Lines and Circuits**

*Protap Pramanick and Prakash Bhartia*

I. Introduction	204
II. Analysis	206
III. Synthesis	240
IV. Discontinuities	245

V. Passive Components	258
VI. Active Devices	278
VII. Conclusions	292
References	294
<b>Chapter 4 Modal Power Dynamics in Multimode Optical Fibers</b> <i>Shojiro Kawakami, Hitoshi Takahira, Hisashi Tanji, and Masahiko Dazai</i>	
I. Introduction	297
II. Propagation Characteristics	298
III. Mode Mixing Effects: A Simple Model	308
IV. Mode Power Exchange and Its Mechanism	320
V. Concluding Remarks	338
References	339
<b>Chapter 5 A Miniaturized Monopulse Assembly Constructed in Planar Waveguide with Multimode Scalar Horn Feeds</b> <i>Harry D. Syrigos</i>	
I. Introduction	341
II. Fundamentals of the Monopulse Principles	343
III. Miniature Design and Comparator Mechanization	356
IV. Functions and Properties of the Multimode Scalar Horn Feed	359
V. Summary and Conclusions	362
References	368
<b>INDEX</b>	<b>369</b>