

(1-page) Curriculum Vitae: Professor Dr. Zainuriah Hassan, FASc

PERSONAL DETAILS

Present Position: Honorary Professor
Institute of Nano Optoelectronics
Research and Technology (INOR)
Universiti Sains Malaysia (USM)

Scopus Author ID: 35581518800
Web of Science ResearcherID: F-9100-2010
ORCID ID: 0000-0003-0043-8391
h-Index: 40 (Scopus)
40 (Web of Science ResearcherID)

Nationality: Malaysia
Area of Specialization: Condensed Matter Physics
(Materials Science and Device Physics)
➤ **Wide Band Gap Semiconductor Materials and Devices**



ACADEMIC QUALIFICATION

Ohio University, U.S.A Doctor of Philosophy, August 1998
(Experimental Condensed Matter Physics)

Western Michigan University, U.S.A
Master of Arts, August 1985 (Physics)
Bachelor of Science (Magna Cum Laude), April 1983
(Major: Physics, Minor: Mathematics)

AWARDS/RECOGNITIONS

1. Dean's List and Outstanding Scholarship Award (Western Michigan University, U.S.A)
2. Graduate Scholarship (Ohio University, U.S.A)
3. Excellent Service Award, Sanggar Sanjung (Hall of Fame) Award and Merit Reward (USM)
4. Fulbright Research Scholar Award (CIES, U.S.A)
5. Top Research Scientists Malaysia (TRSM)
6. Fellow of Academy of Sciences Malaysia
7. Ohio University Notable Alumni Award
8. Top 2% in the World in the Category of Citation Impact in Single Year 2020

SUPERVISION Main supervisor: 7 Post-docs/Visiting Researchers
37 PhD students
12 MSc students by research
16 MSc students by coursework

Co-supervisor: 26 PhD students
14 MSc students by research
1 MSc student by coursework

Total PhD students: 63 (54 graduated),
Total MSc students: 43 - graduated


RESEARCH GRANTS Project Leader - 20 Research Grants
Co-researcher - 69 Research Grants

RESEARCH PUBLICATIONS

- 743 Papers in International Journals/Proceedings
- 114 Papers in National Journals/Proceedings
- 26 Research Books/Chapters in Research Books/Special Issue
- 144 International/National Conference Presentations
- 12 Patents/IP filed/granted

(Full) Curriculum Vitae: Professor Dr. Zainuriah Hassan, FASc

Personal Details

Name:	Professor Dr. Zainuriah Hassan, FASc	
Scopus Author ID:	35581518800	
ResearcherID - Publons:	F-9100-2010	
ORCID ID:	0000-0003-0043-8391	
h-Index:	40 (Scopus) 40 (Web of Science ResearcherID)	
Date and Place of Birth:	20 April 1962 Sungai Petani, Kedah, Malaysia	
Sex:	Female	
Nationality:	Malaysia	
Present Position:	Honorary Professor Institute of Nano Optoelectronics Research and Technology (INOR) Universiti Sains Malaysia	
Area of Specialization:	Condensed Matter Physics (Materials Science and Device Physics)	

Correspondence Address

Institute of Nano Optoelectronics Research and Technology (INOR)
Universiti Sains Malaysia
11800 Penang
MALAYSIA

Tel: +604 653 5638
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Office address:
SAINS@USM
Ground Floor, Blok A, No 10, Persiaran Bukit Jambul,
11900 Bayan Lepas, Penang, Malaysia

Academic Qualification

Ohio University, U.S.A

Doctor of Philosophy, August 1998
(Experimental Condensed Matter Physics)

Western Michigan University, U.S.A

Master of Arts, August 1985
(Physics)

Bachelor of Science (Magna Cum Laude), April 1983
(Major: Physics, Minor: Mathematics)

Professional Qualification

Post Grad. Teaching Certificate, Feb. 1987 (Malaysia)
(Physics, Mathematics)

Professional Membership

Optical Society of America/OPTICA
(2006 - 2023)

The International Society for Optics and Photonics (SPIE)
(2019 - 2022)

Materials Research Society (USA)
(2006 - 2021)
(1997-1998)

IEEE (Institute of Electrical & Electronics Engineers)
(2005 - 2021)

Fulbright Association
(Life member)

Malaysian Solid State Science and Technology Society
(Life member)

Malaysian Institute of Physics
(Life member)

Materials Research Society (Singapore)
(2003 – 2005)

National Council of Professor
(2010 – 2024)

The American Vacuum Society (AVS)
(2019 - 2020)

Western Michigan University Alumni Association

Ohio University Alumni Association

Working Experience

2022 - 2024 : Honorary Professor
Institute of Nano Optoelectronics Research and Technology (INOR)

2020 - 2022 : Professor VK5 (Special Grade A)

2018 – 2021 : Director, INOR
2016

2015 - 2020	: Professor VK6 (Special Grade B)	
2009 – 2015	: Professor VK7 (Special Grade C)	
2013 - 2015	: Director, Centre for Research Initiatives (CRI) - Natural Sciences	
2010 - 2012	: Dean, School of Physics	
2009 - 2010	: Deputy Dean (Academic and Student Development)	
2007 - 2009	: Associate Professor : Chair of Engineering Physics Program	
2004 - 2007	: Senior Lecturer	School of Physics Universiti Sains Malaysia 11800 Penang MALAYSIA
2004-2005	: Fulbright Visiting Research Scholar	Department of Electrical and Computer Engineering University of Minnesota Minneapolis Minnesota 55455 U.S.A
1998- 2004	: Lecturer	School of Physics Universiti Sains Malaysia 11800 Penang MALAYSIA
1997-1998	: Research Associate	Dept. of Physics and Astronomy Ohio University Athens Ohio 45701 U.S.A

Teaching

Courses taught/tutored at Universiti Sains Malaysia 1998-to date:

1. Statistical mechanics
2. Optics
3. Mechanics
4. Modern Physics
5. Vector Analysis
6. Electricity and Magnetism
7. Vibrations, Waves and Optics
8. Semiconductor Fabrication Processes
9. Electronic and Photonic Materials
10. Growth and Fabrication of Optoelectronic Devices

Research Interests

1. Growth/deposition and characterization of wide band gap semiconductor materials, in particular III-Nitrides (GaN and related alloys), ZnO, CdS, TiO₂, CdO, and other metal oxides
2. Fabrication, characterization, and simulation/design of optoelectronic and electronic devices such as LEDs, solar cells and sensors based on III-nitrides and other semiconductor materials
3. Nanostructures and hybrid heterostructures for device applications

Thesis

1. Zainuriah Hassan. Ph.D Dissertation, Ohio University, U.S.A.
Title: Growth, Characterization and Fabrication of GaN-based Device Structures: 1998.
2. Zainuriah Hassan. Master's Thesis, Western Michigan University, U.S.A.
Title: A Study of Integral Equations for Computing Radial Distribution Functions: 1985.

Professional Activities/ Consultancy

1. Committee member for the 16th Regional Conference on Solid State Science and Technology (1999)
2. Guest Editor for Solid State Science and Technology and Journal of Solid State Science and Technology Letters (2000)
3. Examiner for the Matriculation Program of the Ministry of Education of Malaysia (2000 - 2003)
4. Course Presenter for Laboratory Management and Maintenance Course (14 – 18 May, 2001)
5. Course Presenter and Committee Member for Tropical College for Photonics and Optical Communications (23 – 25 October, 2001)
6. Committee Member for the Nobel Prize Subcommittee (Physics): The Establishment of the National Physics Laboratory (2002).
7. External examiner for University of New South Wales, Australia for Master of Science and Technology in Optoelectronics and Photonics Program (2002 - 2004)
8. Reviewer for manuscript submitted for publication in Applied Surface Science: Elsevier Publication (2003)
9. Industrial Advisory Panel for INTI International College (2004 – 2010)
10. Reviewer for manuscript submitted for publication in Jurnal Teknologi D (2005)
11. Reviewer for manuscript submitted for publication in Materials Science and Engineering (B): Solid State Materials for Advanced Technology (2005)

12. Reviewer for manuscript submitted for publication in Journal of Vacuum Science and Technology (2005)
13. Reviewer for manuscripts submitted for publication in Journal of Physical Science (2005 - 2006)
14. Reviewer for manuscripts submitted for publication in Photonics Technology Letters IEEE/LEOS (2006)
15. Moderator of Examination Papers for INTI International College (2006 - 2009)
16. Reviewer for manuscripts submitted for publication in Applied Surface Science: Elsevier Publication (April 2007 & October 2007)
17. Advisory Panel for Nano Engineering Institute Universiti Malaysia Perlis (2007)
18. Reviewer for manuscripts submitted for publication in "ELEKTRIKA" – a journal of Faculty of Electrical Engineering, Universiti Teknologi Malaysia (2008)
19. Reviewer for manuscript submitted for publication in Journal of Applied Physics (2008)
20. Reviewer for manuscript submitted for publication in Applied Energy (2008)
21. Course Presenter for MBE Theory and Practical Course (14 October, 2008)
22. Editor for Journal of Physical Science (2008 - 2015)
23. Reviewer for manuscript submitted for publication in Nanoscale Research Letters (2009)
24. Invited speaker for Excellence Award Day (12 May, 2009)
25. Reviewer for manuscript submitted for publication in Japanese Journal of Applied Physics (2009)
26. Reviewer for USM Research University (RU) grant applications (2009, 2010)
27. Speaker for Postgraduate Seminar (6 November, 2009)
28. Invited speaker for Nanomaterials Characterisation Workshop – AMREC/SIRIM (23 – 24 November, 2009)
29. Invited speaker for 25th Regional Conference on Solid State Science and Technology – RCSSST 2009 (21 – 23 December, 2009)
30. Alternate member for Working Group on Material Specifications of Nanotechnologies (2009 – 2014)
31. Reviewer for manuscript submitted for publication in Physica Status Solidi (a) (2010)
32. Invited plenary speaker for World Academy of Science, Engineering and Technology Conference 2010 (24 – 26 February 2010)
33. Chairman for Workshop on Advanced Characterization Methods for Nanomaterials (1 – 3 June, 2010)
34. Invited speaker for the 5th International Conference on X-rays and Related Techniques in Research and Industry - ICXRI 2010 (9 – 10 June, 2010)

35. Reviewer for USM Short Term grant applications (2010, 2013)
36. Reviewer for manuscript submitted for publication in Journal of Alloys and Compounds (2010)
37. Reviewer for manuscript submitted for publication in Applied Surface Science (2010)
38. Reviewer for manuscript submitted for publication in Sains Malaysiana (2010)
39. Reviewer for manuscript submitted for publication in Modern Physics Letters B (2010)
40. Reviewer for manuscript submitted for publication in Crystal Growth & Design (2010)
41. Reviewer for Science Fund (MOSTI) research grant application (2010)
42. Invited plenary speaker for World Academy of Science, Engineering and Technology Conference 2011 (22 – 24 February 2011)
43. Reviewer for manuscript submitted for publication in Journal of Luminescence (2011)
44. Reviewer for manuscript submitted for publication in Advanced Materials (2011)
45. Reviewer for manuscript submitted to 2nd International Conference on Photonics 2011 – Technical Program Committee – ICP2011 (2011)
46. Invited speaker for Asia-Pacific Workshop on Materials Characterization 2011 (22 – 24 September 2011)
47. Reviewer for manuscript submitted for publication in Crystal Growth and Design (2011)
48. Plenary speaker for 26th Regional Conference of Solid State Science and Technology – RCSSST2011 (22 – 24 November 2011)
49. Leader for Sub Team on Human Capital Development, Linkage between Academia and Industry under the Solid State Lighting Cluster NCIA (2010-2012)
50. Reviewer for manuscript submitted for MAPIM Award (2012)
51. Reviewer for manuscript submitted for publication in Solid State Electronics special ISDRS issue (2012)
52. Reviewer for manuscript submitted for publication in Applied Optics (2012)
53. Reviewer for manuscript submitted for publication in Physica Status Solidi (a) (2012)
54. Reviewer for manuscript submitted for publication in Materials Science in Semiconductor Processing (2012)
55. Program Committee Member for 2012 International Joint Conference on Physics, New Materials and Information Engineering (PNI 2012)
56. Advisor for 8th Asean Meeting on Electroceramics - AMEC8 (2012)
57. Advisor for National Conference on Physics (PERFIK 2012)
58. International Advisory Committee for 4th International Conference on Solid State Science and Technology – ICSSST2012 (2012)

59. Reviewer for manuscript submitted for publication in Indian Journal of Engineering & Materials Sciences (2012)
60. Reviewer for manuscript submitted for publication in Journal of Luminescence (2012)
61. Reviewer for manuscript submitted for publication in Sains Malaysiana (2012)
62. Reviewer for manuscript submitted for publication in Thin Solid Films (2012)
63. Reviewer for manuscript submitted for publication in Journal of Physics and Chemistry of Solids (2012)
64. Reviewer for manuscript submitted to 2013 International Conference on Science and Engineering in Mathematics, Chemistry and Physics (ScieTech 2013) (2012)
65. Reviewer for manuscript submitted for publication in Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy (2012)
66. Reviewer for a postdoctoral research project proposal under the Czech Science Foundation (2012)
67. Evaluator for promotion to the academic rank of full professor for University of Baghdad, Iraq (2012 and 2013)
68. Technical Program Committee for 2013 International Conference on Science and Engineering in Mathematics, Chemistry and Physics (ScieTech 2013) – January 2013
69. Conference Committee Member for 2013 Asia-Pacific International Congress on Engineering and Natural Sciences (APICENS) – April 2013 - Thailand
70. Conference Committee Member for 2013 Asia-Pacific International Congress on Engineering and Natural Sciences (APICENS) – December 2013 – Taiwan
71. Technical Program Committee for 2014 International Conference on Science and Engineering in Mathematics, Chemistry and Physics (ScieTech 2014) – January 2014
72. Local Organising Committee for 4th International Meeting on Frontiers of Physics - IMFP2013 (2013)
73. Editorial board of the Journal of Materials Science and Engineering with Advanced Technology (2013)
74. Jury President for Loreal Malaysia For Women in Science National Fellowships 2013 (2013)
75. Reviewer for a research project proposal under the Czech Science Foundation (2013)
76. Reviewer for manuscript submitted for publication in Materials Express (2013)
77. IPT Evaluation Panel for Fundamental Research Grant Scheme (FRGS) Applications (2013)
78. Reviewer for manuscript submitted for publication in Materials Chemistry and Physics (2013, 2014)
79. Evaluation Panel for Research Acculturation Collaborative Effort (RACE) Grant Applications (2013)

80. Evaluator for promotion to the academic rank of full professor for Basrah University, Iraq (2013)
81. Chairman of Workshop on Advanced Semiconductor Technology: Fabrication, Characterization and Applications – WASTECH2013 (2013)
82. International Scientific Committee Chair for Annual International Conference on Intelligent Materials, Power and Energy AIMPE14
83. Editorial Board Member of Journal of Materials (2014 - 2017)
84. IPT Evaluation Panel for Long Term Research Grant Scheme (LRGS) Applications (2014)
85. Chairman of 1st meeting of Malaysia Nitrides Research Group (MNRG 2014)
86. Chairman of the Interview Panel for Malaysian International Scholarship (MIS) 2014
87. Reviewer for manuscript submitted for publication in Walailak Journal of Science and Technology (2014)
88. IPT Evaluation Panel for Transdisciplinary Research Grant Scheme (TRGS) Applications (2014)
89. Conference Committee Member for 2014 Asia-Pacific International Congress on Engineering and Natural Sciences (APICENS) – August 2014 – Singapore
90. Editorial Board Member of Journal of Kufa Physics (2014 - 2017)
91. Reviewer for manuscript submitted for publication in Journal of Luminescence (2014)
92. IPT Evaluation Panel for Prototype Development Research Grant Scheme (PRGS) Applications (2014, 2015)
93. Member of the International Working Group “Ibn Al Haytham” for International Year of Light - IYL 2015 (under UNESCO)
94. Member of GaN-on-GaN Epitaxy Program Oversight Committee (2015 - 2021)
95. International Organizing Committee for EMN Istanbul Meeting – Energy Materials Nanotechnology (2015)
96. Conference Committee Member for 2015 Asia-Pacific International Congress on Engineering and Natural Sciences (APICENS) – July 2015 – Japan
97. Chairman of 2nd meeting of Malaysia Nitrides Research Group (MNRG 2015)
98. Certified Member of Steinbeis Transfer Centre Network (2015 - present)
99. Reviewer for manuscript submitted for publication in Ceramics International (2015)
100. External assessor for promotion to the academic rank of Professor for Universiti Teknologi Malaysia (2015)
101. Program Committee Member for AeroEarth 2015 Conference (2015)
102. Reviewer for a research project proposal under the Czech Science Foundation (2015)

103. Evaluator for USM Innovation Seed Fund (2015)
104. Chairman of International Symposium on LED and OLED Technology in Conjunction with the International Year of Light 2015 (ISOLED 2015)
105. Reviewer for manuscript submitted for publication in Diamond and Related Materials (2015)
106. External examiner for Universiti Tun Hussein Onn Malaysia (UTHM) (2015-2017)
107. Program Chair and Editor for 5th International Conference on Nanostructures, Nanomaterials and Nanoengineering 2016 (ICNNN 2016)
108. Interview panel for USM Fellowship (2015, 2016)
109. Editor-in-Chief for Thin Film Luminescence - new journal (2016)
110. Advisory Committee Member for 3rd Meeting of Malaysia Nitrides Research Group (MNRG 2016)
111. Editor for Proceedings of 3rd Meeting of Malaysia Nitrides Research Group (MNRG 2016)
112. Reviewer for manuscript submitted for publication in Materials and Design (2016)
113. International Organizing Committee for EMN Americas Meetings – Energy Materials Nanotechnology (2016)
114. Ibn al Haytham LHiSA International Society - listed as LHiSA Founders (2016 - present)
115. Committee Member for Ministry of Higher Education Fundamental Research Grant (FRGS) Evaluation (2016-2018)
116. IPT Evaluation Panel for Fundamental Research Grant Scheme (FRGS) Applications (2017-2018)
117. Evaluation Panel for Research University Grant (Individual) Applications (2017)
118. Technical Program Committee for 5th International Conference on Science and Engineering in Mathematics, Chemistry and Physics 2017 (ScieTech 2017)
119. Program Chair for AeroEarth 2017 Conference
120. Evaluation panel of tender specifications/technical for Academy of Sciences Malaysia (2017)
121. Reviewer for manuscript submitted for publication in ACS Applied Materials & Interfaces (2017)
122. Senate member of the Universiti Sains Malaysia (2017-2021)
123. Member of University Research Council (2017-2020)
124. Technical Committee for The 6th International Conference on Nanostructures, Nanomaterials and Nanoengineering 2017 (ICNNN 2017)

125. Technical Program Committee for The 5th International Conference on Advances in Intelligent Systems in Bioinformatics, Chem-Informatics, Business Intelligence, Social Media and Cybernetics 2017 (Intelisys 2017)
126. Technical Program Committee for The 2nd International Conference on Theoretical and Applied Mathematics, Physics and Chemistry 2017 (The Science 2017)
127. Technical Committee for The International Conference on Materials Technology and Applications 2017 (ICMTA 2017)
128. Reviewer for a research proposal under the Swiss National Science Foundation (2017)
129. Advisory Board Member for Journal of Science and Technology (2017 - 2020)
130. Committee member for EMN Americas Meetings – Energy Materials Nanotechnology (2017)
131. Advisory Committee Member for Workshop on Advanced Materials Technology: Growth and Characterization (AMT:GC) 2017
132. Keynote speaker for 3rd International Conference on the Applications of Science and Mathematics (SCIEMATHIC 2017) October 24-25, 2017
133. Plenary speaker for 6th International Conference on Solid State Science and Technology (ICSSST 2017) – November 13-16, 2017
134. Invited speaker (Pocket Talk) at Astana Expo 2017, Kazakhstan
135. Technical Program Committee for 6th International Conference on Science and Engineering in Mathematics, Chemistry and Physics 2018 (ScieTech 2018)
136. Evaluator for promotion to the academic rank of full professor for Basrah University, Iraq (2018)
137. Advisory Committee Member for Symposium on Advanced Materials and Nanotechnology 2018 (SAMN 2018)
138. Program Chair and Technical Program Committee for AeroEarth 2018 Conference
139. Member of Board of Studies for MSc Mixed Mode Program (2018)
140. Section Editors for Journal of Kufa Physics (2018 - 2021)
141. Evaluation Panel for Newton-Ungku Omar Fund for Mobility Grants (Natural Sciences) (2018)
142. Reviewer for manuscript submitted for publication in Thin Solid Films (2018)
143. Reviewer for manuscript submitted for publication in Journal of Alloys and Compounds (2018)
144. Chairman for International Conference on Semiconductor Materials and Technology (ICoSeMT 2019)
145. Editorial Board Member for International Conference on Semiconductor Materials and Technology (ICoSeMT 2019)

146. Committee Member for Ministry of Higher Education Fundamental Research Grant (FRGS) Evaluation (2019)
147. Evaluator for promotion to the academic rank of Full Professor for Basrah University, Iraq (2019)
148. IPT Evaluation Panel for Fundamental Research Grant Scheme (FRGS) Applications (2019)
149. Department of Higher Education (Ministry of Education) Evaluation Panel for Fundamental Research Grant Scheme (FRGS) Applications (2019)
150. Department of Higher Education (Ministry of Education) Evaluation Panel for Prototype Development Research Grant Scheme (PRGS) Applications (2019)
151. External Examiner for Postgraduate Degree Programs for Universiti Malaysia Perlis (2019/2020)
152. Technical Committee Member for 5th Global Nanotek Summit (2019)
153. Moderator at National Nanotechnology Colloquium on GaN, TeraHertz and Flexible Electronics (2019)
154. Task Force for Committee on Policy Study and Embargo System for Patenting Thesis Findings (2019)
155. Sharing Session with Ohio University Women in Physics and Astronomy group (2019)
156. Referee for promotion to the academic rank of Associate Professor for Universiti Kebangsaan Malaysia (2019)
157. Public Speaker for Honorary Doctorate at USM 50th Anniversary Commemorative Convocation Ceremony (2019)
158. Department of Higher Education (Ministry of Education) Evaluation Panel for Prototype Development Research Grant Scheme (PRGS) Applications (2020)
159. IPT Evaluation Panel for Fundamental Research Grant Scheme (FRGS) Applications (2020-2021)
160. Evaluator for promotion to the academic rank of Associate Professor for University of the Punjab, Lahore, Pakistan (2020)
161. Evaluator for promotion to the academic rank of Associate Professor for Universiti Tun Hussein Onn Malaysia (2020)
162. Department of Higher Education (Ministry of Education) Evaluation Panel for Fundamental Research Grant Scheme (FRGS) Applications (2020)
163. Member of USM Academic Strategic Committee (2020-2021)
164. International Scientific Committee (Physics Section) for the 2nd Annual International Conference on Information and Sciences – AiCIS 2020 (2020)
165. Committee Member for Ministry of Higher Education Research Fund (DP KPT) (2020)
166. Reviewer for manuscript submitted for publication in Journal of Electronic Materials (2020)

167. Evaluator for promotion to the academic rank of Professor for Universiti Kebangsaan Malaysia (2020)
168. Member of University Research Council (2020-2023)
169. Advisor for 5th Meeting of Malaysia Nitrides Research Group (MNRG 2020) Virtual Conference (2020)
170. Department of Higher Education (Ministry of Education) Evaluation Panel for Prototype Development Research Grant Scheme (PRGS) Applications (2021)
171. Panel member of vetting committee for 2 disciplines for election of Fellows for Academy of Sciences Malaysia (2021)
172. Advisor for 2nd International Conference on Semiconductor Materials and Technology (ICoSeMT 2021) and International Invention, Innovation & Design Expo (INoDEx 2021)
173. Evaluator for promotion to the academic rank of Professor for Universiti Malaysia Perlis (2021)
174. Advisory Editorial Board of Journal of Science and Technology (2021 - 2022)
175. Editorial Board of Emergent Materials - Women in Nanotechnology Special Issue (2021-2022)
176. Evaluation committee panel for Ministry of Higher Education Research Fund (DP KPT) (2021-2022)
177. Reviewer for manuscript submitted for publication in Sensors and Actuators: A. Physical (2021)
178. Reviewer for manuscript submitted for publication in Bulletin of Electrical Engineering and Informatics (2021)
179. Validator for updating process of the Malaysian Research and Development Classification System (MRDCS) 7th Edition (2021)
180. Guest editorial for special issue in Microelectronics International (2021)
181. Reviewer for USM Special Short Term Grant application (2021)
182. Editorial Board of 2nd International Conference on Semiconductor Materials and Technology (ICoSeMT 2021) and International Invention, Innovation & Design Expo (INoDEx 2021)
183. Technical Review Panel for promotion to the academic rank of Associate Professor for COMSATS University Islamabad, Pakistan (2021)
184. Public Speaker for Honorary Doctorate at USM 58th Convocation Ceremony (2021)
185. Editor for Journal of Kufa - physics (2022)
186. Panel member of the vetting committee for election of Fellows for Academy of Sciences Malaysia (2022)
187. External Examiner for Postgraduate Programs for Universiti Malaysia Perlis (2021/2022)

188. Department of Higher Education (Ministry of Education) Evaluation Panel for Prototype Development Research Grant Scheme (PRGS) Applications (2022)
189. IPT Evaluation Panel for Fundamental Research Grant Scheme (FRGS) Applications (2022)
190. Reviewer for manuscript submitted for publication in Physica Status Solidi B: Basic Solid State Physics (2022)
191. Department of Higher Education (Ministry of Education) Evaluation Panel for Fundamental Research Grant Scheme (FRGS) Applications (2022)
192. Reviewer for manuscript submitted for publication in Optical and Quantum Electronics (2022)
193. Reviewer for manuscript submitted for publication in Iraqi Journal of Physics (2022)
194. Reviewer for manuscript submitted for publication in Diamond and Related Materials (2022)
195. Advisor for 6th Meeting of Malaysia Nitrides Research Group (MNRG 2022) Virtual Conference (2022)
196. Reviewer for manuscript submitted for publication in Thin Solid Films (2022)
197. Evaluator for promotion to the academic rank of Associate Professor for University of the Punjab, Lahore, Pakistan (2022)
198. Panel member of the vetting committee for election of Fellows for Academy of Sciences Malaysia (2023)

Scholarships/ Academic Awards/Recognitions

- | | |
|--|--------------------------|
| 1. Gold Medal Award (DYMM Sultan Kedah, Malaysia) | 1978 |
| 2. Ministry of Education of Malaysia Scholarship | 1979-1985 |
| 3. Dean's List (Western Michigan University, U.S.A) | Winter 1980
Fall 1980 |
| 4. Outstanding Scholarship Award (Western Michigan University) | 1984/1985 |
| 5. Academic Staff Training Scheme Fellowship (USM) | 1994-1997 |
| 6. Graduate Scholarship (Ohio University) | 1997-1998 |
| 7. Condensed Matter and Surface Science (CMSS) Poster Award | 1998 |
| 8. Excellent Service Award (USM) | 2003 |
| 9. Fulbright Research Scholar Award (CIES, U.S.A) | 2004 |
| 10. Graduate Research Exposition (USM) | 2004 |
| 11. Sanggar Sanjung (Hall of Fame) Award (USM) | 2004 |

