

DELHI COLLEGE OF ENGINEERING

DELHI

Department of Electrical Engineering



CERTIFICATE

It is certified that **Mr. RAM NIWASH MAHIA Roll No. 12241**, student of M.E, control and instrumentation, Department of Electrical Engineering, Delhi College of Engineering, has submitted the dissertation entitled “**SOME STUDIES ON OTA-C OSCILLATORS**” under my guidance towards partial fulfillment of the requirements for the award of the degree of Master of Engineering in Electrical Engineering (Control and Instrumentation).

This dissertation is a bonafide record of project work carried out by him under my guidance and supervision and has not been presented earlier for the award of any degree / diploma.

I wish him success in all his endeavors

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“SOME STUDIES ON OTA-C OSCILLATORS”

CONTENTS

CERTIFICATE.....	ii
ACKNOWLEDGEMENT.....	iii
LIST OF FIGURES.....	vii
LIST OF TABLE.....	ix
ABSTRACT.....	x

Chapter-I

INTRODUCTION.....	1-27
1.1 State of art in oscillators.....	1
1.1.1 Requirements for Oscillation.....	2
1.1.2 Phase Shift in the Oscillator.....	4
1.1.3 Gain in the Oscillator.....	5
1.2 Oscillators.....	5
1.2.1 Relaxation oscillators.....	6
1.2.1.1 Types of multivibrators.....	6
1.2.2 Harmonic oscillators (Sine Wave Oscillator Circuits).....	7
1.2.2.1 Wein Bridge Oscillator.....	8
1.2.2.2 Phase-Shift Oscillator, Single Amplifier.....	10
1.2.2.3 Quadrature Oscillator.....	11
1.3 Literature survey of different types of harmonic oscillators.....	13
1.4 Organization of the dissertation.....	17
References.....	18

Chapter-II

OPERATIONAL TRANSCONDUCTANCE AMPLIFIERS AND THEIR USES IN SIGNAL PROCESSING.....	28-52
2.1 Introduction.....	28
2.2 OTA Model.....	29

2.3 Basic OTA Building Blocks.....	30
2.4 First-order filter structures.....	34
2.5 Second-Order Structures.....	38
2.6 Practical Considerations.....	44
2.7 Conclusions.....	48
References.....	49

Chapter-III

HARMONIC OSCILLATORS REALISED WITH OTAs.....53-84

3.1 Introduction.....	53
3.2 Linearly tunable wien bridge oscillator realised with operational Transconductance amplifiers.....	54
3.3 Generation, design and tuning of ota-c high-frequency sinusoidal oscillators...55	
3.3.1 General TACO topology.....	55
3.3.2 Two-node TACO topology.....	57
3.3.3 More than two node TACOS.....	60
3.4 Generation of new OTA-C oscillator structures using network transposition....62	
3.4.1 A brief review of network transposition.....	62
3.4.2 Transposition and OTA-C oscillators.....	62
3.4.3 Single output oscillator structures.....	63
3.4.4 Fully Differential Oscillator Structure.....	63
3.5 New electronically tunable OTA-C sinusoidal oscillator.....	65
3.6 Digitally programmable active-c OTA-based oscillator.....	66
3.6.1 Oscillator circuit.....	66
3.7 Systematic derivation of all possible canonic OTA-C sinusoidal oscillators.....67	
3.7.1 Generation of canonic OTA-C sinusoidal oscillators.....	68
3.8 Sample experimental results.....	78
3.9 Conclusion.....	83
References.....	84

Chapter-IV

A SYSTEMATIC WAY OF GENERATING 4-OTA-C BASED HARMONIC OSCILLATORS.....85-100

4.1 Introduction.....	85
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4.2 Proposed circuit.....	85
4.3 Sample experimental results.....	96
4.4 Conclusion.....	100
References.....	100

Chapter-V

CONCLUSION AND SCOPE FOR FUTURE WORK.....	101
5.1 Introduction.....	101
5.2 Scope for further work.....	101

LIST OF FIGURES

Fig.1.1 Canonical Form of a Feedback System with Positive or Negative Feedback.....	2
Fig.1.2 Wein-Bridge Circuit Schematic.....	9
Fig.1.3 Final Wein-Bridge Oscillator Circuit.....	10
Fig.1.4 Phase-Shift Oscillator (Single Op Amp).....	11
Fig.1.5 Quadrature Oscillator.....	12
Fig.2.1 OTA. (a) Symbol. (b) Equivalent circuit of ideal OTA.....	29
Fig.2.2 Voltage amplifiers.....	32
Fig.2.3 Controlled impedance elements.....	33
Fig.2.4. Integrator structures.....	34
Fig. 2.5 First-order voltage-controlled filters.....	35
Fig. 2.6 Transfer characteristics for first-order structures of Fig. 5.....	37
Fig. 2.7 Second-order filter structures.....	39
Fig. 2.8 Elliptic Filter structure.....	42
Fig. 2.9 General bi-quadratic structure.....	43
Fig. 2.10 Signal conditioner for OTAs.....	44
Fig. 2.11 Macromodel of bias current port on bipolar.....	45
Fig. 2.12 Schemes for obtaining voltage control with the OTA.....	45
Fig. 2.13 Schemes for simultaneous gm adjustment.....	46
Fig. 2.14 Single input-multiple output bias current generator for monolithic applications.....	47
Fig. 2.15 gm attenuator.....	47
Fig. 3.1 Derivation of new OTA-based oscillator circuit.....	55
Fig. 3.2 Symbol and ideal model for OTA.....	56
Fig. 3.3 General topology for generation of TACOS.....	56
Fig. 3.4 (a) General topology for the generation of second-order OTA-C oscillators (b) Conceptual circuit diagram for two-nodes TACO.....	58
Fig. 3.5 2 OTA-3C oscillator structure.....	59
Fig. 3.6 3-OTA-2C TAC oscillator structure.....	59
Fig. 3.7 TACO structures.....	60
Fig. 3.8 4-OTA-4C TACO structure.....	61
Fig. 3.9 Second-order three-terminal active networks.....	64

