

**TEMPERATURE DEPENDENCE OF PHOTOLUMINESCENCE  
FOR POROUS SILICON**

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## TABLE OF CONTENTS

	Page
<b>ACKNOWLEDGEMENTS</b>	iii
<b>TABLE OF CONTENTS</b>	iv
<b>LIST OF TABLES</b>	vi
<b>LIST OF FIGURES</b>	vii
<b>LIST OF ABBREVIATIONS</b>	ix
<b>ABSTRACT</b>	xi
<b>ABSTRAK</b>	xii
<b>CHAPTER 1 INTRODUCTION</b>	
1.1 General Information	1
1.1.1 Silicon	1
1.1.2 Porous Silicon	1
1.1.3 Photoluminescence	2
1.1.4 Temperature	3
1.2 Significant of Study	3
1.3 Problems Statements	3
1.4 Objective of Study	3
<b>CHAPTER 2 LITERATURE REVIEW</b>	
2.1 Properties of porous silicon	5
2.1.1 Chemical properties	5
2.1.2 Electronic properties	5
2.1.3 Electrical properties	6
2.1.4 Optical properties	6
2.2 Applications of porous silicon	7
2.2.1 Reflector	7
2.2.2 Light emitting diodes (LED)s	8
2.2.3 Sensors, biosensors, medical applications	8
2.3 Temperature Dependence of the Photoluminescence of all-Porous-Silicon Optical Microcavities	9
<b>CHAPTER 3 METHODOLOGY</b>	
3.1 Materials	12
3.1.1 Chemicals	12
3.1.2 Apparatus	12
3.2 Methods	14
3.2.1 Preparation of Porous Silicon	15
3.2.1(a) Cleaning of Silicon Wafer	15
3.2.1(b) Preparation of Porous Silicon (PSi) Sample	16

3.2.2	Characterizations Method	18
3.2.2 (a)	Photoluminescence Spectroscopy (PL) under various temperatures	19
3.2.2 (b)	X-Ray Diffraction (XRD)	22
3.3	Expected Output	25
<b>CHAPTER 4 RESULTS AND DISCUSSION</b>		
4.1	Porous Silicon Sample	26
4.2	Photoluminescence Spectroscopy (PL) under various temperatures	27
4.3	X-Ray Diffraction (XRD)	33
<b>CHAPTER 5 CONCLUSION AND RECOMMENDATIONS</b>		
5.1	Conclusion	39
5.2	Recommendations	40
	<b>REFERENCES</b>	41
	<b>APPENDICES</b>	44
	<b>CURRICULUM VITAE</b>	48

## **ABSTRACT**

### **TEMPERATURE DEPENDENCE OF PHOTOLUMINESCENCE FOR POROUS SILICON**

Temperature dependence of photoluminescence for Porous Silicon (PSi) is reported. The objectives of this project are to produce Porous Silicon sample with optimum photoluminescence parameter (photoluminescence intensity), to determine the photoluminescence properties at different temperatures, and to explain the luminescence phenomenon of Porous Silicon at different temperatures. Significance of the project is studying the luminescence phenomenon for temperature dependent of photoluminescence of Porous Silicon. Scope for this project covers identifying and characterizing of the sample of Porous Silicon by using the Photoluminescence Spectroscopy (PL) under various temperatures and in X-Ray Diffraction (XRD). The temperature at which silicon is electrochemically etched has been found to influence the structure and photoluminescence properties of Porous Silicon. A different temperature dependence of the emission intensity from the Porous Silicon over the (83-303) K temperature intervals is achieved. Intensity decreases with temperature increases from low to high temperature. Besides that, the different etching time has the different degree of crystalline in surface of Porous Silicon that have crystallographic orientation with a broad peak. The luminescence phenomenons of photoluminescence also are explained by the intensity of movement electrons.