- Journal Publication Category
- 12. Sanggar Sanjung (Hall of Fame) Award (USM) 2005
 - Journal Publication Category
- 13. Excellent Service Award (USM) 2005
- 14. A biographee in the 2006-2007 (9th) Edition of Marquis Who's Who in Science and Engineering 2006/2007
- 15. Sanggar Sanjung (Hall of Fame) Award and Merit Reward (USM) 2006
 - Journal Publication Category
- 16. Sanggar Sanjung (Hall of Fame) Award and Merit Reward (USM) 2007
 - Journal Publication Category
- 17. A biographee in the 25th Silver Anniversary Edition (2008) of Marquis Who's Who in the World 2008
- 18. A biographee in the 10th Anniversary Edition (2008-2009) of Marquis Who's Who in Science and Engineering 2008/2009
- 19. Merit Reward (USM) 2008
- 20. Excellent Service Award (USM) 2008
- 21. Sanggar Sanjung (Hall of Fame) Award and Merit Reward (USM) 2009
 - Journal Publication Category
- 22. A biographee in the edition of Marquis Who's Who in the World 2009/2010/
2014/2015/
2016
- 23. International Outstanding Science, Engineering and Technology Excellence Award 2010
- 24. ITEX Bronze Medal at the 21st International Invention, Innovation, and Technology Exhibition ITEX 2010 2010
- 25. Merit Reward (USM) 2010
- 26. Accomplished USM Researchers on ResearcherID (Thomson Reuters) 2010
- 27. MTE Bronze Medal at the Malaysia Technology Expo MTE 2011 2011
- 28. Award for best poster presentation at The International Conference For Nanomaterials Synthesis and Characterization (INSC2011) 2011
- 29. IID Gold Medals at the Invention, Innovation & Design IID Penang 2011 – 2 gold medals 2011
- 30. IID Bronze Medal at the Invention, Innovation & Design IID Kedah 2011 2011
- 31. Sanggar Sanjung (Hall of Fame) Award and Merit Reward (USM) 2011
 - Journal Publication Category
- 32. A biographee in the edition of Marquis Who's Who in Asia and the 30th Pearl Anniversary Edition of Marquis

Who's Who in the World	2012
33. IID Gold Medal at the Invention, Innovation & Design IID Perak 2012	2012
34. Sanggar Sanjung (Hall of Fame) Award (USM) - Journal Publication Category	2012
35. MIMOS Prestigious Award 2013 Certificate of Merit	2013
36. Top Research Scientists Malaysia (TRSM)	2013
37. Silver Medal at the Innovation Platform 2013	2013
38. Bronze Medal at the Innovation Platform 2013	2013
39. Sanggar Sanjung (Hall of Fame) Award (USM) - Journal Publication Category	2013
40. Penang Invention, Innovation and Research Design 2014 PIID 2014 – – 2 Gold Medals	2014
41. Bronze Medal at 5 th Exposition on Islamic Innovation 2014	2014
42. Sanggar Sanjung (Hall of Fame) Award (USM) - Journal Publication Category - Patent Category	2014
43. A biographee in the edition of MALAYSIA: Who's Who In The Civil Service: The Steel Backbone Of The Government - Creme De La Creme	2015
43. Penang Invention, Innovation and Design 2015 PIID 2015 – – 1 Silver Medal and 1 Diamond Medal	2015
44. Sanggar Sanjung (Hall of Fame) Award (USM) - Journal Publication Category	2015
45. Fellow of Academy of Sciences Malaysia	2016
46. Gold Medal at Eureka Innovation Exhibition International Level - EIE 2016	2016
47. Sanggar Sanjung (Hall of Fame) Award (USM) - Journal Publication Category - Prominent Figure (<i>Ketokohan</i>) Category	2016
48. 10 Top Malaysian Scientists on Nano	2017
49. 2017 Albert Nelson Marquis Lifetime Achievement Award	2017
50. Gold Medal at Penang International Invention, Innovation and Research Design Platform 2017 - PIID 2017	2017
51. Bronze Medal at The 1 st International Malaysia-Indonesia-Thailand Symposium on Innovation and Creativity - iMIT 2017	2017
52. Silver Medal at Invention, Innovation and Design Exposition 2017	

Project Leaders: Dr. Zul Azhar Zahid Jamal, Dr. Md. Roslan Hashim,
Co-researchers: Prof. Kamarulazizi Ibrahim, Dr. Azlan Abdul Aziz,
Dr. Zainuriah Hassan,

**3. AUN/SEED-Net - Asean University Network South East Asia Engineering Education Development Network
1/2002 – 12/2003**

Amount of grant: **US\$ 24,930.00**

Title: ***Doping of GaN and AlGaIn by Plasma Enhanced MOCVD and its application to Photodetector and FET***

Team Researchers: Prof. M. Barmawi, Dr. M. Budiman (ITB, Indonesia)
Prof. Kamarulazizi Ibrahim, **Dr. Zainuriah Hassan**
(USM, Malaysia)

**4. IRPA (RM8) Strategic Research
1/7/2002 – 31/12/2006**

Amount of grant: **RM 11,299,914.00**

Title: ***Material (III-V Nitrides and Organic Layers) Fabrication and Characterization***
(Programme: Blue Light Emitting Devices, Programme Head: Prof Kamarulazizi Ibrahim – Total grant RM 22,499,598.00)

Project Leader: **Dr. Zainuriah Hassan**
Co-researchers: Assoc. Prof Haslan Abu Hassan, Dr. Zul Azhar Zahid Jamal

5. Fulbright Grant 12/2004 – 3/2005

Amount of grant: **US\$ 10,900.00**

Title: ***III-V Nitrides (GaN and Related Alloys) Fabrication and Characterization for Optoelectronic/Novel Device Applications***

Team Researchers: **Dr. Zainuriah Hassan** (USM, Malaysia)
Prof. Dr. Paul Ruden (University of Minnesota, U.S.A)

**6. Scientific Advancement Fund Allocation (SAGA) Grant
2006 – 2008**

Amount of grant: **RM 175,000.00**

Title: ***Investigation of Charge Conduction Mechanisms in Dielectric based on Wide-Bandgap Semiconductor***

Project Leader: Dr. Cheong Kuan Yew
Co-researchers: **Dr. Zainuriah Hassan**, Assoc. Prof Azizan Aziz, Dr. Zainovia Lockman

7. USM Short Term Grant

6/2006 - 5/2008

Amount of grant: RM 11,600.00

Title: Laser induced Etching (LIE) Technique used for Synthesis of Porous GaN

Principal researcher: Dr. Khalid Mutashar Omar
Co-researcher: Prof. Madya Haslan Abu Hassan
Dr. Zainuriah Hassan
Dr. Md Roslan Hashim

8. Fundamental Research Grant Scheme (FRGS)

11/2006 – 10/2009

Amount of grant: RM 60,000.00

Title: Investigation of Charge Conduction Mechanisms in Dielectric based on Single-Crystal SiC and GaN

Project Leader: Dr. Cheong Kuan Yew
Co-researchers: Dr. Zainuriah Hassan, Assoc. Prof Azizan Aziz, Dr. Zainovia Lockman

9. Fundamental Research Grant Scheme (FRGS)

1/2007 – 1/2010

Amount of grant: RM 39,000.00

Title: The growth mechanism of zinc oxide nanostructures

Project Leader: Dr. Saw Kim Guan
Co-researcher: Dr. Zainuriah Hassan,

10. USM Short Term Grant

5/2007 - 4/2009

Amount of grant: RM 13,200.00

Title: Structural and optical properties of novel Ni_xZn_yO_z nanostructures on (0001) zinc oxide

Principal researcher: Dr. Saw Kim Guan
Co-researcher: Dr. Zainuriah Hassan

11. USM Short Term Grant

1/2007 - 4/2009

Amount of grant: RM 34,872.00

Title: Organic light emitting diodes (OLEDs) based on polymers of polyfluorene derivatives

Principal researcher: Assoc. Prof. Dr. Haslan Abu Hassan
Co-researcher: Assoc. Prof. Dr. Zainuriah Hassan

12. USM Short Term Grant

6/2007 - 6/2009

Amount of grant: RM 15,436.00

*Title: **III-nitrides (GaN-based) quantum dots for optoelectronics application***

Principal researcher: Assoc. Prof. Dr. Zainuriah Hassan
Co-researcher: Assoc. Prof. Dr. Haslan Abu Hassan
Dr. Yam Fong Kwong

13. Fundamental Research Grant Scheme (FRGS)

10/2007 – 10/2009

Amount of grant: RM 92,000.00

*Title: **Growth and characterization of $In_xGa_{1-x}N$ nanostructures***

Project Leader: Assoc. Prof. Dr. Zainuriah Hassan
Co-researcher: Assoc. Prof. Dr. Haslan Abu Hassan
Dr. Yam Fong Kwong

14. Fundamental Research Grant Scheme (FRGS)

10/2007 – 10/2009

Amount of grant: RM 100,000.00

*Title: **Effects of aluminium (Al) composition, x , on surface phonon polariton (SPP) modes of $Al_xGa_{1-x}N$ thin films***

Project Leader: Assoc. Prof. Dr. Haslan Abu Hassan
Co-researcher: Assoc. Prof. Dr. Zainuriah Hassan
Dr. Yam Fong Kwong

15. Science Fund

9/2007 – 11/2009

Amount of grant: RM 233,000.00

*Title: **Growth and fabrication of blue laser structures based on III-V nitrides***

Project Leader: Assoc. Prof. Dr. Zainuriah Hassan
Co-researcher: Assoc. Prof. Dr. Haslan Abu Hassan
Assoc. Prof. Dr. Azlan Abdul Aziz
Prof. Dr. Kamarulazizi Ibrahim
Assoc. Prof. Dr. Md. Roslan Hashim

16. Science Fund

8/2007 – 7/2009

Amount of grant: **RM 327,400.00**
Title: **Studies on the structural and optical properties of III-V nitrides (InAlGaN) quaternary nitrides alloys thin films**

Project Leader: Assoc. Prof. Dr. Haslan Abu Hassan
Co-researcher: **Assoc. Prof. Dr. Zainuriah Hassan**

17. Science Fund

8/2007 – 7/2009

Amount of grant: **RM 317,900.00**
Title: **High Efficiency Multispectrum Solar Cell**

Project Leader: Prof. Dr. Kamarulazizi Ibrahim
Co-researcher: **Assoc. Prof. Dr. Zainuriah Hassan**
Assoc. Prof. Dr. Haslan Abu Hassan
Assoc. Prof. Dr. Md. Roslan Hashim
Assoc. Prof. Dr. Azlan Abdul Aziz

18. Research University (RU) Grant

10/2007 – 9/2010

Amount of grant: **RM 873,600.00**
Title: **Nano Optoelectronics**

Project Leader: Prof. Dr. Kamarulazizi Ibrahim
Co-researcher: **Assoc. Prof. Dr. Zainuriah Hassan**
Assoc. Prof. Dr. Haslan Abu Hassan
Assoc. Prof. Dr. Md. Roslan Hashim
Prof. Mat Johar Abdullah
Assoc. Prof. Dr. Azlan Abdul Aziz
Dr. Magdy Hussien Mourad
Dr. Yam Fong Kwong

19. Science Fund

10/2007 – 9/2009

Amount of grant: **RM 213,000.00**
Title: **Fabrication and characterization of blue lasing devices**

Project Leader: Assoc. Prof. Dr. Azlan Abdul Aziz
Co-researcher: Assoc. Prof. Dr. Md. Roslan Hashim
Prof. Dr. Kamarulazizi Ibrahim
Prof. Mat Johar Abdullah
Assoc. Prof. Dr. Zainuriah Hassan
Assoc. Prof. Dr. Haslan Abu Hassan

20. USM Short Term Grant

3/2008 - 2/2010

Amount of grant: RM 35,586.00

Title: Development of electron-beam evaporated CeO₂ thin film on 4H-SiC as High Power Gate Oxide

Project Leader: Ir. Dr. Cheong Kuan Yew
Co-researchers: Dr. Zainovia Lockman
Dr. Zainuriah Hassan

21. Research University (RU) Grant

5/2008 – 5/2010

Amount of grant: RM 145,153.68

Title: The fabrication and investigation of diamond/zinc oxide heterojunction

Project Leader: Assoc.Prof. Dr. Saw Kim Guan
Co-researcher: Dr. Yam Fong Kwong
Assoc. Prof. Dr. Zainuriah Hassan
Dr. Ng Sha Shiong

22. USM Short Term Grant

8/2008 - 8/2010

Amount of grant: RM 30,671.00

Title: The fabrication and investigation of hydrogen sensitive GaN device

Project Leader: Dr. Yam Fong Kwong
Co-researchers: Assoc. Prof. Dr. Zainuriah Hassan

23. Research University (RU) Grant

9/2009 – 8/2011

Amount of grant: RM 99,549.20

Title: Surface phonon and interface phonon polaritons characteristics of III-nitrides heterostructure systems

Project Leader: Dr. Ng Sha Shiong
Co-researcher: Prof. Dr. Zainuriah Hassan
Assoc. Prof. Dr. Haslan Abu Hassan
Siti Khadijah Mohd Bakhori

24. Incentive Grant (Postgraduate Student)

2009 – 2011

Amount of grant: RM 35,000.00 (accumulative total)

Title:

1. *Characterizations of Al, Ti and TiN film and Ar preclean process*
2. *Research on quantum chaotic maps with an emphasis on cryptography*
3. *RF-MBE growth of III-nitrides on silicon for light emitting/detecting applications*
4. *Investigation of the effects of doping on the characteristics of III-nitrides quantum dot laser*
5. *Schottky diodes based on III-nitrides for gas sensing applications*
6. *III-nitrides heterostructures for solar cells applications*

Supervisor: **Prof. Dr. Zainuriah Hassan**
 Student: Leow Mun Tyng
 Afshin Akhshani
 Mohd Zaki Mohd Yusoff
 Ghasem Alahyarizadeh
 Teo Silk Guan
 Rosfariza Radzali

**25. Fundamental Research Grant Scheme (FRGS)
 12/2009 – 12/2011**

Amount of grant: RM 36,000.00

Title: Infrared attenuated total reflection infrared studies on the surface phonon polariton in wide band gap zinc oxide semiconductors

Project Leader: Dr. Ng Sha Shiong
 Co-researcher: Assoc. Prof. Dr. Haslan Abu Hassan
Prof. Dr. Zainuriah Hassan

**26. Research University (RU) Grant
 4/2010 – 3/2013**

Amount of grant: RM 247,950.00

Title: III-nitride based nanostructured material grown by novel technique

Project Leader: Dr. Yam Fong Kwong
 Co-researcher: **Prof. Dr. Zainuriah Hassan**

**27. Fundamental Research Grant Scheme (FRGS)
 5/2010 – 4/2012**

Amount of grant: RM 79,200.00

Title: Study of nanostructured porous GaN prepared by electrochemical and laser induced etching techniques

Project Leader: **Prof. Dr. Zainuriah Hassan**
 Co-researcher: Assoc. Prof. Dr. Haslan Abu Hassan
 Dr. Khalid Mutashar Omar
 Mohd Anas Ahmad
 Yushamdan Yusof

28. Fundamental Research Grant Scheme (FRGS)
5/2010 – 4/2012

Amount of grant: RM 65,600.00

*Title: **The fabrication and investigation of TiO₂ nanotubes with embedded metallic nanoparticles***

Project Leader: Dr. Yam Fong Kwong
Co-researcher: Prof. Dr. Zainuriah Hassan

29. Research University (RU) Grant
8/2010 – 10/2012

Amount of grant: RM 244,990.00

*Title: **Wide band gap GaN-based semiconductors for gas sensing applications***

Project Leader: Prof. Dr. Zainuriah Hassan
Co-researcher: Dr. Yam Fong Kwong
Dr. Ng Sha Shiong
Dr. Khalid Mutashar Omar
Mohd Anas Ahmad

30. Excellence Fund
6/2010 - 5/2011

Amount of grant: RM 8,000.00

*Title: **Preparation and characterization of undoped porous gallium nitride (GaN) by UV assisted electrochemical etching***

Project Leader: Mohd Bukhari Md Yunus
Co-researchers: Ainorkhilah Mahmood
Prof. Dr. Zainuriah Hassan

31. USM Short Term Grant
11/2010 - 10/2011

Amount of grant: RM 36,121.00

*Title: **Metal oxide nanostructures on silicon substrates***

Project Leader: Dr. Chuah Lee Siang
Co-researchers: Prof. Dr. Zainuriah Hassan
Siti Khadijah Mohd Bakhori
Yushamdan Yusof
Mohd Anas Ahmad

32. Excellence Fund
12/2010 - 11/2011

Amount of grant: RM 7,000.00

Title: Structural and optical studies of III-nitrides heterostructures grown on silicon substrates by plasma assisted molecular beam epitaxy (PAMBE)

Project Leader: Mohd Zaki Mohd Yusoff
Co-researchers: Prof. Dr. Zainuriah Hassan
Mohd Bukhari Md Yunus
Mohd Anas Ahmad
Yushamdan Yusof

**33. Fundamental Research Grant Scheme (FRGS)
5/2011 – 4/2014**

Amount of grant: RM 100,000.00

Title: Effects of aluminum (Al), x and indium (In), y compositions on surface and interface phonon polariton (SPP and IPP) modes of $Al_xIn_yGa_{1-x-y}N$ and ZnO thin films

Project Leader: Prof. Dr. Haslan Abu Hassan
Co-researcher: Prof. Dr. Zainuriah Hassan
Dr. Ng Sha Shiong

**34. Excellence Fund
6/2011 - 5/2012**

Amount of grant: RM 10,000.00

Title: Molecular beam epitaxy (MBE) growth of III-nitrides materials on silicon substrates for photodetector applications

Project Leader: Nurul Nazwa Mohammad
Co-researchers: Prof. Dr. Zainuriah Hassan
Mohd Zaki Mohd Yusoff

**35. USM Short Term Grant
8/2011 - 8/2013**

Amount of grant: RM 30,953.00

Title: Optical study on III-nitride semiconductor materials and its devices

Project Leader: Dr. Norzaini Zainal
Co-researchers: Prof. Dr. Zainuriah Hassan
Dr. Ahmad Suhaimi Abu Bakar

**36. Fundamental Research Grant Scheme (FRGS)
8/2011 – 7/2013**

Amount of grant: RM 130,000.00

Title: Studies on transition metal impregnated $Mx(InGa)_{1-x}N$ modulated structures for wide band gap multi-junction solar cells

Project Leader: Dr. Mutharasu Devarajan
Co-researcher: Prof. Dr. Kamarulazizi Ibrahim

Prof. Dr. Zainuriah Hassan
Dr. Subramani Shanmugan

37. Exploratory Research Grant Scheme (ERGS)
8/2011 – 8/2013

Amount of grant: RM 231,000.00

Title: Investigation on vapor phase epitaxy processes for growth of nitride-based wide bandgap semiconductor thin films

Project Leader: Dr. Ahmad Shuhaimi Abu Bakar
Co-researcher: Dr. Zarina Aspanaut
Dr. Mohd Faizul Mohd Sabri
Prof. Dr. Zainuriah Hassan
Assoc. Prof. Dr. Mohamad Rusop Mahmood
Dr. Nafarizal Nayan
Dr. Norzaini Zainal
Dr. Zul Azri Muhamad Noh
Mohaamad Hafiz Mamat

38. USM Short Term Grant
12/2011 - 11/2013

Amount of grant: RM 36,904.00

Title: The fabrication of zinc oxide nanostructures on boron-doped diamond heterojunction for ultraviolet energy detection

Project Leader: Assoc. Prof. Dr. Saw Kim Guan
Co-researchers: **Prof. Dr. Zainuriah Hassan**
Dr. Ng Sha Shiong
Dr. Yam Fong Kwong

39. Fundamental Research Grant Scheme (FRGS)
4/2011 – 3/2013

Amount of grant: RM 63,000.00

Title: Study of nanostructured porous ZnO

Project Leader: Dr. Chuah Lee Siang
Co-researcher: **Prof. Dr. Zainuriah Hassan**

40. USM Short Term Grant
8/2011 - 8/2013

Amount of grant: RM 37,112.00

Title: Synthesis and characterization of spray pyrolysis porous Ni-doped SnO₂

Project Leader: Dr. Chuah Lee Siang
Co-researcher: **Prof. Dr. Zainuriah Hassan**

41. Collaborative Research in Engineering, Science & Technology (CREST) Research Grant

2012 - 2013

Amount of grant: RM 284,200.00

*Title: **Prototype design and testing of efficient metal ceramic printed circuit boards (MCPCB) as heat sinks for high power LEDs – solid state lighting applications***

Project Leader: Assoc. Prof. Dr. Mutharasu Devarajan
Co-researchers: Prof. Dr. Kamarulazizi Ibrahim
Prof. Dr. Zainuriah Hassan
Dr. Subramani Shanmugan

42. Fundamental Research Grant Scheme (FRGS)

6/2012 – 5/2014

Amount of grant: RM 92,000.00

*Title: **Investigation on hexagonal inclusions in cubic gallium nitride materials***

Project Leader: Dr. Norzaini Zainal
Co-researcher: **Prof. Dr. Zainuriah Hassan**
Dr. Ng Sha Shiong
Dr. Naser Mahmoud Ahmed
Prof. Datin Dr. Saadah Abdul Rahman
Dr. Ahmad Shuhaimi Abu Bakar

43. Research University (RU) Grant

7/2012 – 7/2015

Amount of grant: RM 153,335.40

*Title: **Effect of crystal orientation on the surface and optical phonon characteristics of wurtzite crystals***

Project Leader: Dr. Ng Sha Shiong
Co-researcher: Prof. Dr. Haslan Abu Hassan
Prof. Dr. Zainuriah Hassan

44. Exploratory Research Grant Scheme (ERGS)

8/2012 – 7/2014

Amount of grant: RM 92,000.00

*Title: **Fabrication and characterization of nanostructured compound semiconductors for applications as gas sensors***

Project Leader: **Prof. Dr. Zainuriah Hassan**
Co-researcher: Dr. Yam Fong Kwong
Dr. Ng Sha Shiong
Dr. Naser Mahmoud Ahmed
Dr. Norzaini Zainal
Mohd. Anas Ahmad
Yushamdan Yusof

45. Graduate on Time (GOT) Incentive
7/2012 – 6/2013

Amount of grant: RM 10,000.00

Supervisor: Prof. Dr. Zainuriah Hassan
Student: Asaad Shakir Hussein
Asmiet Ramizy Abd-Alghafour

46. APEX Delivering Excellence 2012 (DE2012)
11/2012 – 6/2015

Amount of grant: RM 229,600.00

Title: Development of $Al_xGa_{1-x}N/GaN$ strained-layer superlattice stack structure for high energy-efficient and cost-effective InGaN based LEDs

Project Leader: Dr. Norzaini Zainal
Co-researcher: Prof. Dr. Zainuriah Hassan
Dr. Yam Fong Kwong
Dr. Azlan Baharin
Assoc. Prof. Dr. Azlan Abdul Aziz
Prof. Datin Dr. Saadah Abdul Rahman
Dr. Ahmad Shuhaimi Abu Bakar
Prof. Dr. Anthony Kent
Assoc. Prof. Mohamad Rusop Mahmood

47. Research University (RU) Grant
12/2012 – 12/2015

Amount of grant: RM 178,800.00

Title: Study of cubic GaN on porous GaAs substrate for high efficient energy devices

Project Leader: Dr. Norzaini Zainal
Co-researcher: Prof. Dr. Zainuriah Hassan
Profesor Mohamad Abu Bakar
Dr. Yam Fong Kwong
Dr. Azlan Baharin
Dr. Ahmad Shuhaimi Abu Bakar

48. Research University (RU) Grant
12/2012 – 12/2015

Amount of grant: RM 189,500.00

Title: Fabrication and characterization of GaN-based heterostructures for energy efficient LED-based solid state lighting

Project Leader: Prof. Dr. Zainuriah Hassan
Co-researcher: Dr. Yam Fong Kwong
Dr. Ng Sha Shiong

Dr. Norzaini Zainal
Mohd. Anas Ahmad
Yushamdan Yusof

49. USM Short Term Grant

4/2013 - 3/2015

Amount of grant: RM 30,500.00

Title: Study of porous anodic alumina for synthesis of ordered nano-structures

Project Leader: Dr. Yam Fong Kwong

Co-researcher: **Prof. Dr. Zainuriah Hassan**

50. Fundamental Research Grant Scheme (FRGS)

4/2013 – 4/2015

Amount of grant: RM 159,000.00

Title: Surface phonon polariton resonance modulation in wurtzite III-nitride semiconductor system via modification of surface structure and formation of alloy structure

Project Leader: Dr. Ng Sha Shiong

Co-researcher: Prof. Dr. Haslan Abu Hassan
Prof. Dr. Zainuriah Hassan

51. Fundamental Research Grant Scheme (FRGS)

5/2013 – 4/2015

Amount of grant: RM 119,200.00

Title: Study of nanostructured porous WO₃

Project Leader: Dr. Chuah Lee Siang

Co-researcher: **Prof. Dr. Zainuriah Hassan**

52. Exploratory Research Grant Scheme (ERGS)

6/2013 – 5/2015

Amount of grant: RM 104,000.00

Title: Producing high quality cubic GaN using porous GaAs substrate for high efficient devices

Project Leader: Dr. Norzaini Zainal

Co-researcher: **Prof. Dr. Zainuriah Hassan**
Prof. Datin Dr. Saadah Abd Rahman
Dr. Ahmad Suhaimi Abu Bakar

53. Exploratory Research Grant Scheme (ERGS)

6/2013 – 5/2015

Amount of grant: RM 180,000.00

Title: Exploration of titania nanostructures for fabrication of high performance dye-sensitized solar cell

Project Leader: Dr. Yam Fong Kwong
Co-researcher: Prof. Dr. Zainuriah Hassan
Prof. It-Meng (Jim) Low
Dr. Ng Sha Shiong

54. Fundamental Research Grant Scheme (FRGS)
12/2013 – 11/2015

Amount of grant: RM 137,000.00

Title: Study of structural and optical properties of nanostructured wide band gap ternary alloy semiconductors

Project Leader: Prof. Dr. Zainuriah Hassan
Co-researcher: Dr. Naser Mahmoud Ahmed
Dr. Ng Sha Shiong
Dr. Norzaini Zainal
Dr. Yam Fong Kwong

55. Fundamental Research Grant Scheme (FRGS)
12/2013 – 11/2015

Amount of grant: RM 114,900.00

Title: Correlated structural and lattice phonon behavioural studies on metal imparted ZnO (Mn_xZn_{1-x}O) multilayer interfaces

Project Leader: Assoc. Prof. Dr. Abdul Razak Ibrahim
Co-researcher: Prof. Dr. Zainuriah Hassan
Dr. Subramani Shanmugan
Assoc. Prof. Dr. Devarajan Mutharasu
Assoc. Prof. Dr. Azlan Abdul Aziz

56. External Grant
11/2013 – 2/2016

Amount of grant: RM 100,000.00

Title: A strategy for the production of thermochromic energy saving materials for use in roofing and other applications

Project Leader: Prof. Dr. Zainuriah Hassan
Co-researcher: Prof. Dr. Farook Adam
Assoc. Prof. Ir. Cheong Kuan Yew
Dr. Yam Fong Kwong
Dr. Ng Sha Shiong
Dr. Naser Mahmoud Ahmed
Mr. Mohd Nor Isman Ismail

57. Fundamental Research Grant Scheme (FRGS)
1/2014 – 12/2016

Amount of grant: RM 200,000.00

*Title: **Preparation and characterization of nanostructured porous ternary and quaternary III-nitrides alloys***

Project Leader: **Prof. Dr. Zainuriah Hassan**
Co-researcher: Dr. Naser Mahmoud Ahmed
Dr. Ng Sha Shiong
Dr. Norzaini Zainal
Dr. Yam Fong Kwong
Dr. Chuah Lee Siang

58. Research University (RU) Grant Top-Down
7/2014 – 6/2017

Amount of grant: RM 1,000,000.00

*Title: **LED technology research cluster (LEDTREC) for development of next generation solid state lighting based on GaN-on-GaN and OLED***

Project Leader: **Prof. Dr. Zainuriah Hassan**

59. ScienceFund

1/2015 – 6/2017

Amount of grant: RM 348,630.00

*Title: **Producing high quality free-standing GaN substrate through cost-effective technique for excellent performance nitrides based devices***

Project Leader: Dr. Norzaini Zainal
Co-researcher: Prof. Dr. Kamarulazizi Ibrahim
Prof. Dr. Zainuriah Hassan
Dr. Ahmad Shuhaimi Abu Bakar
Puan Syarifah Norfaezah Sabki

