

# **FAST TIME-VARYING CHANNELS IN MIMO- OFDM SYSTEM USING DIFFERENT DIVERSITY TECHNIQUE**

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**NADIAH BINTI AMARAM  
FACULTY OF ELECTRICAL ENGINEERING  
UNIVERSITI TEKNOLOGI MARA  
40450 SHAH ALAM,  
SELANGOR, MALAYSIA**

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## **ACKNOWLEDGEMENT**

In the name of ALLAH,  
Most Compassionate, the Merciful,  
Praise to ALLAH, Lord of the Universe.

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## ABSTRACT

The combination of multiple-input and multiple-output (MIMO) technology and Orthogonal Frequency Division Multiplexing (OFDM) provide robust to multipath delay and high data rates in wireless communication. The wireless connection of fast moving platforms leads to high demands for the applied transmission scheme because of that a channel estimation technique using fast time-varying channel is proposed in this paper. The time varying channel may destroy the orthogonality among the subcarrier resulting in Inter-Carrier Interference (ICI). To cope with this problem, the ICI Self-cancellation technique is applied in fast time varying channel using different type of diversity technique such as STFBC, STBC and SFBC. Diversity techniques that exploit spatial, time and frequency diversity can be designed using OFDM to reduce ICI as well as it is reliable to achieve maximum diversity. Thus, the objective of this paper is to evaluate BER performance using Fast Time-varying channel in MIMO-OFDM with ICI Self-Cancellation scheme using different diversity technique. The simulation results show that the BER performance is the best by using the STFBC compared to the SFBC and STBC and ICI can be reduced and maximum diversity order with an efficient bandwidth can be achieved. The result indicates that the BER has improved over Fast Time-varying channel MIMO-OFDM system by using a STFBC Diversity technique.

## **TABLE OF CONTENTS**

<b>CHAPTER</b>	<b>TITLE</b>	<b>PAGE</b>
	<b>DECLARATION</b>	<b>i</b>
	<b>ACKNOWLEDGEMENT</b>	<b>ii</b>
	<b>ABSTRACT</b>	<b>iii</b>
	<b>TABLE OF CONTENTS</b>	<b>iv</b>
	<b>LIST OF FIGURES</b>	<b>viii</b>
	<b>LIST OF TABLE</b>	<b>x</b>
<b>1</b>	<b>INTRODUCTION</b>	
	1.1 INTRODUCTION	1
	1.2 PROJECT BACKGROUND	1
	1.3 PROBLEM STATEMENT	3
	1.4 OBJECTIVES OF PROJECT	3
	1.5 SCOPE OF PROJECT	4
	1.6 ORGANIZATION OF PROJECT REPORT	4
<b>2</b>	<b>LITERATURE REVIEW</b>	
	2.1 INTRODUCTION	6

2.2	MIMO-OFDM	6
2.3	FUNCTIONS OF MIMO	8
2.3.1	Spatial Multiplexing	9
2.3.2	Spatial Diversity	9
2.4	APPLICATIONS OF MIMO	10
2.5	ALAMOUTI SCHEME	10
2.5.1	Alamouti Code 2x1	11
2.5.2	Alamouti Code 2x2	14
2.6	DIVERSITY TECHNIQUE	17
2.6.1	Space Time Block Codes (STBC)	17
2.6.2	Space Frequency Block Codes (SFBC)	17
2.6.1	Space Time Frequency Block Codes (STFBC)	18
2.7	INTERCARRIER-INTERFERENCES	
	SELF-CANCELLATION (ICI-SC)	19
2.8	CHANNEL ESTIMATION IN FAST	
	TIME-VARYING CHANNELS	20
2.9	ORTHOGONAL FREQUENCY DIVISION	
	MULTIPLEXING	21
2.9.1	Frequency Division Multiplexing	22
2.9.2	Limiting Channel Bandwidth with Pulse Shaping	23
2.9.3	Reducing Inter Symbol-Interferences	23