Fig. 3.10 (a) Oscillator A (b) Oscillator B.....	64
Fig. 3.11 (a) Oscillator structure (b) Its transpose same as the (a).....	64
Fig. 3.12 Differential OTA-C oscillator.....	64
Fig. 3.13 TAC sinusoidal oscillator.....	65
Fig 3.14. Oscillator circuit.....	66
Fig 3.15 Five possible structures for the synthesis of canonic OTA-C sinusoidal oscillators...	67
Fig. 3.16 Schematic of CA3080 OTA.....	78
Fig. 3.17 Oscillator using 3-OTA-2C.....	79
Fig. 3.18 Output Waveform.....	79
Fig. 3.19 Oscillator using 3-OTA-2C.....	80
Fig. 3.20 Output Waveform.....	80
Fig. 3.21 Oscillator using 3-OTA-2C.....	81
Fig. 3.22 Output Waveform.....	81
Fig. 3.23 Oscillator using 3-OTA-2C.....	82
Fig. 3.24 Output Waveform.....	82
Fig. 3.25 Variation of the oscillation frequency with the bias current I_{B3} for the oscillator circuit no. 4 of Table 3.5.....	83
Fig. 4.1 Structures for the synthesis of canonic OTA-C sinusoidal oscillators.....	85
Fig. 4.2 Schematic of CA3080 OTA.....	96
Fig. 4.3 Oscillator using 4-OTA-2C.....	96
Fig. 4.4 Output Waveform.....	97
Fig. 4.5 Oscillator using 4-OTA-2C.....	97
Fig. 4.6 Output Waveform.....	98
Fig. 4.7 Variation of the oscillation frequency with the bias current I_{B4} for the oscillator circuit no. 16 of Table 4.1.....	99
Fig. 4.8 Variation of the oscillation frequency with the bias current I_{B4} for the oscillator circuit no. 18 of Table 4.1.....	99

LIST OF TABLE

Table 2.1 Transfer functions for bi-quadratic structure of Fig. 2.7(a).....	41
Table 3.1 Ideal Expression of b_c and Ω_0^2 for Different TACO Structure.....	61
Table 3.3 Various oscillator realizations corresponding to schematic of Fig. 3.15(a).....	72
Table 3.4 Various oscillator realizations corresponding to schematic of Fig. 3.15(b).....	74
Table 3.5 Various oscillator realizations corresponding to schematic of Fig. 3.15(c).....	76
Table 3.6 Various oscillator realizations corresponding to schematic of Fig. 3.15(d).....	77
Table 4.1 Various oscillator realizations corresponding to schematic of Fig. 4.1.....	90

ABSTRACT

Sinusoidal oscillators are important building blocks of many instrumentation, communication, measurement and control systems. The realisation of sinusoidal oscillators has attracted the attention of researchers in the area of analog signal processing since long. Their use has been very well documented in many standard texts in these areas. IC Op-Amps were the main building blocks for the realisation of sinusoidal oscillators during the decades of seventies and eighties. A variety of aspects related to the analysis, synthesis and design of Op-Amp-based sinusoidal oscillators has been investigated in numerous publications spread over this period. With the emergence of other active building blocks namely Operational Transconductance Amplifiers, Current Feedback Operational Amplifiers, Current Conveyors and their different derivatives, Four terminal Floating Nullors, Operational Transresistance Amplifiers etc., both in discrete form as well as in integrable form, these blocks have also been utilized for realization of harmonic oscillators. Operational Transconductance Amplifiers are programmable transconductance amplifiers whose transconductance gain can be varied by varying the bias current externally and thus are very suitable for such applications where the frequency of oscillation or condition of oscillation is to be varied externally in an integrated circuit environment. In the present work realization of Operational Transconductance Amplifier based harmonic Oscillators has been presented. A variety of Operational Transconductance Amplifier based oscillators presented earlier have been reviewed. A systematic method proposed in the literature has been used to present a catalog of 4-operational Transconductance Amplifier 2-capacitor based harmonic oscillator has been developed.