60. ScienceFund

5/2015 – 10/2017

Amount of grant: RM 395,115.00

*Title: **Low-cost sol-gel spin coating growth of GaN-based semiconductors for optoelectronic applications***

Project Leader: Dr. Ng Sha Shiong
Co-researcher: Prof. Dr. Haslan Abu Hassan
Prof. Dr. Zainuriah Hassan
Dr. Yam Fong Kwong

61. Graduate on Time (GOT) Incentive

11/2015 – 10/2017

Amount of grant: **RM 10,000.00**

Supervisor: Prof. Dr. Zainuriah Hassan
Student: Jalal Jabbar Hassan
Mazin Auny Mahdi

62. Fundamental Research Grant Scheme (FRGS)
8/2016 – 7/2019

Amount of grant: **RM 164,000.00**

Title: Novel concept of role of pitch and shape of patterned sapphire substrate (PSS) in initial epi-growth of nitrides based LEDs for high efficient lighting

Project Leader: Dr. Norzaini Zainal
Co-researcher: Dr. Ahmad Shuhaimi Abu Bakar
Assoc. Prof. Dr. Prbakaran Poopalan
Prof. Dr. Zainuriah Hassan
Mohd Anas Ahmad

63. Fundamental Research Grant Scheme (FRGS)
7/2016 – 7/2018

Amount of grant: **RM 75,000.00**

Title: Fundamental study of ohmic transparent conductive contacts for energy efficient photonics device applications

Project Leader: Dr. Ahmad Hadi Ali
Co-researcher: Dr. Ahmad Shuhaimi Abu Bakar
Assoc. Prof. Dr. Mohd Kamarulzaki Mustafa
Prof. Dr. Zainuriah Hassan

64. Research University (RU) Grant
3/2017 – 2/2020

Amount of grant: **RM 100,000.00**

Title: High cycling performance lithium battery using titanium-based materials

Project Leader: Dr. Yam Fong Kwong
Co-researcher: Prof. Dr. Zainuriah Hassan
Dr. Norzaini Zainal

65. External Grant
12/2015 – 12/2022

Amount of grant: **RM 190,883.19**

Title: GaN on GaN

Project Leader: Prof. Dr. Zainuriah Hassan

**66. LRGS Special Focused Industry Driven Program
10/2017 – 4/2021**

Amount of grant: RM 2,000,000.00

Title: Energy efficient lighting (Program: Wide band gap semiconductors)

Project Leader: **Prof. Dr. Zainuriah Hassan**
Co-researcher: Dr. Ng Sha Shiong
Dr. Lim Way Foong
Dr. Quah Hock Jin
Dr. Norzaini Zainal
Mohd Anas Ahmad
Prof Dr Abdul Manaf Hashim
Dr. Shaharin Fadzli Abd Rahman

**67. Research University (RU) Grant USM
7/2018 – 9/2020**

Amount of grant: RM 87,100.00

Title: Growth and characterization of hybrid heterostructures for ultraviolet emission

Project Leader: **Prof. Dr. Zainuriah Hassan**
Co-researcher: Dr. Naser Mahmoud Ahmed
Dr. Yam Fong Kwong
Dr. Lim Way Foong
Dr. Quah Hock Jin

**68. Fundamental Research Grant Scheme (FRGS)
1/2019 – 12/2021**

Amount of grant: RM 106,500.00

Title: The mechanism of charge transfer for dual-gate SiNW sensor

Project Leader: Assoc. Prof. Dr. Khatijah Aisha
Co-researcher: Assoc. Prof. Dr. Pung Swee Yong
Prof. Dr. Zainuriah Hassan
Dr. Nur Zatil 'Ismah Hashim

**69. Fundamental Research Grant Scheme (FRGS)
1/2019 – 12/2021**

Amount of grant: RM 137,800.00

Title: An insight into the structural, optical and electrical properties of transparent conductive gallium oxide thin films prepared by sol-gel spin coating method

Project Leader: Assoc. Prof. Dr. Ng Sha Shiong
Co-researcher: Dr. Naser Mahmoud Ahmed
Prof. Dr. Zainuriah Hassan
Assoc. Prof. Dr. Saw Kim Guan
Mohd Anas Ahmad
Prof. Dr. Haslan Abu Hassan

Dr Muhammad Firdaus Omar
Muhammad Fadhurul Izwan Abdul Malik

70. Innovation Seed Fund (DIA)

5/2019 – 4/2020

Amount of grant: RM 24,000.00

*Title: **Surface alteration of gallium nitride as growth template***

Project Leader:

Dr Lim Way Foong

Co-researcher:

Prof. Dr. Zainuriah Hassan

Dr. Naser Mahmoud Ahmed

Dr Quah Hock Jin

71. USM Short Term Grant

10/2019 - 9/2021

Amount of grant: RM 35,000.00

*Title: **Template-assisted growth of group III-nitrides nanomaterials and their integration in sensing applications***

Project Leader:

Dr. Beh Khi Poay

Co-researcher:

Prof. Dr. Zainuriah Hassan

Dr. Yam Fong Kwong

72. Hubert Curien Partnership – Hibiscus (PHC-Hibiscus) Grant

11/2019 - 3/2022

Amount of grant: RM 66,000.00

*Title: **Development of InGaN Schottky-based solar cells (INSOL)***

Project Leader:

Prof. Dr. Zainuriah Hassan

Co-researcher:

Assoc. Prof. Dr. Ng Sha Shiong

Dr. Lim Way Foong

Mohd Anas Ahmad

Prof. Dr. Nicolas Fressengeas

Prof. Dr. Sidi Hamady

Queny Kieffer

73. Year 2019 MTSF Science & Technology Research Grant

1/2020 - 12/2020

Amount of grant: RM 15,000.00

*Title: **Growth and characterization of InGaN thin films for solar cell application***

Project Leader:

Ahmad Sauffi Yusof

Co-researcher:

Prof. Dr. Zainuriah Hassan

Assoc. Prof. Dr. Ng Sha Shiong

74. Fundamental Research Grant Scheme (FRGS)
9/2019 - 8/2021

Amount of grant: RM 135,000.00

Title: Investigation of passivating mechanism and metal-oxide-semiconductor characteristics of trivalent Ce doped gallium oxide on wide band gap semiconductors

Project Leader: Dr. Quah Hock Jin
Co-researcher: Prof. Abdul Manaf Hashim
Prof. Cheong Kuan Yew
Assoc. Prof. Dr. Zainovia Lockman
Dr. Naser Mahmoud Ahmed
Prof. Dr. Zainuriah Hassan
Dr. Lim Way Foong
Dr. Mohd Syamsul Nasryiq Bin Samsol Baharin

75. Fundamental Research Grant Scheme (FRGS)
9/2019 - 8/2021

Amount of grant: RM 74,200.00

Title: The role of chlorophyll concentration in modelling underwater optical wireless communication channels

Project Leader: Dr. Faezah Jasman
Co-researcher: Assoc. Prof. Dr. Rosmiwati Mohd Mokhtar
Prof. Dr. Zainuriah Hassan
Dr. Wan Haliza Wan Hassan
Dr. Zaiton Binti Abdul Mutalip

76. Fundamental Research Grant Scheme (FRGS)
9/2019 - 8/2021

Amount of grant: RM 148,250.00

Title: Investigation of growth mechanism and metal-oxide-semiconductor characteristics of different gate oxide configuration in the passivation of silicon carbide surface

Project Leader: Dr. Lim Way Foong
Co-researcher: Prof. Cheong Kuan Yew
Assoc. Prof. Dr. Zainovia Lockman
Prof. Dr. Zainuriah Hassan
Assoc. Prof. Dr. Yam Fong Kwong
Dr. Quah Hock Jin
Dr. Beh Khi Poay

77. Fundamental Research Grant Scheme (FRGS)
9/2019 - 8/2021

Amount of grant: RM 133,000.00

Title: Mechanism of optical limiting action based inorganic-organic hybrid perovskite under continuous laser irradiation

Project Leader: Dr. Mundzir Abdullah
Co-researcher: Dr. Naser Mahmoud Ahmed
Prof. Dr. Zainuriah Hassan
Dr. Ganesan A/L Krishnan
Dr. Nur Athirah Mohd Taib
Dr. Sabah M. Mohammad

78. Fundamental Research Grant Scheme (FRGS)
9/2019 - 8/2021

Amount of grant: RM 84,500.00

*Title: **Properties of aluminium alums (TAWAS) as a novel coagulant of dye sensitizer molecules in dye-sensitized PV***

Project Leader: Ts. Anith Nurani Abd Rashid (UiTM)
Co-researcher: Ts. Dr. Mohd Natashah Norizan
Prof. Dr. Zainuriah Hassan
Dr. Mohd Hanapiah Abdullah
Nur Sa'adah Muhamad Sauki

79. USM Short Term Grant
2/2020 - 1/2022

Amount of grant: RM 32,200.00

*Title: **Modelling turbulence in diffused underwater optical wireless communication links***

Project Leader: Dr. Faezah Jasman
Co-researcher: **Prof. Dr. Zainuriah Hassan**
Assoc. Prof. Ir. Dr. Rosmiwati Mohd Mokhtar

80. AUN/SEED-Net and JICA
10/2020 - 10/2021

Amount of grant: RM 203,384.60

*Title: **AlGaIn/GaN high-electron-mobility transistor (HEMT) for SARS-Cov-2 (COVID-19) rapid detection***

Project Leader: Dr. Mohd Syamsul Nasyriq Samsol Baharin
Co-researcher: **Prof. Dr. Zainuriah Hassan**
Dr. Shaili Falina
Rahil Izzati Mohd Asri
Prof. Dr. Junya Suehiro
Assoc. Prof. Dr. Michihiko Nakano
Dr. Masafumi Inaba

81. Nippon Sheet Glass Foundation for Materials Science and Engineering
1/2021 - 12/2022

Amount of grant: USD 5000.00

Title: *Modify (DHS-MCBD) method to fabricate high aspect-ratio of inorganic oxides materials*

Project Leader: Dr. Sabah M. Mohammad
Co-researcher: **Prof. Dr. Zainuriah Hassan**
Dr. Mundzir Abdullah

82. USM Short Term Grant

1/2021 - 12/2022

Amount of grant: RM 42,062.00

Title: *Using ultralong ZnO NRs-metal nanoparticles/GaN hybrid heterostructure to improve the performance of optoelectronic devices*

Project Leader: Dr. Sabah M. Mohammad
Co-researcher: **Prof. Dr. Zainuriah Hassan**
Dr. Naser Mahmoud Ahmed
Dr. Quah Hock Jin
Dr. Mundzir Abdullah

83. USM Short Term Grant

1/2021 - 12/2022

Amount of grant: RM 37,999.00

Title: *Preparation and characterization of solution processed Ce-doped Ga₂O₃ passivation layer for MOS-based device*

Project Leader: Dr. Quah Hock Jin
Co-researcher: **Prof. Dr. Zainuriah Hassan**
Prof. Dr. Zainovia Lockman
Dr. Sabah M. Mohammad
Dr. Lim Way Foong

84. USM Short Term Grant

1/2021 - 12/2022

Amount of grant: RM 33,195.00

Title: *Deposition and characterization of high dielectric permittivity ternary-based CeO₂ passivation film*

Project Leader: Dr. Lim Way Foong
Co-researcher: **Prof. Dr. Zainuriah Hassan**
Assoc. Prof. Dr. Yam Fong Kwong
Dr. Quah Hock jin

85. USM Short Term Grant

2/2021 - 1/2023

Amount of grant: RM 41,000.00

Title: *Cost effective polycrystalline diamond transistor for power electronics*

Project Leader: Dr. Mod Syamsul Nasyriq Samsol Baharin
Co-researcher: Prof. Dr. Zainuriah Hassan
Prof. Dr. Hiroshi Kawarada

86. USM Short Term Grant

3/2021 - 2/2023

Amount of grant: **RM 44,620.00**

Title: ***Local-field correction to the nonlinear optical susceptibility of dye-incorporated nanocomposite materials under intense laser irradiation***

Project Leader: Dr. Mundzir Abdullah
Co-researcher: Prof. Dr. Zainuriah Hassan
Dr. Sabah M. Mohammad
Dr. Ganesan Krishnan

87. USM Short Term Grant

8/2021 - 7/2023

Amount of grant: **RM 10,000.00**

Title: ***Fabrication of black silicon by silver nanoparticles mask-assisted plasma etching***

Project Leader: Mohd Anas Ahmad
Co-researcher: Prof. Dr. Zainuriah Hassan
Ts. Dr. Mohd Zamir Pakhruddin
Nur Atiqah Hamzah
Rahil Izzati Mohd Asri

88. USM Short Term Grant

8/2021 - 7/2023

Amount of grant: **RM 10,000.00**

Title: ***Investigation of Ni/Au ohmic contacts on p-GaN epitaxial layer***

Project Leader: Nur Atiqah Hamzah
Co-researcher: Prof. Dr. Zainuriah Hassan
Assoc. Prof. Dr. Ng Sha Shiong
Mohd Anas Ahmad
Rahil Izzati Mohd Asri

89. Fundamental Research Grant Scheme (FRGS)

9/2022 - 8/2025

Amount of grant: **RM 174,180.00**

Title: ***A Stability Study of Advanced Potentiometric Water-Gated Configuration using AlGaIn/GaN High Electron Mobility Transistor (WGHEMT) for Multiplex Herbicide Detection***

Project Leader: Dr. Mohd Syamsul Nasyriq Samsol Baharin
Co-researcher: Dr. Kahirul Mohd Fadzli Mustafa
Prof. Dr. Zainuriah Hassan
Assoc. Prof. Dr. Ng Sha Shiong
Assoc. Prof. Dr. Asrulnizam Abd Manaf
Dr. Rashidah Sukor

Other Grants

1. Grant Number N62909-12-1-1068
 - awarded by Department of the Navy, Office of Naval Research Global to provide partial support of the meeting entitled "The 8th Asian Meeting on Electroceramics, 2012"
 - Grantee: Prof. Zainuriah Hassan
 - Period: 9 March 2012 – 1 July 2013
 - Total grant amount: US\$ 5,000.00

Post-doctoral/ Visiting Researcher Supervision

1. Dr. Naser Mahmoud Ahmed, 10/2010-10/2011, Growth and fabrication of blue laser structures based on III-V nitrides
2. Dr. R. Perumal, 12/2014-12/2015, Growth and characterization of gallium nitride and related materials for solid state lighting applications
3. Dr. Lim Way Foong, 1/2015-12/2016, Research and investigation on organic thin film as the emissive layer for the realization of organic light emitting diode
4. Dr. Quah Hock Jin, 1/2015-12/2016, Investigation of GaN-on-GaN Technology for Solid State Lighting
5. Dr. Li Hongjian, 8/2018-8/2019, High efficiency InGaN LEDs on bulk GaN and patterned sapphire substrate by MOCVD
6. Dr. Mohamed Salleh Mohamed Saheed, 7/2019-9/2019, Metal oxide-based heterostructures for solar cell applications
7. Dr. Muhd Azi Che Seliman, 2/2020-8/2020, Research on GaN and other materials in the areas of epitaxy, fabrication, packaging and applications
8. Dr. Muhd Azi Che Seliman, 8/2020-6/2021, GaN on GaN

Postgraduate Supervision

(a) **Ph.D projects** (MS: main supervisor, CS: co-supervisor)

1. GaN-based Gas Sensor – Abdo Yahya Omer Hudeish (viva completed – December 2005)
CS

2. Design and experimental studies of multilayer coating for the application of nitride based semiconductor in light emitting devices – Naser Mahmoud Ahmed (viva completed – June 2006) CS
3. Studies on GaN-based materials for device applications – Yam Fong Kwong (viva completed - December 2006) MS
4. Structural and optical studies of wide band gap $\text{Al}_x\text{Ga}_{1-x}\text{N}$ ($0 \leq x \leq 1$) semiconductors – Ng Sha Shiong (viva completed - September 2007) MS
5. Design of laser structures based on group III-nitrides – Sabah M. Thahab (viva completed - November 2008) CS
6. GaN-based optoelectronics on silicon substrate – Chuah Lee Siang (viva completed - September 2009) MS
7. Thermal effect and optimization of multi-quantum wells (MQWs) for vertical cavity surface emitting lasers (VCSELs) – Farah Z Jasim (viva completed - January 2010) CS
8. AlGaIn thin films on silicon substrates for optoelectronic and electronic applications – Asaad Shakir Hussein (viva completed – July 2011) MS
9. Study of Si and GaN nanostructures prepared by laser-induced etching – Asmiet Ramizy Abd-ALGhafour (viva completed – August 2011) MS
10. Optoelectronic properties of quaternary AlInGaIn thin films for device applications – Alaa Jabbar Ghazai (viva completed – July 2012) CS
11. Fabrication and characterization of solar cell based on porous silicon – Khaldun A. Salman (viva completed – July 2012) MS
12. Synthesis of wide band gap II-VI chalcogenide nanostructures for high speed photodetection devices – Mazin A Mahdi (viva completed – February 2013) MS
13. Synthesis, characterization, and device applications of ZnO nanorod arrays prepared by microwave-assisted chemical bath deposition – Jalal Jabbar Hassan (viva completed – February 2013) MS
14. Simulation and design of vertical cavity surface emitting lasers based on III-nitrides – Azita Zandi Goharrizi (viva completed – February 2013) MS
15. Optimization of structural properties of deep violet InGaIn multi quantum well lasers – Ghasem Alahyarizadeh (viva completed – March 2013) MS
16. Characterization of GaN nanowires grown by thermal evaporation and the study of its capability as a solar cell – Leila Shekari Gholamhossein (viva completed – March 2013) CS
17. A study on the synthesis of nanostructured zinc oxide (ZnO) for sensor applications – Hind I AbdulGafour (viva completed – April 2013) MS
18. Characterization of silicon nanowire transistor and its application in inverter circuits – Yasir H Naif (viva completed – June 2013) CS
19. Study of GaN-based semiconductors grown on Si(110) substrates – Maryam Amirhoseiny (viva completed – September 2013) MS
20. Synthesis of lead sulfide (PbS) nanostructures for solar cell applications – Ahmed Salman Obaid (viva completed – September 2013) MS
21. A study of GaN-based MOS device – Yeoh Lai Seng (viva completed – March 2014) CS
22. Porous $\text{In}_x\text{Ga}_{1-x}\text{N}$ for sensing applications – Saleh Hasson Abud Al-Amery (viva completed – September 2014) MS
23. A study of CdO thin film and its applications - Mustafa Zaien Mohammed (viva completed – September 2014) CS
24. Growth and investigation of nitride-based nano-wires – Beh Khi Poay (viva completed – January 2015) CS
25. Growth and characterization of GaN and Ga_2O_3 nanostructures for hydrogen sensing application – Qahtan Nofan Abdullah (viva completed – June 2015) CS
26. Chaotic cryptography: Alternative Perspectives and Approaches – Afshin Akhshani (viva completed – June 2015) MS
27. Novel structural and optical properties of ZnO thin films and their applications – Tneh Sau Siong (viva completed – August 2015) MS
28. Synthesis and characterization of nanocrystalline CdS thin films by microwave-assisted chemical bath deposition for photodetectors application – Mohammed Husham Mohammed Ali (viva completed – October 2015) MS

29. Growth and characterization of rutile TiO₂ nanostructures synthesized by chemical bath deposition for UV photodetector applications – Abbas Mohammed Selman (viva completed – November 2015) MS
30. Spin coating growth and characterizations of gallium nitride (GaN) thin films – Fong Chee Yong (viva completed – December 2015) CS
31. RF-MBE growth of III-nitrides on silicon for light detecting applications – Mohd Zaki Mohd Yusoff (viva completed – January 2016) MS
32. Transparent conductive electrodes for GaN-based solid state lighting – Ahmad Hadi Ali (viva completed – February 2016) MS
33. Fabrication and characterization of porous III-nitrides alloys for application for sensing devices – Rosfariza Radzali (viva completed – December 2016) MS
34. Hydrothermal and modified chemical bath deposition methods for growth of ZnO nanorods for device applications – Sabah M. Mohammad (viva completed – January 2017) MS
35. Porous III-nitrides for sensor applications – Ainorkhilih Mahmood (viva completed – January 2017) MS
36. RF-MBE growth of III-nitrides heterostructures for gas sensing applications – Chin Che Woei (viva completed – January 2017) MS
37. Synthesis and characterization of CuS thin film using CO₂ laser for pyrolytic and photolytic processes for sensor application - Fayroz Arif Sabah (viva completed – September 2017) CS
38. Growth and characterization of low-dimensional WO₃ by low cost method and their applications – Chai Yingqi (viva completed – October 2017) CS
39. Polycrystalline GaN layer on non-polar sapphire substrate for metal-semiconductor-metal photodetector – Azharul Ariff Kamarulzaman (viva completed – October 2017) CS
40. Synthesis and characterization of undoped and Mg-doped ZnO nanorods by hydrothermal method for optoelectronic device applications - Shrook Adnan Azzez (viva completed – October 2017) MS
41. Synthesis and characterization of V₂O₅ nanorods using spray pyrolysis method for different applications – Nabeel Mohammed Abdulghafour Azzez (viva completed – November 2017) CS
42. Investigation of ZnO nanostructures on glass substrate by thermal evaporation method for high-sensitivity UV detection- Alnomani Forat Hamzah Abed (viva completed – January 2018) MS
43. Synthesis and characterization of carbon nanotube prepared using microwave oven for hydrogen gas sensing application - Natheer Ali Suliman Al Gadri (viva completed – January 2018) MS
44. Spin coating growth and characterizations of indium nitride (InN) thin films – Lee Zhi Yin (viva completed – February 2018) CS
45. Secondary materials modified anodic titanium dioxide nanotube layers – Ng Siow Woon (viva completed – July 2018) CS
46. Fabrication and characterization of GaN-based low dimensional structures – Tan Lay Kim (viva completed – July 2018) CS
47. Synthesis and characterization of laser annealed nanoporous Si/ZnO nanoclusters for ultraviolet photodetector application - Asad A. Thahe (External Co-Supervisor for Universiti Teknologi Malaysia) (viva completed – November 2018) CS
48. Chromaticity investigation of curcuminoids dye composite with silicone and nanofiber technique for white light down-conversion - Shafouri Mahmood Shaikhan Ta Eeb (viva completed – August 2020) CS
49. Synthesis and characterization of phosphor for white light emitting diode - Husnen R. Abd (viva completed – September 2020) MS
50. Fabrication and characterization of Cu-stabilized ultrathin silicon dies using ultrashort-pulse laser dicing – Michael Raj a/l Marks (viva completed – September 2021) CS
51. Fabrication of GaN on GaN deep green light emitting diode – Shamsul Amir Abdul Rais (viva completed – December 2021) MS
52. Deposition and characterisation of solution processed indium gallium zinc oxide - Nabihah Kassim (viva completed – July 2022) MS

53. Growth of fluorine doped zinc oxide nanostructures for ultra-violet photodetector using modified chemical bath-hydrothermal method – Muhammad Aminu (viva completed – July 2022) MS
54. Synthesis and characterization of rare earth activated phosphor by microwave solution combustion for light emitting diodes applications - Lau Khai Shenn (viva completed – November 2022) MS
55. Epitaxial growth of III-nitrides semiconductors for multiple quantum well GaN-based near ultraviolet light emitting diodes - Mohd Ann Amirul Zulffiqal Md Sahar MS
56. Fabrication and characterization of InGaN based solar cell – Ahmad Sauffi Yusof MS (International thesis Co-Mentorship with Universite de Lorraine, France – Cotutelle program)
57. Green synthesized cerium oxide nanoparticles embedded aloe barbadensis for MOS-based application - Saad Milad Ali Nsar CS
58. ZnO NRs/metal nanoparticles/GaN hybrid heterostructure for fabrication of high efficiency optoelectronic devices – Shireen Mohammed Abed CS
59. Electrospun Polymer Composite Fibers as Down Conversion Phosphor Layers for White Light Emitting Diodes – Nabeel Zabar Abed MS
60. Synthesis of Bimetallic (Gold- Silver) Nanoparticles Prepared by Pulsed Laser Ablation in Liquid, and Application in Biomedicine - Hameed Naser Khalaf MS
61. Investigation of DC-RF Magnetron Co-Sputtered Cerium doped Gallium Oxide as Passivation Layer for Wide Bandgap Semiconductor – Puteri Haslinda Megat Abdul Hedei CS
62. Investigation of Boron Doped Cerium Oxide Gate On 4H-Silicon Carbide – Ainita Rozati Mohd Zabidi CS
63. Highly Selective and Sensitive Ammonium Sensors Based on AlGaN/GaN High Electron Mobility Transistors - Mohd Nashaain Nordin MS

(b) M.Sc projects (Masters by Research) (MS: main supervisor, CS: co-supervisor)

1. Titanium cap cobalt silicide comparison, with and without a thin titanium interlayer – Lim Chung Ooi (viva completed – July 2004) CS
2. Formation and characterization of cobalt silicide on silicon wafer (111) at different substrate and annealing temperatures – Noorhisyam Abdul Hamid (viva completed – June 2005) CS
3. Ni based ohmic contact on p-type GaN – Lim Cheong Wan (viva completed – January 2006) CS
4. A study on GaN films grown by PA-MOCVD with hydrogen plasma – Oh Sue Ann (viva completed – February 2006) CS
5. Structural and electrical characterization of photodetectors based on III-V nitrides – Lee Yan Cheung (viva completed – April 2006) MS
6. Simulation and design of light emitting structures based on III-V nitrides – Norzaini Zainal (viva completed – June 2006) MS
7. Fabrication of III-nitrides quantum dots for optoelectronic applications – Chin Che Woei (viva completed – June 2009) MS
8. A class of measurable dynamical systems for chaotic cryptography – Afshin Akhshani (viva completed – September 2009) MS
9. Investigation of cerium oxide thin film on silicon wafer – Farah Anis Jasni (viva completed – April 2010) CS
10. Investigation of metal-organic decomposed (MOD) cerium oxide (CeO₂) gate deposited on Si and GaN substrates via spin-on coating technique – Quah Hock Jin (viva completed – June 2010) CS
11. Anodization of zirconium for ZrO₂ for high-k dielectric material formation – Noor Rehan Zainal Abidin (viva completed – September 2010) CS
12. Characterizations of AlCu/TiN/Ti film stack by physical vapor deposition – Leow Mun Tyng (viva completed – November 2011) MS
13. Metal-insulator-semiconductor (MIS) structures based on III-nitrides – Azzafeerah Mahyuddin (viva completed – February 2012) MS
14. Synthesis and characterization of nickel thin film on single crystal (0001) ZnO substrate and on ZnO thin film – Tan Gaik Leng (viva completed – March 2012) CS

15. Schottky diodes based on III-nitrides for gas sensing applications – Teo Silk Guan (viva completed – October 2012) MS
16. Fabrication and characterization of porous zinc oxide – Ching Chin Guan (viva completed – July 2012) CS
17. Stabilization of ultra-thin silicon dies – Michael Raj a/l Marks (viva completed – August 2016) MS
18. ScN as an intermediate layer for high quality GaN growth - Alvin Yong Shee Meng (viva completed – May 2017) CS
19. Structural, electrical and optical properties of indium nitride nano films – Ganie Umar Bashir (viva completed – February 2018) MS
20. Sol-gel spin coating growth of aluminium gallium nitride thin films – Nurul Atikah Mohd Isa (viva completed – March 2018) CS
21. Fabrication and characterization of Cu-doped ZnO films using reactive magnetron sputtering - Ahmad Sauffi Yusof (viva completed – September 2018) MS
22. Synthesis, analysis and reliability studies of metal oxide thin films deposited on Al substrate using various deposition methods for thermal management applications - Nur Jasriatul Aida Jamaludin (viva completed – November 2018) CS
23. Luminescent properties of phosphor nanofibers for white light emitting diode – Hasmaifarahatul Hidayah Abd Wahab (viva completed – June 2021) MS
24. Synthesis of poly (9,9-di-n-octylfluorenyl-2,7-diyl) (PFO) and Ag Nanoparticles-Carbon-PFO composite thin films via drop casting method – Suvindraj Rajamanickam (viva completed – August 2021) CS
25. Growth and Characterization of Mg-Doped GaN and High Aluminium Content Mg-Doped AlGaIn – Noor Afifa Mohd Hanafiah (viva completed – October 2021) MS
26. Emission tuning of hybrid organic-inorganic LED heterostructure through incorporation of gold nanoparticles - Farah Hayati Haji Ahmad (viva completed – June 2022) CS

(c) M.Sc projects - Masters by Coursework candidates (Main supervisor)

2000/2001

1. Fabrication and characterization of metal-insulator-semiconductor (MIS) diodes based on GaN films - Chuah Cheow Theng

2001/2002

1. Fabrication and characterization of cobalt silicide layers for contacts and interconnects applications – Hong Lay Leng

2002/2003

1. Study of the effect of surface treatment on the contact resistance of ohmic contact on p-GaN – Tan Soo Chin
2. Structural and electrical characterization of GaN-based heterostructures – Chew Gaik Leng

2003/2004

1. Investigation of Ni/Ag and Ni/Au contacts on GaN – Lim Wei Chye
2. Characterization of GaN epilayers grown on sapphire substrates – Mandy Lim Hui Sean
3. Thermal stability of metal contacts on GaN-based heterostructures – Teoh Poh Aun

2005/2006

1. Optical analysis of $\text{Al}_x\text{Ga}_{1-x}\text{N}$ film using Fourier transform infrared spectroscopy– Lo Chee Yee
2. Fabrication and characterization of organic light emitting diode (OLED) – Tan Lin Lin
3. Structural and optical characterization of aluminium nitride (AlN) thin film on sapphire (Al_2O_3) substrate – Robin Ong
4. Structural and optical characterization of $\text{InN}/\text{GaN}/\text{Al}_2\text{O}_3$ – Choo Soo Hoon
5. Porous III-nitrides for UV photodetector (light sensor) applications - Adelene Ng Geok Ling
6. Fabrication and characterization of gas sensors based on porous III-nitrides - P'ng Soo Hui

2006/2007

1. Porous GaN for gas sensing applications – Nurul Huda Mohd Noor
2. Light emission from poly[(9,9-dioctylfluorenyl-2,7-diyl)-co-(1,4-phenylene)] polymers – Siti Nur Sarah Ridhwan (CS)

2007/2008

1. Deposition of indium nitride using RF reactive magnetron sputtering – Foo Li Yin

2013/2014

1. ZnO nanorod photodetector on porous silicon substrate – Fatima Salem Mosbah Elbskri

Undergraduate Supervision

Final year B.Sc projects

1999/2000

1. Fabrication and characterization of GaN-based device structures

2000/2001

1. Electrical characterization of various metal contacts to n-GaN
2. Pixar LED performance (competence) research
3. Numerical simulation of cobalt silicide formation and phase transformation

2001/2002

1. Metal-oxide-semiconductor (MOS) capacitors based on GaN films
2. Characteristics of cobalt silicide contacts on GaN
3. Optimization of processing parameters for patterning of device structures

2002/2003

1. Investigations of metal-semiconductor contacts
2. Fabrication and characterization of metal silicide layers

2003/2004

1. Schottky contact and the thermal stability of Ni on Si(111)
2. Characteristics of Ni/Ag and Ni/Au contacts on Si(111)
3. Thermal stability of thin cobalt silicide films on silicon substrates
4. Study of thin film surface texture

2004/2005

1. CAI (Computer Aided Instruction) package: Semiconductor Materials
2. Study of the effects of rotation speed of the spinner on photoresists
3. Study and optimization of UV exposure time on photoresists
4. Study of the effects of UV lamp intensity on photoresists

2005/2006

1. Fabrication and characterization of AlGaIn-based Schottky diode for gas sensing applications
2. Fabrication and characterization of photodetectors based on GaN
3. Fabrication and characterization of LEDs based on GaN
4. Fabrication and characterization of porous GaN
5. CAI (Computer Aided Instruction) package: Semiconductor Fabrication Process
6. The role of oxygen and temperature in forming SiO₂ on Si using RTP system
7. Design and fabrication of mask for n-MOSFET

2006/2007

1. Structural characterization of AlN
2. Growth and characterization of GaN
3. Growth and characterization of InN

2007/2008

1. Deposition of indium nitride using RF-magnetron sputtering
2. Deposition of aluminium nitride using RF-magnetron sputtering
3. Ohmic metal contacts to InGaN (indium gallium nitride)

2008/2009

1. High work function metal contacts on III-nitrides
2. Characterization of AlGaIn/GaN grown on Si substrate
3. Properties of Al-doped ZnO by using reactive RF sputtering technique

2009/2010

1. Study on characteristics of GaN grown on sapphire and Si substrates

2010/2011

1. Reactive sputtering deposition of InN on silicon substrates

2013/2014

1. Growth and characterization of nanostructured semiconductors

2014/2015

1. Synthesis of dye sensitized solar cell based on titanium dioxide

2015/2016

1. Growth and characterization of nanostructured metal oxides

External Examiner for Higher Degree Students

1. The development of barium strontium titanate ceramics bolometer as distance sensor
M.Sc (2006) –Universiti Kebangsaan Malaysia
Nur Hanani Zainal Abidin
2. Design of InGaAlAs/InP Quantum-Well Lasers
M.Eng.Sc (2010) – Multimedia University
Yong Yean Seng
3. Development of carbon nanotubes for pressure sensing application
PhD (2010) – Universiti Teknologi Petronas
Lai Mun Kou
4. Multiplication gain and excess noise factor in double heterojunction avalanche photodiodes
M.Eng.Sc (2011) – Multimedia University
Tan Siew Lin
5. The growth and characterization of the dilute nitride InGaAsN
PhD (2012) – La Trobe University, AUSTRALIA
Hashimah Hashim
6. Synthesis of graphene and its application as a channel of three-branch junction device

- PhD (2013) – Universiti Teknologi Malaysia
Shaharin Fadzli Abd Rahman
7. Penyediaan sel suria organik menggunakan kaedah cetakan inkjet dan kesan plasmonik nanozarah emas ke atas prestasi sel suria
PhD (2013) – Universiti Kebangsaan Malaysia
Vivi Fauzia
 8. Aerosol-assisted CVD grown FTO thin films for transparent electrode, flexible transparent electrode in photovoltaic applications and luminescent FZO thin films
PhD (2013) – Anna University, INDIA
Anusha M
 9. Electrodeposited germanium on silicon and its crystallization by rapid melting growth
PhD (2014) – Universiti Teknologi Malaysia
Mastura Shafinaz Zainal Abidin
 10. Investigations on the growth, characterization and applications of vertically aligned zinc oxide nanorods by radio frequency magnetron sputtering
PhD (2014) – Bharathidasan University, INDIA
P. Sundara Venkatesh
 11. Mechanical and electrical properties of microwave sintered nano 8YSZ and synthesis, dielectric and conductivity studies of zirconium tin titanate
PhD (2014) – Anna University, INDIA
P. Ganesh Babu
 12. Nitrogen doping of nanostructured amorphous carbon thin film for carbon-based solar cell applications
PhD (2014) – Universiti Teknologi MARA
Nurfadzilah Ahmad
 13. Sensitivity behavior of nanostructured zinc oxide based gas sensor fabricated by immersion method
MSc (2017) – Universiti Teknologi MARA
Siti Shafura A Karim
 14. Functionalisation and optimization of GaN/AlGaIn/GaN/ HEMTs for use as contaminant sensors
PhD (2018) – The University of Western Australia, AUSTRALIA
Farah Liyana Muhammad Khir
 15. Synthesis and characterization of V_xO_y and $V_2O_5.MoO_3$ nanostructured thin films deposited by plasma assisted sublimation process
PhD (2020) – Indian Institute of Technology Delhi, INDIA
MeghaSingh
 16. Sputter deposition and characterization of metal sandwiched indium tin oxide/silicon for solar cell application
PhD (2020) – Universiti Tun Hussein Onn Malaysia
Aliyu Kabiru Isiyaku
 17. Atom-thick tungsten disulfide nanosheet as electron transport layer of perovskite solar cell
MSc (2021) – Universiti Kebangsaan Malaysia
Nurul Ain Abd Malek

Internal Examiner for Higher Degree Students

1. Characteristics of nickel silicide-aluminium Schottky diode
M.Sc by Coursework Project (1999) – Ahmad Kamal
2. Development of laser detection system for semiconductor materials
M.Sc by Coursework Project (2000) – Yeoh Mei Ling
3. Failure and Reliability Study in InGaN diodes
M.Sc by Coursework Project (2001) – Goh Eong Swan
4. The effects of rare earth doping on the electrical performance of ZnO varistors
M.Sc by Research (2002) – Lim Kok Keong
5. Modelling of charges and small signal capacitance in MOSFET with MATLAB
M.Sc by Coursework Project (2003) – H'ng Meng Chong
6. A study of oxide properties in MOS under electrical stress
M.Sc by Coursework Project (2004) – Yeoh Lai Seng
7. Simulation of GaN LED
M.Sc by Coursework Project (2004) – Lim Keng Chong
8. One dimensional phonons in semiconductor superlattices
M.Sc by Coursework Project (2004) – Lim Chin Thiam
9. Phase transition in physical system
M.Sc by Coursework Project (2004) – Lim Kien Hin
10. The effects of zinc oxide microstructure on the electrical characteristics of low voltage ceramic varistors
M.Sc by Research (2004) – Shahrom Mahmud
11. Energy band gap and refractive indices of $\text{Si}_{1-x-y}\text{Ge}_x\text{C}_y$ thin films and their role in $\text{Si}_{1-x-y}\text{Ge}_x\text{C}_y$ waveguides
M.Sc by Research (2004) – Nihad K. Ali
12. Anisotropic silicon dioxide reactive ion etching in 0.13 micron technology
M.Sc by Research (2006) – Teoh Kok Seng
13. Fabrication and characterization of zinc oxide by sputtering technique
M.Sc by Coursework Project (2006) – Faridah Lisa Supian
14. Theoretical modeling of phonons in GaAs-AlAs short period superlattices
M.Sc by Coursework Project (2006) – Chai Ming Shian
15. Characteristics of zinc oxide film by DC sputtering
M.Sc by Coursework Project (2006) – Poo Hoe Kiat
16. Development of Kelvin probe measuring instrument for cathode characteristics in OLED applications
M.Sc by Coursework Project (2006) – Mohd Anuar Ismail
17. Development of photoelectric effect measuring instrument for anode characteristics in OLED applications
M.Sc by Coursework Project (2006) – Ahmad Nazib Alias

18. Case study of TC700 thermal modeling in microwave package
M.Sc by Coursework Project (2007) – Lo Kin Mun
19. Development of QFN casting process
M.Sc by Coursework Project (2007) – Koay Hian Beng
20. Bipolar transistor electrical characteristics: Effects of different die bond material and different wire bond diameter
M.Sc by Coursework Project (2007) – Lina Lim Lay Hoon
21. Fabrication, structural and electrical characteristics of p-type ZnO thin films
M.Sc by Research (2008) – Haslinda Abdul Hamid
22. The fabrication and characterization of hydrogen sensitive device based on porous gallium nitride, GaN
M.Sc by Coursework Project (2008) – Oh May Ling
23. Design and simulation of multiple band gap solar cell using the Silvaco Athena and Atlas software package
M.Sc by Coursework Project (2008) – Farha Maskuriy
24. Zinc oxide nanostructures: Synthesis, characteristics, crystallography, and optoelectronic responses
PhD (2008) – Shahrom Mahmud
25. Fabrication and characterization of nanocrystalline Si and GaAs
PhD (2008) – Nihad Khalaf Ali
26. Hetero-epitaxial vapor deposition growth of SiC
PhD (2008) – Alex Lim Ying Keat
27. Fabrication and characterization of two dimensional silicon photonic crystal
PhD (2008) – Sin Yew Keong
28. Simulation of lightwave propagation in planar photonic waveguide
PhD (2009) – Mohd Hanapiah Mohd Yusoff
29. Design and simulation of GaN-based light emitting diodes geometrics and contacts
MSc (2010) – Muhammad Firdaus Othman
30. Simulation performance of multi-quantum wells violet InGaN laser diode and analysis of its output for digital modulation
PhD (2010) – Rafid A. Abdullah
31. Structural, electrical properties and applications of $\text{Bi}_2\text{Se}_{3x}\text{Te}_{3(1-x)}$, $\text{Bi}_2\text{Sb}_{2(1-x)}\text{Te}$ and $\text{Bi}_{0.4}\text{Sb}_{1.6}\text{Se}_{3x}\text{Te}$ thermoelectric bulk materials grown using solid state microwave synthesis
PhD (2013) – Arej Khadim Abbas
32. Study of germanium nanostructures from electrochemical deposition for photonic applications
PhD (2013, Re-viva 2015) – Mohammed J. Jawad
33. Study of GaN nanostructures on silicon substrate grown by thermal evaporation techniques for photosensing applications
PhD (2013) – Kameleldin Mohamed A. Abdel Rahman

34. Development of SiO₂ thin film on 4H-SiC by direct thermal oxidation and post oxidation annealing techniques in HNO₃ and H₂O vapour
PhD (2014) – Banu Poobalan
35. Fabrication and characterization of organic and hybrid solar cell
MSc (2015) – Izzati Husna Ismail
36. Fabrication and characterization of germanium, zinc oxide and their compounds by thermal evaporation technique
PhD (2015) – Mohd Muzafa Jumidali
37. Fabrication and characterization (TiO₂ Nanofiber-PVP) using electrospinning method for gas sensing
MSc (2016) – Nabeel Zabar Abed
38. Development of anodic aluminum oxide templates for growth of CuO nanorods for photodetection
PhD (2016) – Khaled Majid Chahrour
39. Synthesis of nanostructured ZnS using chemical spray pyrolysis technique for sensing applications
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20. Journal of Physics: Conference Series 2020
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Editors: Dr. Mundzir Abdullah, Dr. Quah Hock Jin, Dr. Lim Way Foong, Dr. Mohd Syamsul Nasyriq Samsol Baharin, Dr. Mohd Zaki bin Mohd Yusoff, Dr. Alhan Farhanah Abd Rahim, Dr. Lyly Nyl Ismail, Dr. Azrinawati Mohd Zin, Dr. Mohd Muzafa Jumidali, Dr. Rosfariza Radzali, Dr. Ainorkhillah Mahmood, Assoc. Prof. Dr. Nor Aziyah Bakhari, **Prof. Dr. Zainuriah Hassan, FASc**

21. Challenges in Nanobiosensor Aiming Bioscience Applications
N. M. Abd-Alghafour, Naser M. Ahmed, **Z. Hassan**, Chapter 8, 187-195 (2020)
Chapter in a book entitled "Green Nanoparticles"
Part of the Nanotechnology in the Life Sciences book series (NALIS)
ISBN 978-3-030-39245-1
ISBN 978-3-030-39246-8 (eBook)
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22. Special Issue: Advances in Growth, Characterization, and Applications of III-Nitrides Compound Related Materials
Microelectronics International: Volume 38 Issue 3 (2021)
Publisher: Emerald Publishing Limited
Guest Editorial: Hock Jin Quah, Sha Shiong Ng, Way Foong Lim, **Zainuriah Hassan**
[DOI 10.1108/MI-08-2021-0075]

23. 2nd International Conference on Semiconductor Materials and Technology (ICoSeMT 2021) Abstract Book
Editor-in-Chief:
Dr. Quah Hock Jin
Editors: Dr. Muhd Azi Che Seliman, Dr. Mohd Zamir Pakhruddin, Associate Professor Dr. Nor Aziyah Bakhari, Dr. Haslinda Abdul Hamid, Dr. Mohd Muzafa Jumidali, Dr. Azrinawati Mohd Zin, Dr. Mohd Syamsul Nasyriq Samsol Baharin, Dr. Lim Way Foong, Dr. Mohd Zaki Mohd Yusoff, Dr. Faezah Jasman, Dr. Rosfariza Radzali, Dr. Mundzir Abdullah, Dr. Ainorkhillah Mahmood, Dr. Alhan Farhanah Abd Rahim, Associate Professor Dr. Ng Sha Shiong, **Professor Dr. Zainuriah Hassan, FASc**

24. International Invention, Innovation & Design Expo (INoDEx 2021)- E-Proceedings Book
Editor-in-Chief:

Ts. Dr. Haslinda Abdul Hamid

Editors: Dr. Quah Hock Jin, Dr. Muhd Azi Che Seliman, Dr. Mohd Zamir Pakhuruddin,
Associate Professor Dr. Nor Aziyah Bakhari, Dr. Azrinawati Mohd Zin, Dr. Mohd Zaki Mohd
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Foong Lim, Dr. Mohd Syamsul Nasyriq Samsol Baharin, Dr. Rosfariza Radzali, Dr. Mundzir
Abdullah, Dr. Alhan Farhanah Abd Rahim, Associate Professor Dr. Ng Sha Shiong,

Professor Dr. Zainuriah Hassan, FASc

e ISBN 978-967-2639-90-9

25. INOR Laboratory Equipment Book

Institute of Nano Optoelectronics Research and Technology (INOR)

Universiti Sains Malaysia

Chief Editor: **Prof. Dr. Zainuriah Hassan, FASc**

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Mohamad Syed Sahil

Graphic and Design: Mr. Azraai Fahmi Hamzah

e ISBN 978-967-2639-91-6

26. Special Issue: Women in Nanotechnology

Emergent Materials: Volume 5 Issue 1 (2022)

Publisher: Springer

Guest Editorial: Mariam Al-Maadeed, **Zainuriah Hassan**, Goh Pei Sean, Nandika D'Souza

<https://doi.org/10.1007/s42247-022-00368-w>

Conference/ Seminar/ Colloquium

1. Ohio University – Department of Physics and Astronomy Colloquium (Feb. 2, 1996), U.S.A2

Blue-green LEDs and lasers demonstrated in wide band gap semiconductor materials

Zainuriah Hassan

2. Ohio Section American Physical Society (APS) Fall 1996 Meeting (Nov. 2, 1996), U.S.A

*Metalorganic Chemical Vapor Deposition (MOCVD) Growth Technique for III-V Nitrides
(CP.03)*

M. E. Kordesch, Zainuriah Hassan

3. Condensed Matter and Surface Sciences Poster Seminar- Ohio University (May 27, 1998),
U.S.A

GaN heteroepitaxial films grown by metalorganic chemical vapor deposition

Z. Hassan, M. E. Kordesch, R. Higgins, Y. Chen, D. A. Gulino

4. Materials Research Society (MRS) Fall 98 Meeting (Nov. 30 – Dec. 4, 1998), U.S.A
Low Temperature ECR-plasma assisted MOCVD microcrystalline and amorphous GaN deposition and characterization for electronic devices
Z. Hassan, M. E. Kordesch, W. M. Jadwisienzak, H. J. Lozykowski, W. Halverson, P. C. Colter

5. 16th Regional Conference on Solid State Science and Technology (Nov. 29 – Dec. 4, 1999)
Properties of GaN heteroepitaxial films grown by metalorganic chemical vapor deposition
Z. Hassan, M. E. Kordesch

6. Universiti Sains Malaysia- School of Physics Colloquium (Aug. 26, 2000)
Processing and Technology Issues in Wide Band Gap III-V Nitride Semiconductors
Zainuriah Hassan

7. National Physics Seminar 2000 (Nov. 6 – 9, 2000)
Study of the growth kinetics of nickel silicide films
Z. Jamal, K. Ibrahim, A. Mahmood, C. Abdul Hamid, N. Abdul Hamid, A. Abdul Aziz, Z. Hassan, M. R. Hashim

8. Electron Microscopy Society Malaysia- 9th Scientific Conference (Nov. 12 – 14, 2000)
Scanning electron microscopy and XRD studies of cobalt silicide films
N. Abdul Hamid, N. F. I. Muhammad, Z. Hassan, Z. Jamal, A. Abdul Aziz, K. Ibrahim, M. R. Hashim

9. National Seminar on Advanced Materials Development in Malaysia (May 15 - 16, 2001)
Cobalt silicides ohmic contact: Microscopic and resistivity investigations
A. Abdul Aziz, Z. Hassan, Z. Jamal, N. Abdul Hamid

10. International Conference on Materials for Advanced Technologies (July 1 – 6, 2001) – MRS (Singapore)
Properties of amorphous GaN grown on silicon
(F 7-25)
Z. Hassan, K. Ibrahim, M. E. Kordesch, W. Halverson, P. C. Colter

11. The XVIII Regional Conference on Solid State Science and Technology (Sept. 7 – 9, 2001)
Microcrystalline GaN films for electronic applications
Z. Hassan, M. J. Abdullah, C. T. Chuah, K. Ibrahim, M. E. Kordesch, W. Halverson, P. C. Colter

12. Eighth International Conference on New Diamond Science and Technology (July 22 – 26, 2002), Australia
Investigations of GaN films grown at low temperatures for electronic applications
(P2.01.2, p. 166 (Abstracts))

Z. Hassan, F. K. Yam, M. J. Abdullah, C. T. Chuah, Z. Jamal, K. Ibrahim, M. E. Kordesch, W. Halverson, P. C. Colter

13. The XIX Regional Conference on Solid State Science and Technology (Oct. 30 – Nov. 1, 2002)

Characteristics of GaN/Si heterojunction grown by MOCVD

S. S. Ng, Z. Hassan, G. L. Chew, M. R. Hashim, M. E. Kordesch

14. 2002 International Conference on Semiconductor Electronics (Dec. 19 – 21, 2002)

(i) *Infrared characterization of GaN/Si grown at different temperatures by MOCVD*

S. S. Ng, Z. Hassan, M. R. Hashim, M. E. Kordesch, W. Halverson, P. C. Colter

(ii) *Comparison between a Ti cap cobalt silicide to a flashed Ti-Ti cap cobalt silicide*

C. O. Lim, Z. Jamal, A. Abdul Aziz, Z. Hassan

(iii) *A comparative study of the characteristics of GaN films grown by MOCVD*

F. K. Yam, Z. Hassan, Z. Jamal, A. Abdul Aziz, M. E. Kordesch

15. National Physics Conference PERFIK 2002 (Dec. 21 – 22, 2002)

(i) *Polarized Infrared study of GaN epilayer on Si substrate*

S. S. Ng, Z. Hassan, M. R. Hashim, M. E. Kordesch

(ii) *Raman and photoluminescence studies of hexagonal GaN films on sapphire grown by MOCVD.*

F. K. Yam, Z. Hassan, H. Abu Hassan, M. E. Kordesch

(iii) *Study of titanium cap cobalt silicide and a thin titanium interlayer- titanium cap cobalt silicide*

C. O. Lim, Z. Jamal, A. Abdul Aziz, Z. Hassan

16. Advanced Technology Congress 2003 – Conference on Advanced Materials ATC 2003 – CAM 2003 (May 20 – 21, 2003)

(i) *Characteristics of GaN epilayers: The influence of the structural properties on the carrier mobility.*

F. K. Yam, Z. Hassan, A. Abdul Aziz, M. E. Kordesch

(ii) *Low temperature infrared optical properties of gallium nitride epilayer on silicon substrate.*

S. S. Ng, W. Z. Wan Mat Zin, M. S. Samsudin, Z. Hassan, M. R. Hashim, M. E. Kordesch

17. National Symposium on Science and Technology (July 28 – 30, 2003)

Gallium nitride-based materials for optical and electronic device applications

Z. Hassan, K. Ibrahim, A. Abdul Aziz, M. R. Hashim, M. J. Abdullah, H. Abu Hassan

18. National Physics Conference 2003 (PERFIK 2003) (Aug. 15 – 17, 2003)

(i) *Correlation between the structural properties and the optical properties of GaN/Al₂O₃ films (PT A03, p. 11 (Abstracts))*

S. A. Oh, S. S. Ng, M. R. Hashim, Z. Hassan, K. Ibrahim, M. Barmawi, Sugianto, M. Budiman, P. Arifin

(ii) *Infrared optical properties of GaN on sapphire substrate*
(G2B06, p. 16 (Abstracts))

S. S. Ng, S. A. Oh, Z. Hassan, M. R. Hashim

(iii) *Structural analysis of GaN film grown on sapphire by plasma assisted metalorganic chemical vapor deposition*
(G5B01, p. 16 (Abstracts))

F. K. Yam, Z. Hassan, K. Ibrahim, M. Barmawi, Sugianto, M. Budiman, P. Arifin

(iv) *Photoluminescence, Raman and x-ray diffraction studies of GaN films on sapphire substrates*

(G2B01, p. 37 (Abstracts))

S. Tajudin, F. K. Yam, H. Abu Hassan, Z. Hassan

19. 2003 IEEE National Symposium on Microelectronics (Sept. 9 - 10, 2003)

Electrical characterization of MSM photodiodes based on GaN grown on silicon.

Y. C. Lee, F. K. Yam, Z. Hassan, M. J. Abdullah, M. E. Kordesch

20. 1 st International Meeting on Applied Physics (Oct. 13 - 18, 2003), Spain

(i) *CoSi₂ formation with a thin interlayer-Ti capping layer and Ti capping layer*
(p. 701 (Abstracts))

A. Abdul Aziz, C. O. Lim, Z. Hassan, Z. Jamal

(ii) *Growth and properties of GaN/Si heterojunction*
(p. 782 (Abstracts))

Z. Hassan, S. S. Ng, G. L. Chew, F. K. Yam, M. J. Abdullah, M. R. Hashim, K. Ibrahim, M. E. Kordesch

(iii) *Characteristics of Ni-based bi-layer contacts on GaN*
(p. 783 (Abstracts))

Z. Hassan, F. K. Yam, W. C. Lim, A. Abdul Aziz, K. Ibrahim

(iv) *Optical properties of GaN on Si substrate using plasma-assisted-MOCVD technique in the far infrared region*

(p. 863 (Abstracts))

M. D. R. Hashim, S. A. Oh, S. S. Ng, Z. Hassan, M. Barmawi, Sugianto, M. Budiman, P. Arifin

21. International Conference on Materials for Advanced Technologies ICMAT 2003 and IUMRS-ICA 2003 International Conference in Asia (Dec. 7 - 12, 2003), Singapore

(i) *Characteristics of low-temperature-grown GaN films on Si(111) substrates*
(p. 347-348 (Abstracts))

Z. Hassan, G. L. Chew, F. K. Yam, K. Ibrahim, M. E. Kordesch, W. Halverson, P. C. Colter

(ii) *A comparative study of the electrical characteristics of metal-semiconductor-metal (MSM) photodiodes based on GaN grown on silicon*

(p. 351 (Abstracts))

Y. C. Lee, Z. Hassan, F. K. Yam, M. J. Abdullah, K. Ibrahim, M. Barmawi, Sugianto, M. Budiman, P. Arifin

(iii) *Structural and optical analysis of GaN films grown by low-pressure metalorganic chemical vapor deposition*

(p. 342 (Abstracts))

F. K. Yam, Z. Hassan, H. Abu Hassan, M. E. Kordesch

(iv) *Properties of gallium nitride epilayers grown on sapphire by plasma-enhanced metalorganic chemical vapor deposition*

(p. 346 (Abstracts))

F. K. Yam, Z. Hassan, K. Ibrahim, A. Abdul Aziz, M. Barmawi, Sugianto, M. Budiman, P. Arifin

(v) *Crystallinity studies of GaN/Si films grown at different temperatures by x-ray diffraction and infrared reflectance spectroscopy*

(p. 342 (Abstracts))

S. S. Ng, Z. Hassan, M. R. Hashim, M. E. Kordesch, W. Halverson, P. C. Colter

(vi) *Effects of cobalt silicidation with the presence of a thin titanium interlayer*

(p. 535 (Abstracts))

C. O. Lim, Z. Jamal, A. Abdul Aziz, Z. Hassan

22. The XX Regional Conference on Solid State Science and Technology (Dec. 12 - 14, 2003)

(i) *Ti and Ag-based Schottky contacts on p-type GaN*

F. K. Yam, Z. Hassan, Z. J. Yap, K. Ibrahim

(ii) *Investigation of AlGaIn film grown on Al₂O₃*

S. Tajudin, F. K. Yam, Z. Hassan, H. Abu Hassan

(iii) *Metal-oxide-semiconductor (MOS) capacitor based on GaN grown on silicon*

K. A. Abdullah, C. T. Chuah, Z. Hassan, M. J. Abdullah

(iv) *Ellipsometry studies of GaN-based layers*

N. M. Ahmed, M. R. Hashim, Z. Hassan

23. SPIE's Integrated Optoelectronic Devices 2004 Symposium, Photonics 2004 (Jan. 24 – 29, 2004), U.S.A

Thermal stability of contacts on AlGaIn-based UV photodetectors

K. Ibrahim, A. Aljubouri, Y.C. Lee, Z. Hassan, M. R. Hashim

24. The 5th International Symposium on Blue Laser and Light Emitting Diodes (March 15 – 19, 2004), Korea

Thermal stability of Ni/Ag contacts on p-type GaN

Z. Hassan, Y.C. Lee, F. K. Yam, Z. J. Yap, N. Zainal, H. Abu Hassan, K. Ibrahim

25. The National Seminar of Science Technology and Social Sciences (May 31 – Jun 1, 2004)

(i) *Gas sensitive Al membrane on n-type GaN Schottky diode*

(p. 54 (Abstracts))

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan

(ii) *Electrical properties and morphology microscopy of palladium (Pd) Schottky contact on p-type GaN*

(p. 56 (Abstracts))

C. K. Tan, F. K. Yam, C. W. Lim, A. A. Aziz, Z. Hassan

(iii) Ohmic contacts properties of Pd/Ag metallization scheme on p-type GaN
(p. 57 (Abstracts))

C. W. Lim, F. K. Yam, C. K. Tan, A. A. Aziz, Z. Hassan

26. Nano and Giga Challenges in Microelectronics (Sep. 13 – 17, 2004), Poland

(i) Dark current characteristics of thermally treated contacts on GaN-based ultraviolet photodetectors

(p. 117 (Abstracts))

Y. C. Lee, Z. Hassan, M. J. Abdullah, M. R. Hashim, K. Ibrahim

(ii) Low applied bias for p-GaN electroluminescent devices

(p. 118 (Abstracts))

F. K. Yam, Z. Hassan, C. K. Tan, C. W. Lim, A. Abdul Aziz, K. Ibrahim

(iii) Electrical characteristics of GaN-based metal-oxide-semiconductor (MOS) structures

(p. 38 (Abstracts))

K. A. Abdullah, M. J. Abdullah, F. K. Yam, Z. Hassan

(iv) Barrier height enhancement of AlGaN Schottky diodes

(p. 39 (Abstracts))

Y. C. Lee, H. Abu Hassan, F. K. Yam, N. Zainal, S. Othman, Z. Hassan

(v) Reversible barrier height changes in hydrogen-sensitive Pd/GaN and Ni/GaN diodes

(p. 37 (Abstracts))

Abdo Yahya Hudeish, Azlan Abdul Aziz, Zainuriah Hassan

27. PERFIK 2004 and Malaysian Science and Technology Congress 2004 (MSTC 2004)
(Oct. 5 – 7, 2004)

(i) Ohmic contact to n-type $Al_{0.11}Ga_{0.89}N$

(p. 39 (Abstracts))

S. Othman, F. K. Yam, Z. Hassan, K. A. Abdullah, M. J. Abdullah

(ii) Optimization of optical and electrical behavior of GaN-based diode

(p. 38 (Abstracts))

N. Zainal, M. R. Hashim, H. A. Hassan, Z. Hassan

(iii) Ni/GaN diodes as gas sensor for detection of different hydrogen concentration

(p. 34 (Abstracts))

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan

28. National Postgraduate Colloquium on Materials, Minerals and Polymer 2004 - MAMIP
2004 (Oct 7 –8, 2004)

(i) Fabrication and characterization of Ni/GaN thin film gas sensor

(p. 19 (Abstracts))

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan

(ii) A hydrogen sensitive Pd/GaN Schottky diode sensor

(p. 42 (Abstracts))

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan

29. Science Conference 2004 (Oct. 11 – 13, 2004), Yemen

Method of producing a stable high temperature Ni Schottky diode gas sensor on AlGaN
(p. 152 (Abstracts))

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan

30. The XXI Regional Conference and Workshop on Solid State Science & Technology – RCWSST 2004 (Oct. 10 – 13, 2004)

(i) *The effects of annealing treatment to GaN-based UV photodetectors*

Y. C. Lee, Z. Hassan, M. R. Hashim, K. Ibrahim

(ii) *Light emitting Schottky diodes based on p-GaN*

F. K. Yam, Z. Hassan, A. Abdul Aziz

(iii) *Fabrication and characterization of Ni/GaAs Schottky diode as hydrogen gas sensor*

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan

(iv) *Atomic force microscopy study of GaN thin films for gas sensor*

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan

(v) *Electrical and structural properties of Pd/Si/Pd Schottky contacts on p-GaN*

C. K. Tan, C. W. Lim, A. Abdul Aziz, Z. Hassan, F. K. Yam

(vi) *Characteristics of Ni/Pd/Ag ohmic contact on p-type GaN*

C. W. Lim, F. K. Yam, C. K. Tan, A. A. Aziz, Z. Hassan

(vii) *Infrared characterization of gallium nitride films grown by plasma-assisted-MOCVD on Si and sapphire substrates*

S. A. Oh, M. D. R. Hashim, S. S. Ng, Z. Hassan, K. Ibrahim, M. Barmawi, Sugianto, M. Budiman, P. Arifin

(viii) *Simulation of single and double layer antireflection coating for GaN-MSM Schottky detector*

N. M. Ahmed, M. R. Hashim, Z. Hassan

(ix) *Investigation of the absorption coefficient, refractive index, energy bandgap, film thickness for $Al_{0.11}Ga_{0.89}N$, $Al_{0.03}Ga_{0.97}N$ and GaN by optical transmission method*

N. M. Ahmed, M. R. Hashim, Z. Hassan

31. 6th International Conference on Electronic Materials and Packaging - EMAP 2004 (Dec. 5 – 7, 2004)

(i) *Overview of thin film hydrogen gas sensors*

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan

(ii) *High temperature structural and electrical behaviour of metal contacts on n-type GaN*

F. K. Yam, P. A. Teoh, Z. Hassan

32. 2004 IEEE International Conference on Semiconductor Electronics- ICSE 2004 (Dec. 7 – 9, 2004)

(i) *Optimization of optical and electrical behavior of quantum well GaN-based LED*

N. Zainal, M. R. Hashim, H. Abu. Hassan, Z. Hassan

(ii) Hydrogen sensitive Pt Schottky diode sensor based on GaN
A. Y. Hudeish, A. Abdul Aziz, Z. Hassan, K. Ibrahim

(iii) Multi layer metalization scheme (Ni/Pd/Ag) ohmic contact on p-type GaN
C. W. Lim, F. K. Yam, C. K. Tan, A. A. Aziz, Z. Hassan

(iv) Optical properties of GaN on sapphire substrates grown by plasma-assisted MOCVD in the infrared and UV-visible regions
S. A. Oh, M. D. R. Hashim, S. S. Ng, Z. Hassan, K. Ibrahim, M. Barmawi, Sugianto, M. Budiman, P. Arifin

(v) Electrical properties of Ti/Ag contacts to n-type $Al_{0.1}Ga_{0.9}N$
S. Othman, F. K. Yam, Z. Hassan

(vi) High temperature Pd Schottky diode gas sensor on p-type GaN
A. Y. Hudeish, A. Abdul Aziz, Z. Hassan, K. Ibrahim

33. SPIE's Optoelectronics 2005, Photonics West (Jan. 22 – 27, 2005), U.S.A

(i) Effects of annealing treatments on the characteristics of ohmic contacts on n-type AlGaIn
(p. 190 (Abstracts))
Z. Hassan, F. K. Yam, Y. C. Lee, S. Othman

(ii) Simulation of high performance quantum well GaN-based LED
(p. 149 (Abstracts))
Z. Hassan, N. Zainal, M. R. Hashim, H. Abu Hassan

34. International Conference on Recent Advances in Mechanical & Materials Engineering ICRAMME 2005 (May 30 – 31, 2005)

Effects of substrate type on the characteristics of DBRs structure for GaN based VCSEL
(p. 50 (Abstracts))
N. M. Ahmed, M. R. Hashim, Z. Hassan

35. International Conference on Functional Materials and Devices – ICFMD2005 (June 6 – 8, 2005)

(i) Optimization of InGaIn based light emitting diodes
(p. 44 (Abstracts))
N. Zainal, M. R. Hashim, H. Abu Hassan, Z. Hassan

(ii) XRD crystalline studies of GaN/Si films grown by MOCVD at various substrate temperatures
(p. 25 (Abstracts))
S. S. Ng, Z. Hassan, Haslan Abu Hassan, M. E. Kordesch

(iii) Investigation on Ag/Ti ohmic contacts to Si-doped n-type $Al_{0.27}Ga_{0.73}N$ and the effect of post annealing treatments
(p. 26 (Abstracts))
S. Othman, F. K. Yam, H. Abu Hassan, Z. Hassan

(iv) Epitaxial GaN film grown at low temperature by hydrogen plasma-assisted MOCVD
(p. 73 (Abstracts))
F. K. Yam, Z. Hassan, K. Ibrahim, M. Barmawi, Sugianto, M. Budiman, P. Arifin

(v) *The structural and optical characteristics of GaN films grown by low-pressure metalorganic chemical vapor deposition*
(p. 48 (Abstracts))

F. K. Yam, Z. Hassan, H. Abu Hassan, M. E. Kordesch

(vi) *A chemical sensor based on AlGaN*

(p. 71 (Abstracts))

A. Y. Hudeish, C. K. Tan, A. Abdul Aziz, Z. Hassan

(vii) *Hydrogen response mechanism of Pd-GaN Schottky diodes comparative to Pd-Si gas sensors*

(p. 45 (Abstracts))

A. Y. Hudeish, C. K. Tan, A. Abdul Aziz, Z. Hassan

(viii) *Design of DBR mirrors for GaN vertical surface emitting laser*

(p. 31 (Abstracts))

N. M. Ahmed, M. R. Hashim, Z. Hassan

(ix) *Effects of layer thickness and incident angle variation on semiconductor DBR reflectivity*

(p. 71 (Abstracts))

N. M. Ahmed, M. R. Hashim, Z. Hassan

(x) *The study of thermal treatment on electrical properties at Cr/p-GaN*

(p. 72 (Abstracts))

C. K. Tan, A. Abdul Aziz, Z. Hassan, F. K. Yam, C. W. Lim, A. Y. Hudeish

(xi) *Pinning Fermi level of p-GaN due to three different (Zr, Ti, and Cr) metal contacts*

C. K. Tan, A. Abdul Aziz, Z. Hassan, F. K. Yam, C. W. Lim, A. Y. Hudeish

(xii) *Effect of thermal treatment for Pd and PdSi Schottky contacts on p-GaN*

(p. 37 (Abstracts))

C. K. Tan, A. Abdul Aziz, F. K. Yam, C. W. Lim, Z. Hassan, A. Y. Hudeish

36. International Conference on Materials for Advanced Technologies ICMAT 2005 and 9th International Conference on Advanced Materials ICAM 2005 (July 3 - 8, 2005), Singapore

(i) *Effects of layer thickness and incident angle variations on dielectric DBR reflectivity*

(J-12-OR42 (Abstracts))

N. M. Ahmed, M. R. Hashim, Z. Hassan

(ii) *Resonant cavity-enhanced GaN-MSM photodetector using omni directional reflector*

(J-4-P034 (Abstracts))

Roslan Hashim, Naser Mahmoud, Zainuriah Hassan

37. 6th International Conference on Nitride Semiconductors – ICNS6 (Aug. 28 – Sept. 2, 2005), Germany

(i) *AlGaIn metal-semiconductor-metal structure for pressure sensing applications*

Z. Hassan, Y. C. Lee, S. S. Ng, F. K. Yam, Y. Liu, Z. Rang, M. Z. Kauser, P. P Ruden, M. I. Nathan

(ii) *Electrical characteristics and thermal stability of Ti contact to p-GaN*

C. K. Tan, A. Abdul Aziz, Z. Hassan, F. K. Yam, A. Y. Hudeish

(iii) *The effect of Al-mole fraction on energy band gap and quality of $Al_xGa_{1-x}N$ ($x \leq 0.11$) grown on sapphire*

S. S. Ng, S. Othman, Z. Hassan, H. Abu Hassan

(iv) Large enhancement of GaN UV light emission using silver mirror resonator
N. M. Ahmed, M. R. Hashim, Z. Hassan

38. Asian Conference on Sensors – AsiaSense2005 (Sept. 5 – 7, 2005)

(i) A methane sensitive Ni/n-GaN Schottky barrier sensor
(p. 30 (Abstracts))

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan, C. K. Tan, H. Abu Hassan, K. Ibrahim

(ii) High-temperature Pt Schottky barrier gas sensor on p-type GaN
(p. 43 (Abstracts))

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan, C. K. Tan, H. Abu Hassan, K. Ibrahim

(iii) Investigations of surface roughness of GaN based gas sensor using atomic force microscope

(p. 54 (Abstracts))

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan, C. K. Tan, H. Abu Hassan, K. Ibrahim

39. The XXII Regional Conference and Workshop on Solid State Science & Technology – RCSST 2005 (Dec. 18 – 21, 2005)

(i) Optical characteristics of GaN epilayer grown on silicon substrate by Raman and PL spectroscopy

S. S. Ng, Z. Hassan, H. Abu Hassan

(ii) Surface and composition reactivity of Schottky barriers n-GaN gas sensor

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan, H. Abu Hassan, K. Ibrahim

(iii) High resolution x-ray diffraction (HRXRD) study of Pt, Pd, and Ni on n-GaN based hydrogen gas sensor

A. Y. Hudeish, A. Abdul Aziz, Z. Hassan, H. Abu Hassan, K. Ibrahim

(iv) Effects of Ni/Ag as ohmic contacts on p-type GaN annealed in vacuum

C. W. Lim, A. Abdul Aziz, Z. Hassan, F. K. Yam

40. Young Researchers Conference on Applied Sciences – CAS 2006 (June 13-14, 2006)

(i) Structural and optical characteristics of porous GaN prepared by platinum assisted electroless chemical etching

F. K. Yam, C. W. Chin, Z. Hassan

(ii) High resolution x-ray diffraction study of AlGaN/GaN

L. S. Chuah, S. S. Ng, Z. Hassan, H. Abu Hassan

(iii) The influence of coated-silver nanoparticles on luminescence in the GaN/sapphire film

N. M. Ahmed, R. Hashim, Z. Hassan

(iv) Effects of Al_{0.15}Ga_{0.85}N interlayer on the electrical properties of contacts on n-type GaN

S. M. Thahab, H. Abu Hassan, Z. Hassan

(v) Structural and optical characterization of GaN thin films growth on 6H-SiC

S. S. Ng, L. S. Chuah, Z. Hassan, H. Abu Hassan

41. Laser and Electro-Optics Seminar – LEOS 2006 (June 28-29, 2006)

(i) *Comparative study of the performance of various LED structures by simulation method*
(p. 16 (Abstracts))

N. Zainal, Z. Hassan, H. Abu Hassan, M. R. Hashim

(ii) *Optical characteristics of $Al_{0.35}Ga_{0.85}N/GaN$ grown on Al_2O_3*
(p. 19 (Abstracts))

L. S. Chuah, Z. Hassan, S. S. Ng, H. Abu Hassan

42. 6th International Conference on Numerical Simulation of Optoelectronic Devices – NUSOD '06 (Sept. 11-14, 2006), Singapore

Optical Performance of InGaN/AlGaN Double Heterostructure Light Emitting Diodes

S. M. Thahab, H. Abu Hassan, Z. Hassan

43. European Workshop on III-Nitrides Semiconductor Materials and Devices – EW3NS (Sept. 18-20, 2006)

(i) *Investigation of structural and optical properties of nanoporous GaN films*
(p. 49-50 (Extended Abstracts))

F. K. Yam, Z. Hassan, L. S. Chuah, Y. P. Ali

(ii) *Simulation of GaN-based junction field effect transistor*
(p. 53-54 (Extended Abstracts))

S. M. Thahab, H. Abu Hassan, Z. Hassan

(iii) *Schottky diode based on porous GaN for gas sensing applications*
(p. 55-56 (Extended Abstracts))

L. S. Chuah, S. S. Ng, Z. Hassan, H. Abu Hassan

(iv) *Comparative study of the performance of single and multiple quantum wells $In_{0.13}Ga_{0.87}N$ by simulation method*

(p. 61-62 (Extended Abstracts))

N. Zainal, Z. Hassan, H. Abu Hassan, M. R. Hashim

(v) *Polarized IR reflectance study of GaN thin films: The effects of incidence angles on the optical phonon modes*

(p. 67-68 (Extended Abstracts))

S. S. Ng, Z. Hassan, H. Abu Hassan

(vi) *The influences of the alloy composition, x, on surface phonon polariton mode of the $Al_xGa_{1-x}N$ semiconductors*

(p. 69-70 (Extended Abstracts))

S. S. Ng, H. Abu Hassan, C. Y. Lo, Z. Hassan

44. 2006 IEEE International Conference on Semiconductor Electronics- ICSE 2006 (Nov. 29-Dec. 1, 2006)

(i) *Effect of post annealing treatments on the characteristics of ohmic contacts to n-type InN*

L. S. Chuah, Z. Hassan, H. Abu Hassan

(ii) *Nanoporous InN films synthesized using photoelectrochemical (PEC) wet etching*

L. S. Chuah, Z. Hassan, F. K. Yam, H. Abu Hassan

(iii) Characteristics of thermally treated contacts on porous silicon based metal-semiconductor-metal (MSM) photodetector structures

L. S. Chuah, C. W. Chin, Z. Hassan, H. Abu Hassan

(iv) Porous silicon dioxide synthesized using photoelectrochemical (PEC) wet etching

L. S. Chuah, C. W. Chin, Z. Hassan, H. Abu Hassan

(v) The study of Pt/porous GaN Schottky contact for hydrogen sensing

F. K. Yam, Y. P. Ali, Z. Hassan, N. H. Mohd. Noor, C. W. Chin

(vi) The growth of III-V nitrides heterostructure on Si substrate by plasma-assisted molecular beam epitaxy

F. K. Yam, Z. Hassan, L. S. Chuah, N. Zainal, C. W. Chin, S. M. Thahab, M. Hussein

(vii) The energy band gap of $Al_xGa_{1-x}N$ thin films as a function of Al-mole fraction

S. S. Ng, F. K. Yam, Z. Hassan, H. Abu Hassan

(viii) Simulation of InGaN multiple quantum wells (MQWs) light emitting diodes

S. M. Thahab, H. Abu Hassan, Z. Hassan

(ix) Effects of metal work function and operating temperatures on the electrical properties of contacts to n-type GaN

S. M. Thahab, H. Abu Hassan, Z. Hassan

45. 3rd Colloquium on Postgraduate Research – Colloquium on Materials, Minerals and Polymers - MAMIP 2007 (Apr. 10-11, 2007)

(i) Optical study of p-GaN on sapphire grown by RF plasma-assisted molecular beam epitaxy

C. W. Chin, Z. Hassan, F. K. Yam, L. S. Chuah

(ii) InGaN/GaN heterostructure for photodetector applications

L. S. Chuah, Z. Hassan, H. Abu Hassan, C. W. Chin

(iii) High quality $Al_{0.09}Ga_{0.91}N$ film on Si(111) by radio-frequency molecular beam epitaxy

L. S. Chuah, Z. Hassan, H. Abu Hassan, M. Hussein, F. K. Yam, N. Zainal, C. W. Chin, S. M. Thahab

(iv) Photoelectrochemical etching of GaN using aqueous KOH solutions

C. W. Chin, Z. Hassan, F. K. Yam, L. S. Chuah

46. International Conference on Advancement of Materials and Nanotechnology - ICAMN '07 (May 29- June1, 2007)

(i) UV photodetector based on high quality GaN grown on Si(111) by RF-MBE

(p. 75 (Abstracts))

L. S. Chuah, Z. Hassan, H. Abu Hassan, C. W. Chin

(ii) Growth of high quality $In_{0.47}Ga_{0.53}N/GaN$ heterostructure on Si(111) via RF-MBE and its application to MSM photodiode

(p. 196 (Abstracts))

L. S. Chuah, Z. Hassan, H. Abu Hassan

(iii) Surface morphology of porous Si, prepared by laser-induced etching

(p. 189-190 (Abstracts))

N. K. Ali, Khalid M. Omar, Z. Hassan, Md R. Hashim, H. Abu Hassan, N. M. Ahmed

47. International Conference on Nanoscience and Technology (June 4–6, 2007), China

Growth of ZnO nanostructures from catalyst-free d.c. magnetron sputtering

K. G. Saw, Y. T. Lim, K. Ibrahim, Z. Hassan

48. ISESCO International Workshop and Conference on Nanotechnology - IWCN 2007 (June 12-15, 2007)

(i) *Series resistance in thin film n-GaN/AlN/n-Si(111) heterostructure*

(p. 41 (Abstracts))

C. W. Chin, Z. Hassan, F. K. Yam, L. S. Chuah

(ii) *Photoluminescence studies of nanoporous GaN prepared by electroless wet chemical etching*

(p. 42 (Abstracts))

L. S. Chuah, Z. Hassan, H. Abu Hassan

(iii) *Dark current reduction in MSM photodetector based on nanoporous GaN*

(p. 51 (Abstracts))

F. K. Yam, Z. Hassan, K. M. Omar

(iv) *Studies of nanoporous GaN film generated by electroless chemical etching*

(p. 38 (Abstracts))

F. K. Yam, Z. Hassan, K. M. Omar

49. International Conference on Materials for Advanced Technologies - ICMAT 2007 (July 1 – 7, 2007), Singapore

(i) *High quality $Al_{0.09}Ga_{0.91}N$ on Si(111) by RF-MBE and its application to MSM photodiode*

(p. 69-70 (Abstracts))

L. S. Chuah, Z. Hassan, H. Abu Hassan, F. K. Yam, S. M. Thahab, C. W. Chin, N. M. Ahmed

(ii) *Enhanced UV photodetector responsivity in porous GaN/Si(111) by metal-assisted electroless etching*

L. S. Chuah, Z. Hassan, H. Abu Hassan

50. Malaysia-Japan International Symposium on Advanced Technology 2007 - MJSIT 2007 (Nov. 12-15, 2007)

(i) *The growth of highly doped p-GaN on sapphire by RF plasma-assisted molecular beam epitaxy*

C. W. Chin, Z. Hassan, F. K. Yam

(ii) *Effects of thermal annealing of Pt Schottky contacts on n-GaN*

C. W. Chin, Z. Hassan, F. K. Yam

(iii) *Red emission of thin film electroluminescent device based on p-GaN*

L. S. Chuah, Z. Hassan, H. Abu Hassan

(iv) *Optical characterization of GaN thin film grown on Si(111) by radiofrequency plasma-assisted molecular beam epitaxy*

L. S. Chuah, Z. Hassan, H. Abu Hassan

(v) *InGaN double heterostructure (DH) laser diode performance and optimization*
S. M. Thahab, H. Abu Hassan, Z. Hassan

(vi) *Al_{0.15}Ga_{0.85}N/GaN heterostructure field effect transistors (HFET) device structure optimization and thermal effects*
S. M. Thahab, H. Abu Hassan, Z. Hassan

51. 6th Asean Microscopy Conference (Dec. 10-12, 2007)

(i) *Effects of annealing temperature on cerium oxide thin film deposited on silicon via metalorganic decomposition*
F. A. Jasni, K. Y. Cheong, Z. Lochman, Z. Hassan

(ii) *Properties of ZrO₂ high-k gate oxide thin films grown via anodic oxidation process*
N. R. Z. Abidin, K. Y. Cheong, Z. Lochman, Z. Hassan

52. 23rd Regional Conference on Solid State Science and Technology - RCSST 2007 (Nov. 27-29, 2007)

(i) *Pt Schottky contact on n-type GaN for hydrogen gas sensors*
C. W. Chin, Z. Hassan, F. K. Yam

(ii) *Schottky diodes based on p-type GaN grown by radio-frequency molecular beam epitaxy*
L. S. Chuah, Z. Hassan, C. W. Chin, F. K. Yam, H. Abu Hassan

(iii) *The performance of InGaN laser diodes consists of a separate confinement heterostructure with a multiple quantum well active region*
S. M. Thahab, H. Abu Hassan, Z. Hassan

(iv) *Influence of thick n-AlGaIn contact layer on the performance of InGaIn laser diode with modulation doped strain-layer superlattices*
S. M. Thahab, H. Abu Hassan, Z. Hassan

53. 2007 IEEE Regional Symposium on Microelectronics - RSM 2007 (Dec. 3-6, 2007)

(i) *Growth and characterization of Si-doped n-GaN by RF plasma-assisted molecular beam epitaxy*
C. W. Chin, Z. Hassan, F. K. Yam, L. S. Chuah

(ii) *Electrical characteristics of Pt Schottky contact on InGaIn*
C. W. Chin, Z. Hassan, F. K. Yam

(iii) *Investigation on thermal stability of Pd Schottky contacts to p-type GaN/Si(111)*
L. S. Chuah, Z. Hassan, C. W. Chin, F. K. Yam, H. Abu Hassan

(iv) *Photoelectrical performances of photodiode based on p-GaN/n-Si structure*
L. S. Chuah, Z. Hassan, C. W. Chin, F. K. Yam, H. Abu Hassan

54. National Physics Conference 2007 - PERFIK 2007 (Dec. 26-28, 2007)

(i) *Characteristics of thermally treated contacts on nanoporous GaN based MSM photodetector (p. 77 (Abstracts))*
L. S. Chuah, Z. Hassan, H. Abu Hassan

(ii) Morphology and luminescence properties of porous $Al_{0.09}Ga_{0.91}N$ generated via Pt-assisted electroless etching

(p. 23 (Abstracts))

L. S. Chuah, Z. Hassan, H. Abu Hassan

(iii) Structural, optical and electrical properties of n-type GaN on Si(111) grown by RF plasma-assisted molecular beam epitaxy

(p. 56 (Abstracts))

C. W. Chin, Z. Hassan, F. K. Yam

(iv) Effect of varying quantum well thickness on the performance of InGaN/GaN single quantum well laser diode

(p. 28 (Abstracts))

S. M. Thahab, H. Abu Hassan, Z. Hassan

(v) Ridge geometry InGaN multi quantum structure laser diode

(p. 79 (Abstracts))

S. M. Thahab, H. Abu Hassan, Z. Hassan

(vi) The methodology effects on surface morphology pattern of porous semiconductors

(p. 121 (Abstracts))

Khalid M. Omar, N. K. Ali, Z. Hassan, Md. R. Hashim

(vii) Optical characteristics of poly[(9,9-dioctylfluorenyl-2,7-diyl)-co-(1,4-phenylene)]-(F8P) on ITO coated glass

(p. 121-122 (Abstracts))

S. S. Tneh, H. Omar, H. Abu Hassan, Z. Hassan

55. The OSA Topical Conference on Nanophotonics 2008 - NANO2008 (May 26-29, 2008), China

(i) Nanocrystalline InN film grown on porous silicon/Si(111) substrate

(p. 83 (Abstracts))

L. S. Chuah, Z. Hassan, S. S. Ng, H. Abu Hassan

(ii) GaN Schottky barrier photodiode with thin AlN cap layer

(p. 120 (Abstracts))

L. S. Chuah, Z. Hassan, H. Abu Hassan, N. M. Ahmed

(iii) RF-MBE growth of GaN on sapphire for gas sensing application

(p. 99 (Abstracts))

C. W. Chin, Z. Hassan, F. K. Yam

(iv) Improvement of carrier confinement using AlGaIn/GaN multiquantum barrier layers in InGaIn laser diode

(p. 77 (Abstracts))

S. M. Thahab, H. Abu Hassan, Z. Hassan

(v) Quantum well number effect and characterization of InGaIn/GaN laser diode

(p. 92 (Abstracts))

S. M. Thahab, H. Abu Hassan, Z. Hassan

(vi) Composition dependence of the surface phonon-polariton mode in wurtzite $In_xGa_{1-x}N$ ($0 \leq x \leq 1$) ternary alloy

(p. 61 (Abstracts))

S. S. Ng, Z. Hassan, H. Abu Hassan

(vii) *Surface phonon-polariton characteristics of bulk wurtzite InN*
(p. 81 (Abstracts))
S. S. Ng, Z. Hassan, H. Abu Hassan

56. 2nd International Conference on Functional Materials and Devices – ICFMD 2008 (June 16-19, 2008)

(i) *Optical absorption of poly[(9,9-dioctylfluorenyl-2,7-diyl)-co-(1,4-phenylene)]-(F8P) on transparent substrates*
(A-212 (Abstracts))
S. S. Tneh, H. Abu Hassan, Z. Hassan

(ii) *Growth of self-assembled InGaN quantum dots on Si(111) at reduced temperature by RF plasma-assisted molecular beam epitaxy*
(A-296 (Abstracts))
C. W. Chin, Z. Hassan, F. K. Yam

(iii) *FTIR spectroscopy and high resolution x-ray diffraction investigation of thin films of AlN on Si substrates by MBE*
(A-297 (Abstracts))
S. C. Teoh, C. W. Chin, Z. Hassan, S. S. Ng, L. S. Chuah, M. Hussein Mourad, F. K. Yam, K. Ibrahim

(iv) *Plasma-assisted molecular beam epitaxy growth of hexagonal crack free In_{0.26}Ga_{0.74}N thin film on Si(111)*
(A-298 (Abstracts))
L. S. Chuah, Z. Hassan, S. S. Ng, H. Abu Hassan

(v) *Electrical characterization of Ni Schottky contacts on GaN/ Si(111) with thin AlN cap layer*
(A-299 (Abstracts))
L. S. Chuah, Z. Hassan, H. Abu Hassan

(vi) *The effects of strained single-quantum-well on the performance of InGaN laser diodes*
(A-300 (Abstracts))
S. M. Thahab, H. Abu Hassan, Z. Hassan

(vii) *Influences of AlGaN/GaN strained layer superlattices on the performance of InGaN DQWs laser diodes*
(A-301 (Abstracts))
S. M. Thahab, H. Abu Hassan, Z. Hassan

57. International Conference on Nanoscience and Nanotechnology 2008 – NANO-SciTech 2008 (November 18-21, 2008)

(i) *Metal-insulator-semiconductor (MIS) structure with AlN dielectric*
(P-181 (Abstracts))
A. Mahyuddin, Z. Hassan, K. Y. Cheong

(ii) *The size effect in small aperture confined vertical cavity surface emitting laser*
(O-038 (Abstracts))
Farah Z. Jasim, Khalid Omar, Z. Hassan

(iii) *The studies of doping concentration effects on VCSEL laser*
(P-089 (Abstracts))
Farah Z. Jasim, Khalid Omar, Z. Hassan

(iv) *The study of energy bandgap of $In_xAl_yGa_{1-x-y}N$ quaternary alloys using UV-VIS spectroscopy*
(P071 (Abstracts))
N. H. Abd. Raof, S. S. Ng, H. Abu Hassan, Z. Hassan

58. 2nd International Conference on Science and Technology – ICSTIE 2008 (December 12-13, 2008)

(i) *Growth and properties of AlN/GaN/AlN film on Si substrates*
(p. 95 (Abstracts))
A. Mahyuddin, Z. Hassan, C. W. Chin, K. Y. Cheong

(ii) *Structural quality of AlGaN/GaN/AlN on Si substrate grown by plasma-assisted molecular beam epitaxy*
(p. 98 (Abstracts))
M. Z. Mohd Yusoff, Z. Hassan, C. W. Chin, S. M. Thahab, H. Abu Hassan

(iii) *Optic vibrational property of AlN on Si(111) substrate grown by RF-PAMBE*
(p. 100 (Abstracts))
N. H. Abd. Raof, S. S. Ng, H. Abu Hassan, Z. Hassan

(iv) *Surface phonon-polariton characteristics of $In_{0.47}Ga_{0.53}N/GaN$ on Si(111) substrate grown by RF-PAMBE*
(p. 102 (Abstracts))
S. S. Ng, L. S. Chuah, Z. Hassan, H. Abu Hassan

59. 4th International Conference on Recent Advances in Materials, Minerals and Environment and 2nd Asian Symposium on Materials and Processing –RAMM & ASMP '09 (June 1-3, 2009)

(i) *Photoluminescence characterization of quaternary $In_xAl_yGa_{1-x-y}N$*
(p. 133 (Abstracts))
S. K. Mohd Bakhori, S. S. Ng, H. Abu Hassan, Z. Hassan, K. Ibrahim

(ii) *Surface phonon polariton modes of wurtzite structure III-nitride semiconductors*
(p. 133 (Abstracts))
S. S. Ng, H. Abu Hassan, Z. Hassan

(iii) *XRD characterization of $In_xAl_yGa_{1-x-y}N$ quaternary alloys*
(p. 212 (Abstracts))
N. H. Abd. Raof, S. S. Ng, H. Abu Hassan, Z. Hassan

(iv) *The effects of surface roughness on the broadening of surface phonon-polariton peak of $Al_xGa_{1-x}N$ thin films*
(p. 214 (Abstracts))
S. S. Ng, Z. Hassan, H. Abu Hassan

(v) *Study of radius size effects on vertical cavity surface emitting laser performance*
(p. 218 (Abstracts))
Farah Z. Jasim, Khalid Omar, Z. Hassan

(vi) *Effect of annealing on the electrical properties of metal-insulator-semiconductor (MIS) structure with AlN dielectric*

(p. 222 (Abstracts))
A. Mahyuddin, Z. Hassan, K. Y. Cheong

60. Second International Conference and Workshops on Basic and Applied Sciences & Regional Annual Fundamental Science seminar 2009 (June 2-4, 2009)

The investigation of Pd Schottky contact on porous GaN for hydrogen gas detection
(p. 33 (Abstracts))
M. L. Oh, F. K. Yam, S. S. Tneh, Z. Hassan

61. International Conference on Materials for Advanced Technologies - ICMAT 2009 (June 28 – July 3, 2009), Singapore

Electrical properties of AlGaIn/GaN heterostructure field effect transistors (HFETs) with and without Mg-doped carrier confinement layer
(A02641-04537 (Abstracts))
Assad Hussein, Z. Hassan, H. Abu Hassan, S. Thahab

62. International Conference on Applied Physics 2009 – ICAP 2009 (July 29-31, 2009), Norway

(i) *Surface morphology and formation of nanostructured porous GaN by UV-assisted electrochemical etching*
L. S. Chuah, Z. Hassan, C. W. Chin, H. Abu Hassan

(ii) *Performance of InGaIn/GaN laser diode based on quaternary alloys stopper and superlattice layers*
S. M. Thahab, H. Abu Hassan, Z. Hassan

(iii) *Surface phonon polariton in InAlGaIn quaternary alloys*
S. S. Ng, Z. Hassan, H. Abu Hassan

(iv) *InAlGaIn quaternary multi-quantum wells UV laser diode performance and characterization*
S. M. Thahab, H. Abu Hassan, Z. Hassan

(v) *Structural and optical properties of $In_xAl_yGa_{1-x-y}N$ quaternary alloys*
N. H. Abd. Raof, H. Abu Hassan, S. K. Mohd Bakhori, S. S. Ng, Z. Hassan

63. International Advanced Technology Congress 2009 (November 3-5, 2009)

(i) *Infrared properties of bulk ZnO semiconductor*
(p. 50 (Abstracts))
M. A. Ahmad, S. K. Mohd Bakhori, S. S. Ng, Z. Hassan, H. Abu Hassan

(ii) *Photoluminescence and XRD crystalline studies of $In_xAl_yGa_{1-x-y}N$ quaternary alloys*
(p. 51 (Abstracts))
S. K. Mohd Bakhori, N. H. Abd. Raof, S. S. Ng, H. Abu Hassan, Z. Hassan

64. International Conference on Electronics, Materials and Packaging – EMAP 2009
(December 1-3, 2009)

(i) *Growth of high quality ZnO nanowires without the presence of catalyst*
(p. 46 (Abstracts))

H. I. Abdulgafour, Z. Hassan, F. K. Yam, N. Al-Hardan

(ii) *Effects of traps and polarization charges on devices performance of AlGaN/GaN high electron mobility transistors*

(p. 46 (Abstracts))

A. SH. Hussein, Z. Hassan, H. Abu Hassan, S. M. Thahab

(iii) *Structural and optical characterization of AlN on Si(111) grown by RF-PAMBE*

(p. 55 (Abstracts))

N. H. Abd. Raof, S. S. Ng, H. Abu Hassan, Z. Hassan

(iv) *Energy band gap studies of $In_xAl_yGa_{1-x-y}N$ quaternary alloys using photoluminescence spectroscopy*

(p. 56 (Abstracts))

S. K. Mohd Bakhori, S. S. Ng, H. Abu Hassan, Z. Hassan, K. Ibrahim

(v) *Characterization of sputtered Ti/TiN on $SiO_2/Si(100)$ with the application of substrate power*

(p. 56 (Abstracts))

M. T. Leow, K. E. Lee, Z. Hassan, G. Omar, H. C. Lim, C. F. Chan, E. T. Siew, Z. M. Chuah

(vi) *Optical phonon modes of AlGaN ternary alloys*

(p. 76 (Abstracts))

S. S. Ng, Z. Hassan, H. Abu Hassan

(vii) *Surface phonon polariton characteristics of bulk wurtzite zinc oxide semiconductors*

(p. 76 (Abstracts))

S. C. Lee, S. S. Ng, Z. Hassan, H. Abu Hassan

(viii) *Growth and characterization of $Al_{0.11}Ga_{0.89}N$ epilayers grown on Si(111) by RF-plasma assisted MBE*

(p. 77 (Abstracts))

M. Z. M. Yusoff, Z. Hassan, H. Abu Hassan, Y. Yusof

(ix) *Surface morphology of porous silicon prepared by laser-induced etching*

(p. 83 (Abstracts))

Asmiet Ramizy, Khalid Omar, Z. Hassan

65. National Conference on Physics – PERFIK 2009 (December 7-9, 2009)

(i) *Thermal annealing behavior of Pt on p-GaN ohmic contacts*

(p. 10 (Abstracts))

S. G. Teo, Z. Hassan, F. K. Yam

(ii) *Characterization of AlGaN/GaN heterostructure field effect transistors (HFETs) with variable thickness channel and substrate type*

(p. 11 (Abstracts))

A. SH. Hussein, Z. Hassan, H. Abu Hassan, S. M. Thahab

(iii) *Single and double quantum well effects on GaN-based VCSELs performance*

(p. 17 (Abstracts))

A. Zandi, Farah Z. Jasim, Z. Hassan, H. Abu Hassan

- (iv) *Theoretical and experimental studies of the polarized infrared reflectance spectra of bulk wurtzite zinc oxide semiconductor*
(p. 17 (Abstracts))
S. C. Lee, S. S. Ng, Z. Hassan, H. Abu Hassan
- (v) *Electrical characteristics and interface properties of III nitride-based metal-insulator-semiconductor structure*
(p. 19 (Abstracts))
A. Mahyuddin, Z. Hassan, Y. Yusof, K. Y. Cheong
- (vi) *Polarized infrared reflectance study of InGaN semiconductor*
(p. 20 (Abstracts))
M. A. Ahmad, S. C. Lee, S. K. Mohd Bakhori, S. S. Ng, Z. Hassan, H. Abu Hassan
- (vii) *Aperture oxide confinement effects in vertical cavity surface emitting laser*
(p. 27 (Abstracts))
Farah Z. Jasim, Khalid Omar, Z. Hassan
- (viii) *The influence of geometrical structure of InAlGaN double quantum well (DQWs) UV diode laser on its performance and operating parameters*
(p. 28 (Abstracts))
A. J. Ghazai, H. Abu Hassan, Z. Hassan
- (ix) *Well-aligned zinc oxide nanoflowers prepared without catalyst*
(p. 98 (Abstracts))
H. I. Abdulgafour, Z. Hassan, F. K. Yam, N. Al-Hardan
- (x) *Visible light emission due to quantum size effects in porous crystalline silicon*
(p. 101 (Abstracts))
L. S. Chuah, Z. Hassan, H. Abu Hassan
- (xi) *Study of porous silicon fabricated by photoelectrochemical (PEC) wet etching of n-Si(100)*
(p. 102 (Abstracts))
L. S. Chuah, A. Mahmood, Z. Hassan, H. Abu Hassan, S. K. Mohd Bakhori
- (xii) *The study of energy band gaps of $Al_xIn_yGa_{1-x-y}N$ quaternary alloys using UV-VIS spectroscopy*
(p. 110 (Abstracts))
M. A. Abid, H. Abu Hassan, Z. Hassan, S. S. Ng, N. H. Abd. Raof, S. K. Mohd Bakhori
- (xiii) *XRD analyses of $In_{0.10}Al_xGa_{0.90-x}N$ ($0 \leq x \leq 0.20$) quaternary alloys*
(p. 111 (Abstracts))
Y. Yusof, M. A. Abid, N. H. Abd Raof, S. S. Ng, H. Abu Hassan, Z. Hassan
- (xiv) *Kramers-Kronig analysis of infrared reflectance spectra of quaternary $In_xAl_yGa_{1-x-y}N$ alloys*
(p. 116 (Abstracts))
N. H. Abd. Raof, S. S. Ng, H. Abu Hassan, Z. Hassan
- (xv) *Determination of the Al composition of $Al_xGa_{1-x}N$ thin films by means of EDX and XRD techniques*
(p. 124 (Abstracts))
S. S. Ng, Z. Hassan, H. Abu Hassan
- (xvi) *Thermal degradation of single crystal zinc oxide and the growth of nanostructures*
(p. 152 (Abstracts))
K. G. Saw, G. L. Tan, Z. Hassan, F. K. Yam, S. S. Ng

(xvii) *Study on the properties of ionized metal plasma methodology on titanium*
(p. 164 (Abstracts))
M. T. Leow, K. E. Lee, Z. Hassan, C. F. Chan, E. T. Siew, Z. M. Chuah

66. 9th National Symposium on Polymeric Materials – NSPM 2009 (December 14-16, 2009)

Effect of annealing temperature and concentration of poly [(9,9-dioctylfluorenyl-2,7-diyl)-co-(1,4-phenyleneO)] on photoluminescence intensity of polymer light emitting materials
Siti Nur Sarah Ridhuwan, Haslan Abu Hassan, Zainuriah Hassan

67. International Conference on Nanotechnology Research and Commercialization – ICONT 2009 (December 14-17, 2009)

(i) *Photoluminescence of Al_xIn_yGa_{1-x-y}N quaternary alloys grown on sapphire substrates by molecular beam epitaxy*
(p. 61 (Abstracts))

Muslim A. Abid, H. Abu Hassan, Z. Hassan, S. S. Ng, S. K. Mohd Bakhori, N. H. Abd. Raof

(ii) *Thermal effects on performance in vertical cavity surface emitting lasers*
(p. 68 (Abstracts))

Farah Z. Jasim, Khalid Omar, Z. Hassan

(iii) *Effect of electrochemical anodization parameters towards the properties of the silicon nanostructures*
(p. 100 (Abstracts))

Asmiet Ramizy, Wisam J. Aziz, Khalid Omar, Z. Hassan, K. Ibrahim

68. 25th Regional Conference on Solid State Science and Technology 2009 – RSCSST 2009 (December 21-23, 2009)

(i) *GaN-based wide band gap semiconductors grown on silicon by PA-MBE for ultraviolet photodetection – Invited speaker*
(p. 37 (Abstracts))

L. S. Chuah, Z. Hassan

(ii) *Theoretical and experimental studies of polarized infrared reflectance spectra of bulk wurtzite 6H-SiC semiconductors*
(p. 94 (Abstracts))

S. C. Lee, K. T. Hor, S. S. Ng, H. Abu Hassan, Z. Hassan,

69. The 2nd ISESCO International Workshop and Conference on Nanotechnology – IWCN 2010 (January 25-27, 2010)

(i) *Structural and optical studies of GaN pn-junction with AlN buffer layer grown on Si(111) by RF plasma enhanced MBE*
(p. 55 (Abstracts))

M. Z. Mohd Yusoff, C. W. Chin, Z. Hassan, H. Abu Hassan

(ii) *The doping effect of porous silicon on solar cells performance*
(p. 59 (Abstracts))
Khalid Omar, Asmiet Ramizy, Wisam J. Aziz, Z. Hassan, K. Ibrahim

(iii) *The theoretical study of optical phonon modes of $A_xGa_{1-x}N$ alloys*
(p. 75 (Abstracts))
Z. Barkatullah, H. Abu Hassan, S. S. Ng, Z. Hassan

(iv) *Characterization of Mg-doped AlGaN thin film grown by RF plasma-assisted molecular beam epitaxy*
(p. 85 (Abstracts))
A. SH. Hussein, Z. Hassan, H. Abu Hassan, C. W. Chin, M. A. Ahmad

(v) *Study of undoped porous GaN prepared by UV assisted electrochemical etching*
(p. 90 (Abstracts))
A. Mahmood, Z. Hassan, F. K. Yam

70. 4th Colloquium on Postgraduate Research: National Postgraduate Colloquium on Materials, Minerals and Polymers 2010 – MAMIP 2010 (January 27-28, 2010)

Structural characteristics of $Al_xGa_{1-x}N$ epilayers grown on Si(111) substrate
(p. 30 (Abstracts))
M. Z. Mohd Yusoff, Z. Hassan C. W. Chin, S. M. Thahab, H. Abu Hassan

71. World Academy of Science, Engineering and Technology -- WASET 2010 (February 24-26, 2010) Penang, Malaysia

III-nitride semiconductor materials technology and applications
Zainuriah Hassan (Plenary Speaker)

72. The 8th International Symposium on Semiconductor light Emitting Devices – ISSLED 2010 (May 16-21, 2010)

(i) *Enhancement in efficiency of silicon solar cell based on porous surfaces*
(p. 26 (Abstracts))
Asmiet Ramizy, Z. Hassan, Khalid Omar

(ii) *A study of operating parameters and barrier thickness of $Al_{0.08}In_{0.08}Ga_{0.84}N/Al_xIn_yGa_{1-x-y}N$ multi-quantum wells laser diodes*
(p. 33 (Abstracts))
A. J. Ghazai, S. M. Thahab, H. Abu Hassan, Z. Hassan

(iii) *Laser-induced etching parameters impact on optical properties of the silicon nanostructures*
(p. 60 (Abstracts))
Asmiet Ramizy, Z. Hassan, Khalid Omar

73. Regional Annual Fundamental Science Symposium 2010 – RAFSS 2010 (June 8-9, 2010)

(i) *Energy band gap studies of $In_xAl_yGa_{1-x-y}N$ quaternary alloys using photoluminescence spectroscopy*

(p. 69 (Abstracts))

S. K. Mohd Bakhori, S. S. Ng, H. Abu Hassan, Z. Hassan

(ii) *Polarized infrared reflectance study of ZnO film semiconductor*

(p. 45 (Abstracts))

M A. Ahmad, P. K. Ooi, S. S. Ng, Z. Hassan

74. International Conference on X-rays and Related Techniques in Research and Industry 2010 – ICXRI 2010 (June 9-10, 2010)

(i) *High resolution x-ray diffraction analysis of III-nitride semiconductors*

Zainuriah Hassan – Invited speaker

(ii) *Structural properties studies of GaN on 6H-SiC by means of x-ray diffraction technique*

C. G. Ching, S. S. Ng, Z. Hassan, H. Abu Hassan

(iii) *XRD analyses of $In_xGa_{1-x}N$ ($0.20 \leq x \leq 0.80$) ternary alloys*

Y. Yusof, M. A. Abid, S. S. Ng, H. Abu Hassan, Z. Hassan

75. 18th International Vacuum Congress - IVC-18 (August 23-27, 2010)

The Growth of Heavily Mg Doped GaN thin film on Si substrate by Molecular Beam Epitaxy

C.W. Chin, F.K. Yam, Z. Hassan, M. A. Ahmad, Y. Yusof, S. K. Mohd Bakhori

76. 3rd International Conference on Functional Materials and Devices 2010 – ICFMD 2010 (June 14-17, 2010)

Characteristics of undoped porous GaN prepared by UV assisted electrochemical etching

(p. 27 (Abstracts))

A. Mahmood, Z. Hassan, F. K. Yam, L. S. Chuah

77. 2010 National Conference on Physics – PERFIK 2010 (October 27-30, 2010)

Structural properties studies of zinc oxide thin film grown on silicon carbide by means of x-ray diffraction technique

C. G. Ching, P. K. Ooi, S. S. Ng, Z. Hassan, H. Abu Hassan, N. H. Al-Hardan, M. J. Abdullah

(p. 85 (Abstracts))

78. International Conference on the Advancement of Materials and Nanotechnology 2010– ICAMN II 2010 (November 29 - December 1, 2010)

(i) *Fabrication and characterization of GaN nanowires grown using thermal evaporation*

K. Omar, L. Shekari, H. Abu Hassan, A. Ramizy, Z. Hassan,

(p. 62 (Abstracts))

(ii) *Fabrication and structural characterization of GaN nanowires and nanoribbons grown using thermal evaporation*

L. Shekari, H. Abu Hassan, Z. Hassan,
(p. 50 (Abstracts))

(iii) *Reactive sputtering growth and characterization of InN on Si substrates*

M. Amirhoseiny, Z. Hassan, S. S. Ng, M. A. Ahmad
(p. 85 (Abstracts))

79. 2010 International Conference on Enabling Science and Nanotechnology – Escinano 2010 (December 1-3, 2010)

(i) *Growth of ZnO nanowires without catalyst on porous silicon*

H. I. Abdulgafour, Z. Hassan, F. K. Yam, M. J. Jawad, N. K. Ali

(ii) *Effect of porosity on the characteristics of GaN grown on sapphire*

Ainorkhilah Mahmood, Zainuriah Hassan, Fong Kwong Yam, Lee Siang Chuah

80. National Seminar on Science and Mathematics Applications 2010 – SKASM 2010 (December 8-10, 2010)

The structural study of titanium dioxide nanotubes prepared by anodic process

S. W. Ng, F. K. Yam, K. P. Beh, S. S. Tneh, Z. Hassan,

81. 2nd ASEAN – APCTP Workshop on Advanced Materials Science and Technology (December 21-23, 2010)

(i) *Structural and surface morphology of ZnO thin films grown by RF magnetron sputtering*
(p. 39 (Abstracts))

Yushamdan Yusof, Mohd Anas Ahmad, Ng Sha Shiong, Halim Ahmad, Mat Johar Abdullah, Zainuriah Hassan, Haslan Abu Hassan

(ii) *Synthesis and characterization of nanocrystalline CdS thin films via chemical bath deposition*
(p. 54 (Abstracts))

M. A. Mahdi, Asmiet Ramizy, Z. Hassan, S. S. Ng

(iii) *MSM-photodetectors based on $Al_xGa_{1-x}N/GaN$ heterostructures grown on Si(111) by molecular beam epitaxy*

(p. 55 (Abstracts))

A. SH. Hussein, Z. Hassan, S. M. Thahab, H. Abu Hassan, N. M. Ahmed

(iv) *MSM-photodetectors based on $Al_xGa_{1-x}N/GaN$ heterostructures grown on Si(111) by molecular beam epitaxy*

(p. 63 (Abstracts))

A. J. Ghazai, S. S. Thahab, H. Abu Hassan, Z. Hassan, A SH. Hussein

(v) *Structural, optical and photoelectrochemical (PEC) characterization of n-Si(100) synthesized by wet chemical etching*

(p. 75 (Abstracts))

L. S. Chuah, A. Mahmood, Z. Hassan, S. K. Mohd Bakhori

(vi) Nanostructured CdS grown by chemical bath deposition based on porous silicon substrate
(p. 76 (Abstracts))
Asmiet Ramizy, M. A. Mahdi, Z. Hassan, S. S. Ng

(vii) Characterization of InGaN thin film grown by RF-plasma molecular beam epitaxy
(p. 85 (Abstracts))
M. A. Ahmad, S. K. Mohd Bukhori, Y. Yusof, C. W. Chin, S. S. Ng, Z. Hassan, H. Abu Hassan

(viii) Structural and optical studies of GaN pn-junction with AlN buffer layer grown on Si(111) by RF plasma enhanced MBE
(p. 91 (Abstracts))
Mohd Zaki Mohd Yusoff, Zainuriah Hassan, Chin Che Woei, Haslan Abu Hassan, Mat Johar Abdullah

(ix) The investigation of $Al_{0.29}Ga_{0.71}N/GaN/AlN$ and $AlN/GaN/AlN$ thin films grown on Si(111) by RF-plasma assisted MBE
(p. 92 (Abstracts))
Mohd Zaki Mohd Yusoff, Azzafeerah Mahyuddin, Zainuriah Hassan, Haslan Abu Hassan, Mat Johar Abdullah

82. World Academy of Science, Engineering and Technology -- WASET 2011 (February 22-24, 2011) Penang, Malaysia

Nanostructured porous GaN for gas sensing applications
Zainuriah Hassan (Invited Speaker)

83. Professorial Talk (March 25, 2011)

III-nitrides semiconductor materials – Applications for optoelectronic and electronic devices
Zainuriah Hassan

84. International Conference on Nanotechnology – Research and Commercialization 2011 (June 6-9, 2011)

(i) *Porous silicon-based violet-UV detector*
(p. 93 (Abstracts))
Naser M. Ahmed, Z. Hassan, Naif Alhardan

(ii) *Effect of etching time on porous silicon processing*
(p. 118 (Abstracts))
Khalidun A. Salman, Khalid Omar, Z. Hassan, A. J. Ghazai, A. J. Hashim

85. The International Conference for Nanomaterials Synthesis and Characterization 2011 – INSC2011 (July 4-5, 2011)

(i) *The investigation of porous $Al_xGa_{1-x}N$ layers on Si(111) substrate with GaN/AlN as buffer layer*
(p. 40 (Abstracts))
Y. Yusof, M. Z. Mohd Yusoff, A. Mahmood, Z. Hassan, H. Abu Hassan, M. J. Abdullah

(ii) *Synthesis and characterization of vertically aligned ZnO nanrods on a variety of substrates*

(p. 49-50 (Abstracts))

J. J. Hassan, Z. Hassan, H. Abu Hassan, M. A. Mahdi

(iii) Optical and structural characterization of GaN nanostructures

(p. 51-52 (Abstracts))

L. Shekari, H. Abu Hassan, S. M. Thahab, Z. Hassan

(iv) Structural properties of nanocrystalline PbS thin films prepared by chemical bath deposition

(p. 65 (Abstracts))

Ahmed Salman Obaid, Z. Hassan, M. A. Mahdi, Asmiet Ramizy

(v) Enhanced properties of porous GaN prepared by UV assisted electrochemical etching

(p.65-66 (Abstracts))

Ainorkhilah Mahmood, Naser Mahmoud Ahmed, Zainuriah Hassan, Yam Fong Kwong, Siti Khadijah Mohd Bakhori, Yushamdan Yusof, Chuah Lee Siang

(vi) Temperature effect on GaN-based VCSEL performance

(p. 67-68 (Abstracts))

A. Zandi, Z. Hassan, H. Abu Hassan

(vii) GaN nanowires grown on PZnO and PGaN by thermal evaporation

(p. 73-74 (Abstracts))

L. Shekari, H. Abu Hassan, S. M. Thahab, Z. Hassan

(viii) Crystal structure and optical properties of nanocrystalline InN/Si grown at low temperature

(p.75-76 (Abstracts))

Maryam Amirhoseiny, Zainuriah Hassan, Ng Sha Shiong

(ix) A study of growth of cadmium oxide nanostructure

(p.79 (Abstracts))

Mustafa Zaien, Khalid Omar, Z. Hassan

(x) The fabrication of Ag islands on AlN/GaN/AlN/Si(111) by using thermal evaporator and thermal annealing methods

(p. 101 (Abstracts))

M. Z. Mohd Yusoff, A. Mahyuddin, Z. Hassan, H. Abu Hassan, M. J. Abdullah

(xi) Growth and characterization of GaN p-n junction grown on Si (111) substrate by plasma-assisted molecular beam epitaxy

(p. 110 (Abstracts))

Rosfariza Radzali, MohdAnas Ahmad, Z. Hassan, Yam Fong Kwong, ChinChe Woei

86. Asia-Pacific Workshop on Materials Characterization (September 22-24, 2011) India

Fabrication and characterization of nanostructured porous GaN on Si(111)

Zainuriah Hassan (Invited Speaker)

(p. 122 (Abstracts))

Z. Hassan, L. S. Chuah, A. Ramizy, C. W. Chin

87. 26th Regional Conference of Solid State Science and Technology 2011 – RCESSST 2011 (November 22-24, 2011)

(i) Nanostructured wide band gap semiconductor materials and their applications as gas sensors – Plenary speaker

(p. 29 (Abstracts))

Z. Hassan, A. Ramizy, H. I. Abdulgafour, C. W. Chin, F. K. Yam

(ii) GaN nanowire growth and analysis by different gas flow

(p. 43 (Abstracts))

L. Shekari, H. Abu Hassan, Z. Hassan

(iii) Current-voltage characteristics of $n\text{-Al}_{0.08}\text{In}_{0.08}\text{Ga}_{0.84}$ Schottky diode using Pt metal contact

(p. 106 (Abstracts))

Alaa J. Ghazai, H. Abu Hassan, Z. Hassan

(iv) The effect of InGaN growth with different indium mole fraction on structure and optical properties by PAMBE

(p. 174 (Abstracts))

M. A. Ahmad, S. K. Mohd Bakhori, C. W. Chin, S. S. Ng, Z. Hassan

88. Regional Annual Fundamental Science Symposium 2011 – RAFSS 2011 (December 20-21, 2011) Johor, Malaysia

Fabrication and characterization of humidity sensor based on Pd/ GaN

(p. 40 (Abstracts))

Li Li Low, F. K. Yam, K. P. Beh, A. Abdul Rahman, M. F. N. Mohd Nordin, Z. Hassan

89. International Conference on Enabling Science and Nanotechnology 2012 – ESciNano 2012 (January 5-7, 2012)

(i) InGaN-based multi-quantum well blue-violet light emitting diode

Extended Abstract (on CD)

Ahmad Hadi Ali, Ahmad Shuhaimi bin Abu Bakar, Zainuriah Hassan

(ii) Effects of structure parameters on time response and power-current characteristics of InGaN/GaN single quantum well laser by solving rate equations

Extended Abstract (on CD)

Ghasem Alahyarizadeh, Hassan Aghajani, Hadi Mahmoodi, Raheleh Rahmani, Zainuriah Hassan

(iii) Applications of image processing (IP) method on the structure measurements in porous GaN

Extended Abstract (on CD)

Ainorkhilah Mahmood, Naser Mahmoud Ahmed, Asmiet Ramizy, Zainuriah Hassan, Yam Fong Kwong, Chuah Lee Siang, Mohd Bukhari Md Yunus

(iv) ZnO nanostructures grown on porous silicon substrate without catalyst

Extended Abstract (on CD)

Nurul Izni Rusli, Hind Abdulgafour, Zainuriah Hassan, Fong Kwong Yam, Nihad K. Ali, Abdul Manaf Hashim, Mohamad Rusop Mahmood, Nafarizal Nayan

(v) Effect of crystal size on optical characteristics of porous silicon (110)

Extended Abstract (on CD)

Maryam Amirhoseiny, Zainuriah Hassan, Ng Sha Shiong

(vi) Defects in GaN film grown on Si(100) substrate

Extended Abstract (on CD)

Norzaini Zainal, Siti Nurul Waheeda Mohmad Zaini, Mohd Nuru Ehsan Yusof, Ezzah Azimah Alias, Rosfariza Radzali, Zainuriah Hassan

(vii) Characterization of p- and n-type GaN thin films grown by plasma-assisted molecular beam epitaxy

Extended Abstract (on CD)

Rosfariza Radzali, Norzaini Zainal, Yam Fong Kwong, Zainuriah Hassan

(viii) Ohmic contacts to p-type doped ZnO

Extended Abstract (on CD)

L. S. Chuah, S. S. Tneh, Z. Hassan, K. G. Saw, F. K. Yam

(ix) The effect of Al mole fraction of DBRs on the GaN-based VCSELs performance

Extended Abstract (on CD)

Azita Zandi Goharrizi, Zainuriah Hassan, Haslan Abu Hassan

(x) Analysis of the effect of surface electronic states of GaN nanowires on Si(111) substrates

Extended Abstract (on CD)

Leila Shekari, Haslan Abu Hassan, Zainuriah Hassan

(xi) To develop porous Si as substrate for better quality GaN layer

Extended Abstract (on CD)

Norzaini Zainal, Rosfariza Radzali, Muhammad Esmad Alif Samsudin, Muhamad Ikram Md Taib, Asmiet Ramizy, Zainuriah Hassan

90. 4th International Conference on Nanoscience (ICNS4) (March 12-14, 2012)

GaN nanowires on PSi and PGaN

L. Shekari, Haslan Abu Hassan, Zainuriah Hassan,

Proceedings of the 4th International Conference on Nanoscience (ICNS4) 378-380

91. The Asian International Conference on Materials, Minerals, and Polymer (MAMIP) 2012 (March 23-24, 2012), Penang

The Investigation of Morphological Characteristics of Porous Anodic Alumina Generated by Electrochemical Etching

L.K. Tan, F.K. Yam, K.P.Beh, Z. Hassan

92. International Conference on Computer, Electrical, Electronics & Biomedical Engineering (ICCEEBE'2012) (19-20, May 2012)

Study on influence of cavity length on the electrical properties of deep violet InGaN double quantum well lasers

Gh. Alahyarizadeh, Z. Hassan, S.M. Thahab and A.J. Ghazai

93. International Conference on Nanotechnology 2012 – ICONT 2012 (May 30-June1, 2012) Kuantan, Malaysia

Light Extraction from GaN using microcavity structure

(p. 71 (Abstracts))

Naser M. Ahmed, Z. Hassan

94. International Conference on X-rays & Related Techniques in Research & Industry 2012, ICXRI 2012 (3-5 July 2012)

(i) *Non-destructive approach to investigate InGaN layer grown on Si (111) substrate*
(p. 67 (Abstracts))

Rosfariza Radzali, Norzaini Zainal, Yam Fong Kwong, Chin Che Woei, Zainuriah Hassan

(ii) *Properties of AlGaIn/Si (111) substrate with different growth time*
(p. 117 (Abstracts))

Azharul Ariff, Norzaini Zainal, Ahmad Hadi Ali, Zainuriah Hassan

(iii) *Mechanism growth ZnO nanorods at different temperatures without catalyst by wet thermal oxidation process*
(p. 159 (Abstracts))

H. I. Abdulgafour, Y. Yusof, Z. Hassan, and F. K. Yam

(iv) *Structural and optical properties of In_{0.28}Ga_{0.72}N/Si(111) film grown by using PA-MBE technique*

(p. 217 (Abstracts))

S. Hasson, Z. Hassan, F. K. Yam, Alaa Ghazai

(v) *Morphology of porous silicon (100) with different etching time*
(p. 235 (Abstracts))

M. Ikram Md Taib, M. E. A Samsudin, N. Zainal, S. Yaakob, R. Radzali, Z. Hassan

(vi) *Detects atmosphere in GaN film on Si (100) substrate*
(p. 237 (Abstracts))

S N Waheeda, M N Ehsan, N Zainal and Z Hassan

(vii) *Optical investigation of GaN film grown on Si (111) substrates*
(p. 239 (Abstracts))

M. N. E. Yusof, S. N. W. M. Zaini, N. Zainal and Z. Hassan

(viii) *A simple method prepare nanocrystalline indium oxide on Si (110)*
(p. 255 (Abstracts))

Maryam Amirhoseiny, Zainuriah Hassan, Ng ShaShiong

(ix) *Structural and surface studies of undoped porous GaN grown on sapphire*
(p. 269 (Abstracts))

A. Mahmood, Z. Hassan, Y. Yusof, Y. F. Kwong, C. L. Siang and N. M. Ahmed

(x) *Structural and compositional characterization of heterostructure InGaN-based light emitting diode by high resolution x-ray diffraction*

(p. 271 (Abstracts))

Ahmad Hadi Ali, Ahmad Shuhaimi bin Abu Bakar, Zainuriah Hassan and Yushamdan Yusof

(xi) *Growth of nanocrystalline PbS thin films by solid-vapor deposition*
(p. 280 (Abstracts))

A. S. Obaid, M. A. Mahdi and Z. Hassan

(xii) *Effect of H₂O₂ on morphological properties of porous silicon (100)*
(p. 288 (Abstracts))

M. E. A. Samsudin, M. Ikram Md Taib, N. Zainal, R. Radzali, S. Yaakob, Z. Hassan

(xiii) *Effect of Mg doping on GaN*

((p. 296 (Abstracts))
E. Azimah, N. Zainal, Z. Hassan, A. Shuhaimi

95. The 6th International Conference on Technological Advances of Thin Films & Surface Coatings (ThinFilms 2012), Singapore (14-17 July 2012)

Growth of self-assembled InGaN quantum dots on Si (111) at reduced temperature by molecular beam epitaxy

(p. 172 (Abstract))

C.W. Chin, Z. Hassan, F.K. Yam, M. A. Ahmad

96. 3rd International Conference on Photonic, 2012 (ICP2012) (1-3 October 2012)

Structural properties of InGaN-based light emitting diode epitaxial growth on Si (111) with AlN/InGaN buffer layer

(p. 22 (Abstract))

Ahmad Hadi Ali, Ahmad Shuhaimi and Zainuriah Hassan

97. International Conference on Advanced Material Engineering & Technology (ICAMET 2012) (28-30 November 2012)

Effects of cavity length on optical characteristics of deep violet InGaN DQW lasers

Ghasem Alahyarizadeh, Zainuriah Hassan, Sabah M. Thahab, Maryam Amirhoseiny, Alaa J. Ghazai

98. The 3rd ISESCO International Workshop and Conference on Nanotechnology 2012 (IWCN 2012) (5-7th December 2012)

A Study of Properties of the Nanocrystalline CdO Thin Film Prepared by Solid-vapor Deposition Method

M. Zaien, M. A. Ahmed, Z. Hassan

99. Advanced Materials Conference 2012 (AMC 2012) (12-13th December 2012)

The fast UV detection and hydrogen sensing of ZnO nanorod arrays grown on a flexible Kapton tape

J.J. Hassan, M.A. Mahdi, Naser M. Ahmed, H. Abu.Hassan, Z. Hassan

100. 4th International Conference on Solid State Science and Technology, ICSSST 2012 (18-20 December 2012)

(i) Fabrication of porous ZnO thin films via ammonium hydroxide: effects of etching time and oxidizer on the surface morphology and surface roughness

(p. 51 (Abstract))

S. S. Ng, P. K. Ooi, S. Yaakob, M. J. Abdullah, H. Abu Hassan, Z. Hassan

(ii) GaN nanowires and nanoribbons: effects of ammonia flow rate on structural and vibrational properties

(p. 52 (Abstract))

K.P. Beh, F.K. Yam, S. Shahrudin, S.N.S. Ahmad Bistaman, Z. Hassan

(iii) Comparative study: defects properties in GaN on Si (100) and Si (111) substrates

(p. 56 (Abstract))

S N Waheeda; M N Ehsan; N Zainal; Z Hassan

(iv) Characterization of GaN sased P-N junction on Si substrate

(p. 101 (Abstract))

E. Azimah, N.Zainal, A. Shuhaimi, Z. Hassan

(v) Characteristics of cuprous oxide thin films deposited on glass and polyethylene terephthalate substrates

(p. 109 (Abstract))

P. K. Ooi, C. G. Ching, S. S. Ng, M. J. Abdullah, H. Abu Hassan, Z. Hassan

(vi) Effect of nitridation temperatures on gallium nitride thin films formed on silicon substrates

(p. 112 (Abstract))

C. Y. Fong, C. G. Ching, S. S. Ng, F. K. Yam, H. Abu Hassan, Z. Hassan

(v) Fabrication and optical studies of porous GaN thin films via UV-assisted electrochemical etching approach

(p. 115 (Abstract))

S. F. Cheah, S. S. Ng, F. K. Yam, H. Abu. Hassan, Z. Hassan

(vi) Growth mechansim of nanostructure PbS Thin Film via solid-vapor deposition

(p. 116 (Abstract))

A.S. Obaid, M. A. Mahdi, Z. Hassan and M. Bououdina

(vii) Schottky characteristics of Pt contact on porous $In_{0.27}Ga_{0.73}N$ thin film revealed from I-V-T measurement

(p. 118 (Abstract))

Saleh H. Abud, Z. Hassan, F. K. Yam

(viii) Structural properties of zinc oxide thin films deposited on various substrates

(p. 119 (Abstract))

C. G. Ching, P. K. Ooi, S. S. Ng, Z. Hassan, H. Abu Hassan, M. J. Abdullah

101. International Conference on Education, Applied Sciences and Management (ICEASM'2012) (26-27th, December 2012)

Effect of Deposition Time on the PbS thin films Prepared Using Microwave-Assisted Chemical Bath Deposition: Structure and Optical Characterization

A. S. Obaid, M. A. Mahdi, Alaa Ahmed Dihe, and Z. Hassan

102. 2nd International Conference on Sustainable Materials (ICoSM2013) (26-27th March, 2013)

(i) Microstructural and optical properties of SnO thin film by thermal evaporation

(p. 62 (Abstract))

L. S. Chuah, Z. Mohamed, Z. Hassan

(ii) Growth of vertically aligned ZnO nanorods arrays by hydrothermal method

(p.68 (Abstract))

Mahmoud Alimanaseh, Jalal Rouhi, Norzaini Zainal, Saeid Kakooei, Zainuriah Hassan

103. 2nd international Conference on Nanotechnologies and Biomedical Engineering; German-Moldovan Workshop on Novel Nanomaterials for Electronic, Photonic and Biomedical Applications, Republic of Moldova (18-20 April, 2013)

The role of alternating current in photo-assisted electrochemical porosification of GaN

(p. 383-384 (Proceedings))

Ainorkhilah Mahmood, Naser M. Ahmed, Ion Tiginyanu, Yushamdan Yusof, Yam Fong Kwong, Chuah Lee Siang, Zainuriah Hassan

104. Second International Conference on Advances in Computer and Information Technology (ACIT) (04-05 May, 2013)

An image encryption approach using quantum chaotic map

(doi:-10.3850/978-981-07-6261-2_36 (Proceedings))

A. Akhshani, S. Behnia, A. Akhavan, S-C. Lim, Z. Hassan

105. BOND21 - Joint International Conference on Nanoscience, Engineering and Management (19-21 August, 2013)

(i) *Physical properties of porous $In_{0.08}Ga_{0.92}N$*

(p.21 (Abstract))

Saleh H. Abud, Z. Hassan, F. K. Yam

(ii) *Polycrystalline tin cadmium chalcogenide thin film grown by spray pyrolysis*

(p.24 (Abstract))

A. S. Obaid, Alaa Ahmed Dihe, Z. Hassan, M. Bououdina

(ii) *Structural and optical properties of hexagonal ZnO nanorods arrays on polycarbonate substrate (PC) by a simple hydrothermal process*

(p.25 (Abstract))

Mahmoud Alimanaseh, Jalal Rouhi, Hadi Mahmodi, Norzaini Zainal, Saeid Kakooei, Zainuriah Hassan

(iv) *Fabrication of gallium nitride (GaN) nanostructures by thermal chemical vapor deposition (TCVD) technique*

(p.50 (Abstract))

Qahtan N. A , F. K. Yam, Z. Hassan, M. Bououdina

(v) *Electrical characterization of Al/Ag contacts on al-Zn co-doped SnO_2 thin films deposited by solid state chemical vapor deposition*

(p.55 (Abstract))

L. S. Chuah, S. S. Tneh, Z. Hassan

(vi) *Post annealing effects on ITO thin films RF sputtered at different thicknesses on Si and glass*

(p. 59 (Abstract))

Ahmad Hadi Ali, Ahmad Shuhaimi, Siti Khadijah, Zainuriah Hassan

(vii) *Effect of reagents molar concentration on deposition rate of CdS thin films grown by chemical bath deposition under microwave irradiation*

(p.70 (Abstract))

M. Husham, M. A. Mahdi, Z. Hassan,

106. 8th International Conference on Surfaces, Coatings and Nanostructured Materials (NANOSMAT) Spain (22-25 September 2013)

Porous In_{0.47}Ga_{0.53}N Prepared by KOH Electrochemical Etching with Different Light Source

(p. 167 (Abstract))

R. Radzali, N. Zainal, F.K. Yam, Z. Hassan

107. 1st International Conference on the Science & Engineering of Materials ICOSSEM 2013 (13-14 November 2013)

(i) *Characterization of porous GaN prepared by KOH photoelectrochemical etching*

(p. 100 (Abstract))

R. Radzali, N. Zainal, F. K. Yam, Z. Hassan

(ii) *Fabrication and characterization of aluminium nitride films on silicon substrate for a better overgrown layer*

(p. 90 (Abstract))

YSM. Alvin, N. Zainal, Z. Hassan

108. International Conference on the Advancement of Materials and Nanotechnology 2013 ICAMN III 2013 (19-22 November, 2013)

Characterization of ITO/Ag and ITO/Ni Bi-Layer Transparent Conductive Electrodes

Ahmad Hadi Ali, Ahmad Shuhaimi, Mohd Anas Ahmad, Zainuriah Hassan

109. The 27th Regional Conference of Solid State Science and Technology - RSCSST27 (19-22 December, 2013)

(i) *Attenuated total reflection studies of honeycomb nanoporous GaN thin films*

(p. 88 (Abstract))

S. F. Cheah, S. C. Lee, S. S Ng, F. K. Yam, H. Abu Hassan, Z. Hassan

(ii) *Effect of indium tin oxide thin films thickness on optical and electrical characteristics*

(p. 88 (Abstract))

Ahmad Hadi Ali, Ahmad Shuhaimi, Zainuriah Hassan

110. International Symposium on Fundamental and Applied Sciences - ISFAS (March 28-30, 2014) Japan

(i) *Growth of rutile TiO₂ nanorods on Si substrates by CBD method at different concentrations of TiCl₃ solutions*

Abbas M. Selman, Z. Hassan, M. Husham

(ii) Characteristics of Pt- and Ni/ Porous $\text{In}_{0.08}\text{Ga}_{0.92}\text{N}$ Schottky contacts
Saleh H. Abud, Z. Hassan, F. K. Yam, Naser M. Ahmed

111. 1st meeting of Malaysia Nitrides Research Group (MNRG 2014) – April 7, 2014

(i) Self-assembled $\text{In}_{0.5}\text{Ga}_{0.5}\text{N}$ Quantum Dots Grown by Plasma-Assisted Molecular Beam Epitaxy

(p. 12 (Abstract))

C.W. Chin, Z. Hassan, F.K. Yam

(ii) Reduction of Defects Density in GaN Layer Grown by Simpler and Low-Cost Effective Technique via Radio-Frequency Sputtering

(p. 12 (Abstract))

M.E.A Samsudin, N. Zainal, Z. Hassan

(iii) Synthesis of InGaN Nanostructures Grown on Si via Chemical Vapor Deposition

(p. 13 (Abstract))

Q.N. Abdullah, F.K. Yam, Z. Hassan

(iv) MBE Growth of Aluminum Nitride Heterostructures Grown on Si (111) Substrate

(p. 14 (Abstract))

M.Z. Mohd Yusoff, A. Mahyuddin, Z. Hassan, H. Abu Hassan, M.J. Abdullah

(v) Deposition and Fabrication of GaN on GaAs (100) Substrate via RF Sputtering

(p. 15 (Abstract))

M. Ikram Md Taib, N. Zainal, Z. Hassan

(vi) Improvement of Grain Coalescence in GaN/m-Plane Sapphire Grown via RF Sputtering

(p. 16 (Abstract))

A. Ariff, N. Zainal, Z. Hassan

(vii) Investigation of Hexagonal Inclusions in Thick and Bulk Cubic GaN

(p. 17 (Abstract))

S. N. Waheeda, N. Zainal, S. V. Novikov, A.V. Akimov, A. J. Kent, Z. Hassan

(viii) Porous InAlGa_N Prepared by Photoelectrochemical Etching

(p. 18 (Abstract))

R. Radzali, Z. Hassan, N. Zainal, F.K. Yam

(ix) Characteristics of CVD Grown GaN Nanowires under Different NH_3 Flow Rate.

(p. 19 (Abstract))

Beh Khi Poay, Yam Fong Kwong, Syahkirah Shahrudin, Siti Noor Shuhada Ahmad Bistaman, Tan Lay Kim, Zainuriah Hassan.

(xi) Improved Optoelectronics Properties of Ni/Ag/ITO Transparent Conductive Electrodes on p-GaN

(p. 20 (Abstract))

Ahmad Hadi Ali, Ahmad Shuhaimi, Zainuriah Hassan

(xii) High Sensitivity of Undoped Porous GaN MSM Photodetector Using Platinum Contact

(p. 24 (Abstract))

Ainorkhilah Mahmood, Zainuriah Hassan, Naser M. Ahmed, Yushamdan Yusof, Yam Fong Kwong, Chuah Lee Siang

(xiii) Characterization of GaN Layer for Fabrication of Photo-Detector

(p. 25 (Abstract))

A. Zakwan, W. E. Putra, N. Zainal, Z. Hassan

(xiv) *Low-bandgap In_{0.52}Ga_{0.48}N/Si-based solar cells*

(p. 25 (Abstract))

Saleh H. Abud, Z. Hassan, F. K. Yam

112. International Symposium on Engineering and Natural Sciences - ISEANS (May 22-24, 2014) China

Effect of duration time on growth of rutile TiO₂ nanorods by chemical bath deposition method on Si substrate

Abbas M. Selman, Z. Hassan

113. International Conference on Mathematics, Engineering & Industrial Applications 2014-ICoMEIA 2014 (May 28-30, 2014)

(i) *Fabrication of porous anodic alumina using normal anodization and pulse anodization*

(p. 67 (Abstract))

I.K. Chin, F. K. Yam, Z. Hassan

(ii) *Characteristics of titanium dioxide nanostructures synthesized via electrochemical anodization at different applied voltages*

(p. 92 (Abstract))

Y.L. Cheong, F.K Yam, Z. Hassan

(iii) *Stability of the anodic growth porous tungsten oxide in different solutions*

(p. 100 (Abstract))

Y.Chai, F. K. Yam, Z. Hassan

114. International Conference on Manufacturing Science and Technology – ICMST 2014 (June 7-8, 2014)

Effect of annealing treatment on growth of rutile TiO₂ nanorods by chemical bath deposition method on silicon substrate

Abbas M. Selman, Z. Hassan

115. International Conference on Advances in Pure and Applied Sciences– ICAPAS (November 3-4, 2014)

Growth of nanocrystalline CdS thin films on silicon (100) via microwave-assisted chemical bath deposition: Synthesis and characterization

(p. 8-9 (Abstract))

M. Husham, Z. Hassan, M. A. Mahdi, Abbas M. Selman

116. Science Plus International Conference (December 20, 2014)

The fabrication and characterization of UV sensor based on TiO₂ nanorods array on silicon substrate heterojunction

Abbas M. Selman, Z. Hassan

117. International Conference on Nano-Electronic Technology Devices and Materials (IC-NET 2015) (February 27- March 2, 2015)

(i) *Cus P- Type Thin Firm characterization Deposited on Ti, Ito And Glass Substrates Using Spray pyrolysis Deposition (spd) For Light Emitting Diode (Led) Application*
(p. 38 (Abstract))

Fayroz A. Sabah, Naser M. Ahmed, Z. Hassan, Hiba S. Rasheed, Shrook A. Azzez

(ii) *Systematic growth of highly aligned ZnO nanorod arrays by chemical bath deposition*
(p. 46 (Abstract))

Sh.A. Azzez, Z. Hassan, J.J. Hassan, M. Alimanesh, H.S. Rasheed

(iii) *Growth And Characterization Of Vanadium Oxide Nanorods Using Spray Pyrolysis Technique At Low Temperatures*
(p. 48 (Abstract))

N.M.Abd- Alghafour, Naser, M.Ahmed, Z.Hassan, Sabah M.Mohammad

(iv) *Simulation of Optimum Parameters for GaN MSM UV photodetector*
(p. 55 (Abstract))

Mohanad A. Alhelfi , Naser M. Ahmed, M. R. Hashim, Z. Hassan

(v) *Hydrothermal Growth Of Vertically Well-aligned and High Density ZnO Nanorods On Glass and Silicon Using A Simple And Low Cost System*
(p. 62 (Abstract))

Sabah M. Mohammad, Z. Hassan, Naser M. Ahmed, Rawnaq A. Al-Yahya, Nabeel M. Abd-Alghafour

(vi) *Characterization of Zno/Cu/Zno Multilayers Structure For Solar Cell Devices*
(p. 69 (Abstract))

Hiba S. Rasheed, Z. Hassan, Naser M. Ahmed, Fayroz A. Sabah, Shrook A. Azzez

118. World Conference on Engineering & Applied Sciences (May 30-31, 2015)

Structural and photoluminescence studies of rutile TiO₂ nanorods prepared by CBD method on Si substrates

Abbas M. Selman, Z. Hassan

119. 2nd meeting of Malaysia Nitrides Research Group (MNRG 2015) –June 8-9, 2015

(i) *Improved Optoelectronic Characteristics of Post-Annealed Ti/Al/ITO Transparent Conducting Electrodes Deposited on n-GaN*
(p. 18 (Abstract))

Ahmad Hadi Ali, Ahmad Shuhaimi, Zainuriah Hassan

(ii) *Fabrication of Porous GaN using Bottom-Up Approached through Electron Beam Evaporator for High Efficient Devices*
(p. 18 (Abstract))

M.E.A Samsudin, N. Zainal, Z. Hassan

- (iii) *High Sensitivity of Porous Si-Doped GaN MSM Photodetector using Thermally Untreated Platinum Contact*
(p. 20 (Abstract))
Ainorkhilah Mahmood, Zainuriah Hassan, Naser M. Ahmed, Yushamdan Yusof, Yam Fong Kwong, Chuah Lee Siang
- (iv) *Properties of Porous InGaNbased Hydrogen Gas Sensor*
(p. 21 (Abstract))
R. Radzali, Z. Hassan, N. Zainal, F.K. Yam
- (v) *Preliminary Studies of Porous GaNbased Dye-Sensitized Solar Cells*
(p. 21 (Abstract))
K.P. Beh, F.K. Yam, Y.L. Cheong, C.W Chin, L.K. Tan, Z. Hassan
- (vi) *Optimization of Post-Annealing NH₃Temperature for GaN Growth on GaAs (100) Substrate via Electron Beam Evaporator*
(p. 22 (Abstract))
M. Ikram MdTaib, N. Zainal, Z. Hassan
- (vii) *Role of NH₃Annealing Treatment in Improving ScN Layer onGaAs Substrate Using Electron Beam Evaporator*
(p. 22 (Abstract))
Y.S.M. Alvin, N. Zainal, Z. Hassan
- (viii) *Optimization of Post-Annealing Treatment Conditions on GaN Layer Grown on m-Plane Sapphire Substrate by Electron Beam Evaporator*
(p. 25 (Abstract))
A. Ariff, N. Zainal, Z. Hassan, K. Ibrahim
- (ix) *Preliminary Studies of InGaON Thin Film on Si Substrate Using Simple Growth Technique*
(p. 28 (Abstract))
S.S. Tneh, K.P. Beh, F.K. Yam, S.W. Ng, S.C. Lee, S.S. Ng, Z. Hassan
- (x) *High Sensitivity Hydrogen Gas Sensor based on InGaN Quantum Dots*
(p. 28 (Abstract))
C.W. Chin, Z. Hassan, F.K. Yam
- (xi) *Properties of p-GaN Layer on Different Nitride Surfaces*
(p. 29 (Abstract))
N. Fatihah, N. Zainal, Z. Hassan
- (xii) *Growth of n-ZnO nanorods on p-GaN using an Aqueous Solution Method*
(p. 29 (Abstract))
Sabah M. Mohammad, Z. Hassan, Naser M. Ahmed
120. 5th International Conference on the Recent Advances in Materials, Mineral and Environment (RAMM) & 2nd International Postgraduate Conference on Materials, Mineral and Polymer (MAMIP) – August 4-6, 2015
- (i) *Investigation and Characterization of ZnO Nanostructures Synthesized by Electrochemical Deposition*
(p. 135 (Abstract))
C. F. Mh, F. K. Yam, Z. Hassan

- (ii) *The properties of ZnO/Cu/ZnO multilayer before and after annealing in the different atmosphere*
(p. 138 (Abstract))
Hiba S. Rasheed, Z. Hassan, Naser M. Ahmed, Fayroz A. Sabah
- (iii) *Fabrication of Tungsten Oxide Nanostructure by Sol-Gel Method*
(p. 141 (Abstract))
Y. Chai, F. Y. Ha, F. K. Yam and Z. Hassan
- (iv) *Annealing Effects On Characterization Of CuS Thin Films*
(p. 153 (Abstract))
Fayroz A. Sabah, Naser M. Ahmed, Z. Hassan, Hiba S. Rasheed
- (v) *Fabrication and characterization of ZnMgO Nanorod Arrays by Hydrothermal Growth Method*
(p. 167 (Abstract))
Shrook A. Azzez, Z. Hassan, J. J. Hassan, C. W. Chin

121. 24th Scientific Conference of the Microscopy Society Malaysia SCMSM2015 (December 2-4, 2015)

Sidewall microstructure analysis of laser diced ultrathin silicon wafer using focused ion beam and transmission electron microscopy
(p. 49 (Abstract))
Michael Raj Marks, Foo Khong Yong, Zainuriah Hassan, Kuan Yew Cheong

122. The 2nd International Conference on Functional Materials and Metalurgy (ICOFM 2016) – May 28, 2016

- (i) *Influence of solution deposition rate on properties of V₂O₅ thin films deposited by spray pyrolysis technique*
(p. 10 (Abstract))
N. M. Abd-Alghafour, Naser M. Ahmed, Z. Hassan, Sabah M. Mohammad
- (ii) *Catalyst-free growth of ZnO nanowires on ITO seed/glass by thermal evaporation method: Effects of ITO seed layer thickness*
(p. 9 (Abstract))
Forat H. Alsultany, Z. Hassan, Naser M. Ahmed

123. Laser Technology and Optic Symposium 2016 – September 5-6, 2016

- (i) *Catalyst-free growth of ZnO nanowire balls on ITO seeds glass by thermal evaporation*
Forat H. Alsultany, Z. Hassan, Naser M. Ahmed
- (ii) *Catalyst-free growth of ZnO tetrapod: Effects of growth temperature*
Forat H. Alsultany, Z. Hassan, Naser M. Ahmed

124. 2nd International Conference on Applied Physics and Engineering (ICAPE2016) – September 5-6, 2016

The effect of etching duration on structural properties of porous Si fabricated by a new two-steps alternating current photo-assisted electrochemical etching (ACPEC) technique for MSM photodetector applications

Extended abstract (p. 273-275)

R. Radzali, M. Z. Zakariah, A. Mahmood, A. F. A. Rahim, Z. Hassan, Y. Yusof

125. 3rd meeting of Malaysia Nitrides Research Group (MNRG 2016) – December 6-7, 2016

- (i) *Innovative developments in GaN-based technology*
(p. 25 (Abstract))
Zainuriah Hassan
- (ii) *Influence of annealing temperature on InN thin films grown by RF magnetron sputtering*
(p. 28 (Abstract))
Umar Bashir, Zainuriah Hassan, Naser M. Ahmed
- (iii) *Review on UV-LEDs: State of the art and challenges ahead*
(p. 29 (Abstract))
M.E.A. Samsudin, N. Zainal, Z. Hassan,
- (iv) *Phosphors for white LED conversion*
(p. 30 (Abstract))
Husnen R. Abd, Z. Hassan, Naser M. Ahmed, A. S. Yusof, Nabeel Z. Al-Hazeem
- (v) *Near ultra-violet electroluminescence from a ZnO nanorods/p-GaN heterojunction light emitting diode*
(p. 31 (Abstract))
Sabah M. Mohammad, Z. Hassan, Naser M. Ahmed
- (vi) *Closing green gap in LEDs technology: Challenges and future solutions*
(p. 31 (Abstract))
M. Ikram MdTaib, N. Zainal, Z. Hassan
- (vii) *Effects of ammonia flow rate on the synthesis of AlGaIn thin films prepared via spin coating approach*
(p. 35 (Abstract))
Nurul Atikah Mohd Isa, Sha Shiong Ng, Z. Hassan
- (viii) *Sol concentration effects on sol-gel spin coated indium nitride thin films*
(p. 37 (Abstract))
Zhi Yin Lee, Sha Shiong Ng, Fong Kwong Yam, Zainuriah Hassan
- (ix) *Fabrication of high-stability blue-light-emitting diode based on n-ZnO nanorods/p-GaN structure heterojunction grown by hydrothermal method*
(p. 39 (Abstract))
Shrook A. Azzez, Z. Hassan, J. J. Hassan, Mohamed S. Mahdi, M. Bouodina
- (x) *Improvement in opto-electrical properties of GaN MSM photodetector by contact work-function selection*
(p. 41 (Abstract))
F. A. Ariff, N. Zainal, Z. Hassan
- (xi) *Fabrication and characterization of copper doped zinc oxide on p-type and n-type GaN by sputtering*
(p. 42 (Abstract))

A. S. Yusof, Z. Hassan, N. Zainal,

126. Academy of Sciences Malaysia Fellow's Lecture – December 7, 2016

Innovative developments in GaN-based technology
Zainuriah Hassan

127. 5th International Science Postgraduate Conference – March 7-8, 2017

Morphology and photoluminescence of photo-electrochemically synthesized porous silicon: Influence varying current density
Asad Thahe, Noriah Bidin, Zainuriah Hassan

128. Astana Expo 2017 (Kazakhstan) – June 23, 2017

Pocket Talk
GaN on GaN - Invention and development of blue light emitting diodes (LEDs)
Zainuriah Hassan

129. 3rd International Conference on the Applications of Science and Mathematics (SCIEMATHIC 2017) October 24-25, 2017

Keynote Speech - Zainuriah Hassan
Wide band gap semiconductors for LED applications
(p. 17 (Abstract))
Zainuriah Hassan, Lim Way Foong, Quah Hock Jin, Sabah M. Mohammad, Shrook A. Azzez, Husnen R. Abd, Ahmad Sauffi Yusof, Mohd Anas Ahmad

130. 6th International Conference on Solid State Science and Technology (ICSSST 2017) – November 13-16, 2017

- (i) **Plenary Talk - Zainuriah Hassan**
GaN-based ternary and quaternary alloys for sensor applications
(p. 42 (Abstract))
Z. Hassan, W. F. Lim, H. J. Quah, S. H. Abud, M. Z. M. Yusoff, R. Radzali
- (ii) *Effect of annealing temperature on growth particles of YAG: Ce+3 phosphor and white light chromaticity values*
(p. 44 (Abstract))
Husnen R. Abd, Z. Hassan, Naser M. Ahmed, a. F. Omar, Munirah Abdullah Almessiere, Forat H. Alsultany
- (iii) *Chromaticity study of curcumin dye extracted from curcuma longa l. using for UV light down conversion for white light emitting diode*
(p. 52 (Abstract))
M. Al Shafouri, Naser M. Ahmed, Z. Hassan, Munirah Abdullah Almessiere
- (iv) *Hydrothermal synthesis and structural properties of V₂O₅ nanoflowers at low temperature*

- (p. 57 (Abstract))
N. M. Abd-Alghafour, Naser M. Ahmed, Z. Hassan, Munirah Abdullah Almessiere
- (v) *pH sensing characteristics of CuS/ZnO thin film implemented as EGFET*
(p. 59 (Abstract))
Fayroz A. Sabah, Naser M. Ahmed, Z. Hassan
- (vi) *Effect of graphite particle size on structural and morphological characteristics of carbon nanotubes grown by microwave oven*
(p. 62 (Abstract))
Natheer A. Algadri, Z. Hassan, K. Ibrahim, M. Bououdina
- (vii) *Growth temperature dependence of sol-gel spin coated indium nitride thin films*
(p. 65 (Abstract))
Lee Zhi Yin, Ng Sha Shiong, Yam Fong Kwong, Zainuriah Hassan
- (viii) *Enhancing performance of porous Si-doped GaN based MSM photodetector using AC technique*
(p. 68 (Abstract))
Ainorkhilah Mahmood, Zainuriah Hassan, Alhan Farhanah Abd Rahim, Rosfariza Radzali, Naser M. Ahmed
- (ix) *Catalyst-free growth on ZnO seed layer/glass by thermal evaporation method: Effects of carrier gas flow rate*
(p. 77 (Abstract))
Forat H. Alsultany, Z. Hassan, Naser M. Ahmed
- (x) *Aluminum nitride thin films grown sol-gel spin coating technique*
(p. 138 (Abstract))
Nurul Atikah Mohd Isa, Ng Sha Shiong, Zainuriah Hassan
- (xi) *Fabrication and characterization of Cu-doped ZnO films using rf reactive magnetron sputtering*
(p. 177 (Abstract))
A. S. Yusof, Z. Hassan, N. Zainal
- (xii) *Fabrication of In_xGa_{1-x}N/GaN multi-quantum well structure for green light emitting diode on patterned sapphire substrate by metal organic chemical vapour deposition*
(p. 200 (Abstract))
Shamsul Amir Abdul Rais, Hayatun Najiha, Zainuriah Hassan, Ahmad Shuhaimi
- (xiii) *Effect of different UV light intensity on porous silicon fabricated by using alternating current photo-assisted electrochemical etching (ACPEC) technique*
(p. 225 (Abstract))
Siti Nurfarhana Sohimee, Zainuriah Hassan, Naser Mahmoud Ahmed, Lim Way Foong, Quah Hock Jin

131. Journey to Astana Symposium – March 8, 2018

Next generation optoelectronics for energy efficiency and green technology
Professor Dr. Zainuriah Hassan, FASc

132. 1st International Conference on Materials Engineering and Science IConMEAS – August 8-9, 2018, Turkey

The effect of the wavelength of the LED used to pump phosphor produced from curcuminoids dye extracted from turmeric (Curcuma longa L.) to produce white light
M Al Shafouri, Naser M Ahmed, Z Hassan, Munirah Abdullah Almessiere

133. International Workshop on Nitride Semiconductors (IWN 2018) – November 11-16, 2018, Japan

The effect of indium pre-deposition on fabrication of deep green light emitting diode
Shamsul Amir Abdul Rais, Zainuriah Hassan, Ahmad Shuhaimi Bin Abu bakar, Muhammad Nazri bin Abdul Rahman, Yusnizam bin Yusuf, Muhamad Ikram Bin Md Taib, Abdullah Fadil bin Sulaiman, Hayatun Najihah binti Hussin, Mohd Fairuz bin Ahmad, Akimoto Yuka, Nagai Keiji

134. 2nd National Nanotechnology Workshop (NM-2 2018) – December 23-24, 2018, Iraq

Synthesis of nanocrystalline PbS for promising solar cells using microwave-assisted chemical bath deposition
M. Husham, Z. Hassan,

135. A Seminar of the IEEE WA joint EDS/SSCS/IPS Chapter – February 15, 2019, Australia

Advancement of Materials and Device Technology Based on Wide Band Gap Semiconductors
Professor Zainuriah Hassan

136. International Conference on Semiconductor Materials and Technology (ICoSeMT 2019) - April 29-30, 2019

- (i) *Fabrication of deep green light emitting diode on bulk gallium nitride substrate*
(p. 28 (Abstract))
Shamsul Amir Abdul Rais, Zainuriah Hassan, Ahmad Shuhaimi Abu Bakar, Muhammad Nazri Abdul Rahman, Yusnizam Yusuf, Muhamad Ikram Md Taib, Abdullah Fadil Sulaiman, Hayatun Najihah Hussin, Nagai Keiji, Mohd Fairus Ahmad, Akimoto Yuka, Shoji Dai
- (ii) *Chromaticity properties of curcuminoids dye nanofibers prepared by electrospinning for white light down-conversion*
(p. 85 (Abstract))
Mahmood Shaikhan Taeab Said Al Shafouri, Naser M. Ahmed, Zainuriah Hassan, Munirah Abdullah Almessiere
- (iii) *Effect of post-annealing in oxygen environment on ITO thin films deposited using RF magnetron sputtering*
(p. 90 (Abstract))
N.A. Hamzah, R.I.M. Asri, M.A. Ahmad, M.A.A.Z. Md Sahar, S.N. Waheeda, Z. Hassan
- (iv) *Effect of varying thermal annealing temperature on the characteristics of lower and higher Mg-doped GaN*

- (p. 94 (Abstract))
A.M. Hanafiah, Z. Hassan, W.F. Lim, N. Ibrahim, E.A. Alias, M.A. Ahmad, N.A. Hamzah, R.I.M. Asri
- (v) *Comparative studies between porous silicon and porous p-type gallium nitride prepared using alternating current photo-assisted electrochemical etching technique*
(p. 97 (Abstract))
S.N. Sohimee, Z. Hassan, Naser M. Ahmed, R. Radzali, H.J. Quah, W.F. Lim
- (vi) *Effect of GaN nucleation layer temperature on structural and morphological properties of ud-GaN template grown on PSS*
(p. 101 (Abstract))
M.A. Ahmad, N.A. Hamzah, R. I. M. Asri, N. Zainal, Z. Hassan
- (vii) *Morphological and structural properties of sol-gel derived ZnO thin films spin-coated on different substrates*
(p. 104 (Abstract))
Nabihah Kasim, Zainuriah Hassan, Way Foong Lim, Sabah M. Mohammad, Hock Jin Quah
- (viii) *The growth of AlN single layer on sapphire at low pressure using metalorganic chemical vapor deposition (MOCVD)*
(p. 107 (Abstract))
Mohd Ann Amirul Zulfiqal Md Sahar, Zainuriah Hassan, Way Foong Lim, M.E.A. Samsudin, A.M. Hanafiah, Yusnizam Yusuf, M.A. Ahmad, Nur Atiqah Hamzah, Rahil Izzati Mohd Asri
- (ix) *Characteristics of Cu-doped ZnO films prepared using magnetron co-sputtering*
(p. 110 (Abstract))
A.S. Yusof, Z. Hassan
- (x) *Effects of post-deposition annealing time in forming gas ambient on Y₂O₃ films deposited on silicon substrate*
(p. 112 (Abstract))
Hock Jin Quah, Kuan Yew Cheong, Zainuriah Hassan, Way Foong Lim
- (xi) *High-k LaCeO for passivation of Si substrate*
(p. 114 (Abstract))
Way Foong Lim, Kuan Yew Cheong, Zainovia Lockman, Zainuriah Hassan, Hock Jin Quah
- (xii) *Reactive sputtering growth of indium nitride thin films on flexible substrate under different substrate temperatures*
(p. 116 (Abstract))
S.A. Osman, S.S. Ng, Z. Hassan
- (xiii) *Role of RF magnetron sputtering power on optical and electrical properties of ITO films on soda-lime glass substrates*
(p. 118 (Abstract))
R.I.M. Asri, N.A. Hamzah, M.A. Ahmad, M. Ikram Md Taib, S.M.S. Sahil, Z. Hassan
- (xiv) *The effect of needle diameter on optical properties and morphological structure of La₂O₃-PVA phosphor nanofibers using electrospinning method*
(p. 124 (Abstract))
Hasma A. Wahab, Z. Hassan, Naser M. Ahmed
- (xv) *Luminescence characteristics of hybridized polyfluorene*

- (p. 127 (Abstract))
Farah Hayati Ahmad, Zainuriah Hassan, Naser Mahmoud Ahmed, Hock Jin Quah, Way Foong Lim
- (xvi) *On the investigations of chip-on-board ultra-violet sensor by screen printing of GaN powder*
(p. 136 (Abstract))
Khi Poay Beh, Raed Abdalrheem, Fong Kwong Yam, Zainuriah Hassan
- (xvii) *Enhancing performance of porous Si-doped GaN based MSM photodetector using 50 Hz ACPEC*
(p. 145 (Abstract))
Ainorkhilah Mahmood, Zainuriah Hassan, Alhan Farhanah Abd Rahim, Rosfariza Radzali, Mahayatul Dayana Johan Ooi, Naser M. Ahmed
- (xviii) *Fabrication and characterization of light emitting diode based on n-ZnO nanorods grown via a low-temperature method on p-GaN*
(p. 149 (Abstract))
Sabah M. Mohammad, Nabeel M. Abd-Alghafour, Zainuriah Hassan, Naser M. Ahmed, Amal Mohamed Ahmed Ali, Raed Abdalrheem, Mundzir Abdullah
- (xix) *Diamond as power device*
(p. 151 (Abstract))
Mohd Syamsul, Zainuriah Hassan, Hiroshi Kawarada
- (xx) *Study of the effect of injection currents on white light emission of Ce-doped YAG phosphor powder prepared by microwave combustion*
(p. 152 (Abstract))
Husnen R. Abd, Z. Hassan, Naser M. Ahmed
- (xxi) *Investigation of different fuel sources used in microwave induced combustion synthesis on the luminescence property of YAG phosphor*
(p. 154 (Abstract))
Khai Shenn Lau, Zainuriah Hassan, Way Foong Lim, Hock Jin Quah, Naser M. Ahmed, Husnen R. Abd

137. 5th USM-UL Colloquium – August 19-21, 2019

- (i) **Invited Talk**
Development of InGaN thin films for solar cell application
Z. Hassan, M. S. M. Saheed, A. S. Yusof, M. A. Ahmad, W. F. Lim, S. S. Ng, S. Hamady, N. Fressengeas, Q. Kieffer, C. Chevallier
- (ii) **Invited Talk**
Development of novel thin films solar cells: Design and Elaboration
S. Hamady, N. Fressengeas, Q. Kieffer, C. Chevallier, Z. Hassan, M. A. Anas, W. F. Lim, S. S. Ng,

138. National Nanotechnology Colloquium on GaN, TeraHertz and Flexible Electronics 2019 - August 22, 2019

invited Talk - Professor Dr. Zainuriah Hassan, FASc

Overview of National Scenario, International Scenario, and Way Forward for Gallium Nitride Technology in Malaysia

139. International Energy and Sustainability Conference - IESC 2019 – October 17-18, 2019

- (i) *Metal oxide-based heterojunction thin films for solar cell application*
Z. Hassan, M. S. M. Saheed, A. S. Yusof
- (ii) *Enhanced white light luminescence of Ce³⁺-activated Y₃Al₅O₅ phosphors powder synthesized via continuous wave (CW) CO₂ laser-assisted combustion*
Z. Hassan, Husnen R. Abd, Naser M. Ahmed

140. USM-Osaka University Joint Colloquium - November 26, 2019

Keynote Talk - Professor Dr. Zainuriah Hassan, FASc

Development of GaN on GaN for next generation technology

141. 5th Meeting of Malaysia Nitrides Research Group (MNRG 2020) – December 1-2, 2020

- (i) *Development of InGaN based thin film solar cells present status and challenges*
(p. 35 (Abstract))
Sidi Ould Saad Hamady, Ahmad Sauffi bin Yusof, Sourav Bose, Christyves Chevallier, Nicolas Fressengeas, Queny Kieffer, Zainuriah Hassan, M. Anas Anas, Way Foong Lim, Sha Shiong Ng
- (ii) *Effects of V/III ration of InGaN quantum well on the properties of near ultraviolet light emitting diodes*
(p. 48 (Abstract))
Mohd Ann Amirul Zulffiqal Md Sahar, Zainuriah Hassan, Sha Shiong Ng, Way Foong Lim, Khai Sheen Lau, Ezzah A. Alias, Mohd Anas Ahmad, Nur Atiqah Hamzah, Rahil Izzati Mohd Asri
- (iii) *Inhomogeneity of an InGaN based blue LED studied by secondary ion mass spectrometry (SIMS) and atom probe tomography (APT)*
(p. 51 (Abstract))
Mohd Anas Ahmad, Nur Atiqah Hamzah, Rahil Izzati Mohd Asri, Norzaini Zainal, Sha Shiong Ng, Zainuriah Hassan,
- (iv) *Effects of three-step magnesium doping in p-GaN layer on the properties of InGaN based light emitting diode*
(p. 55 (Abstract))
Nur Atiqah Hamzah, Rahil Izzati Mohd Asri, Mohd Anas Ahmad, Sha Shiong Ng, Zainuriah Hassan
- (v) *The role of growth temperature on the indium incorporation process for MOCVD growth of InGaN/GaN heterostructures*
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- (vii) *Fabrication of Ps/Al Nanocomposites As Foils And Evaluation Of Their Optical Properties*
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- (viii) *Rapid Thermal Annealing Process Toward Enhancement of ITO Thin Films*
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- (ix) *The Effect of V-Pits on Electronic and Optical Properties and Internal Quantum Efficiency of GaN-Based Green Light-Emitting Diodes*

144. 6th Meeting of Malaysia Nitrides Research Group (MNRG 2022) – December 6-7, 2022

- (i) *Characteristics of InGaN/AlN heterostructure grown by using MOCVD technique*
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- (iii) *Structural, morphological, and electrical characteristics of CeO₂ films deposited at different thicknesses onto Si substrate*
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(p. 58 (Abstract))
Hameed Naser, Sabah M. Mohammad, Haider Mohammed Shanshool, Z. Hassan, Nabeel Z. Al-Hazeem

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1. Introduction to Error Analysis (in Malay)-
Zainuriah Hassan, Lecture Module for Short Course on Laboratory Management and Maintenance, School of Physics, USM (May 2001).

2. Photodetectors-
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Patent/IP

1. Direct heat substrate-modified chemical bath deposition system for growth of ultra long zinc oxide (ZnO) nanorods and process for fabrication of a nano-size junction LED
Zainuriah Hassan, Sabah M. Mohammad, Naser Mahmoud Ahmed
Filing Date: 22 June 2016
MyIPO Application Number: PI 2016702309
Date of Grant: 21 October 2022
Grant Number: MY-193647-A
2. Method of fabricating an indium gallium nitride (InGaN) over a patterned sapphire substrate (PSS) and a bulk gallium nitride (GaN) substrate with low lattice mismatch
Zainuriah Hassan, Ahmad Sauffi Yusof, Mohd Anas Ahmad, Muhd Azi Che Seliman, Ng Sha Shiong
Filing Date: 23 June 2021
MyIPO Application Number: PI 2021003546
3. Method of producing gallium nitride thin films on silicon substrate by modified sol-gel spin coating technique
Ng Sha Shiong, Wang Tiankun, Maizatul Akmam binti Ab Hamid, Zainuriah Hassan
Filing Date: 21 July 2021
MyIPO Application Number: PI 2021004138
4. A method of microwave combustion solution synthesis of LCAB:Eu phosphor for light emitting diode
Zainuriah Hassan, Lau Khai Shenn, Lim Way Foong, Quah Hock Jin
Filing Date: 30 April 2021
MyIPO Application Number: PI 2021002404
5. A method for producing crystalline indium nitride thin film on a single crystal substrate
Ng Sha Shiong, Lee Zhi Yin, Fong Chee Yong, Zainuriah Hassan, Yam Fong Kwong
Filing Date: 1 March 2016
My IPO Application Number: PI 2016700714
Date of Grant: 18 February 2021
Grant Number: MY-183464-A
6. Alternating current assisted photo-electrochemical etching system and method
Zainuriah Hassan, Naser Mahmoud Ahmed, Quah Hock Jin, Lim Way Foong
Filing Date: 18 December 2015
Date of Grant: 6 February 2020
Grant Number: MY-173594-A
Duration of Patent: 18 December 2015 – 18 December 2035
7. Gallium nitride based light emitting diode device
Zainuriah Hassan, Mohd Anas Ahmad, Mohd Ann Amirul Zulffiqal Md Sahar, Lau Khai Shenn, Nur Atiqah Hamzah, Rahil Izzati Mohd Asri, Lim Way Foong
Filing Date: 4 March 2020
MyIPO Application Number: PI 2020001166
8. Trademark name – INOR
Application date: 5 March 2019
Registration date: 12 August 2020
Duration: 5/3/2019 – 5/3/2029
Trademark No: TM2019007531
Malaysian Trademark Office
Intellectual Property Corporation of Malaysia

9. Direct heat substrate-modified chemical bath deposition system for growth of ultra long zinc oxide (ZnO) nanorods and process for fabrication of a nano-size junction LED
Zainuriah Hassan, Sabah M. Mohammad, Naser Mahmoud Ahmed
Filing Date: 31 March 2017
PCT International Patent Application Number: PCT/MY2017/050013
10. Method of producing a free standing bulk polycrystalline gallium nitride substrate
Norzaini Zainal, Zainuriah Hassan, Muhammad Esmad Alif Samsudin, Ezzah Azimah Alias, Azharul Ariff kamarulzaman, Siti Nurul Waheeda Mohmad Zaini, Muhamad Ikram Md Taib
Filing Date: 4 August 2017
Date of Grant: 4 August 2021
Grant Number: MY-186662-A
11. Method of processing a GaN based device
Zainuriah Hassan, Lee Yan Cheung
Filing Date: 29 December 2006
Date of Grant: 30 June 2014
Grant Number: MY-151664-A
Duration of Patent: 29 December 2006 – 29 December 2026
12. A method for producing metal-oxide-semiconductor (MOS) capacitor
CHEONG, Kuan, Yew, LOCKMAN, Zainovia, HASSAN, Zainuriah, QUAH, Hock, Jin, LIM, Way, Foong
International Publication Date: 3 May 2012
International Publication Number: WO 2012/057608 A1

Relevant Workshops/Courses/Training

1. Post Grad. Education Workshop
Oct. 22, 1998.
2. Micro Teaching Workshop
Dec. 16 – 17, 1999.
3. Writing Workshop
May 11-13, 2000.
4. Logical Framework Approach Workshop
Sept. 25, 2001.
5. Advanced Training on Spectrum GX FTIR Spectroscopy System
Sept. 12 – 14, 2005 (United Kingdom)
6. Advanced Training on HR 800 UV Photoluminescence and Raman Spectroscopy System
Sept. 19 – 20, 2005 (France)
7. Advanced Training on TEM Sample Preparation Tools – Ion Milling System and Accessories
February 13 – 18, 2006 (USA)
8. Advanced Training on High Resolution X-ray Diffraction System (HRXRD)
Nov. 27 – Dec. 1, 2006 (Netherlands)

9. Advanced Training on Operation and Maintenance of Molecular Beam Epitaxy (MBE) System
August 18 – 20, 2008 (USA)
10. An exposure to fabrication of LEDs/laser based on III-nitrides
December 15 – 18, 2009 (Japan)
11. Value Management Lab
March 10-13, 2014
12. Essentials of accurate and reliable surface analysis using XPS and AES
October 23, 2019

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