CURRICULUM VITAE

DR. NORZAINI ZAINAL
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PERSONAL DATA

Current position : Associate Professor
Date of Birth : 18th August 1981
Nationality : Malaysia

EDUCATION BACKGROUND

Doctor of Philosophy, PhD
University of Nottingham, UK. Year 2010, Major field: Physics Semiconductor.
Master of Science. MSc. (Research mode)
Universiti Sains Malaysia, Malaysia. Year 2006, Major field: Solid state Physics.
Bachelor of Science, BSc. (Hons)
Universiti Sains Malaysia, Malaysia. Year 2003, Major field: Pure Physics.

PREVIOUS WORK EXPERIENCE

August 2010 – now
Academic staff (Lecturer)
Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia

July 2006 – Mac 2007
Research Assistant (*Interim period prior to Doctoral study- Temporary work*)
School of Physics, Universiti Sains Malaysia

June 2003 – June 2006
Research Officer
School of Physics, Universiti Sains Malaysia

HONORS AND AWARDS

1. Selected participant for DIES Train-to-Trainer Workshop
   Awarded by University of Cologne, DAAD and German Financial Ministry for Economic Coorporation and Development.
   Year: 2022
2. Georg Forster Research Fellowship for Experienced Researcher
   Awarded by Alexander von Humboldt, Germany
   Year: 2021-2023
3. Selected participant for DIES Proposal Writing Courses for Research Projects (ProGrant)

Awarded by University of Cologne, DAAD and German Financial Ministry for Economic Coorporation and Development.
Year: 2020

4. Stipendien aus Mitteln des ASEA-Uninet, Projektstipendien SP 24 for Research Visit Scholarship at Graz University of Technology, Austria.
   Awarded by Austrian Agency for International Cooperation in Education and Research, (OeAD-GmbH), Centre for International Cooperation & Mobility (ICM), Austria.
   Year: 2020.
5. SSLEEC Visiting Researcher Appreciation.
   Awarded by SSLEEC (Solid State Lighting and Energy Electronics Center), University of California, Santa Barbara, USA.
   Year: 2016.
6. Gold Medal winner at Innovation Platform.
   Awarded by Universiti Teknologi Mara (UiTM) Penang, Malaysia.
   Year: 2014.
7. Bronze Medal winner at Innovation Platform.
   Awarded by Universiti Teknologi Mara (UiTM) Penang, Malaysia.
   Year: 2014.
8. Travel Prize Awards for conference attendance at International Conference Nitrides Semiconductors in Jeju, South Korea.
   Awarded by University of Nottingham, UK.
   Year: 2009.
9. Academic Staff Training Skill (ASTS) Scholarship
   Awarded by Malaysia Ministry of Higher Education, Malaysia
   Year: 2007-2010.

RESEARCH INTERESTS AND AREA OF SPECIALIZATIONS

2016- now

- Growth of aluminum nitride (AlN) and aluminum gallium nitride AlGaN layers for deep ultraviolet light emitting diodes (LEDs) through metal organics chemical vapor deposition (MOCVD) epitaxy
- Development of green/yellow LEDs based on III-V nitrides through MOCVD epitaxy

2012 – 2015

- Gallium nitride (GaN) layer by e-beam evaporator with successive ammonia annealing

2007 – 2012

- Properties of cubic GaN grown by molecular beam epitaxy (MBE)
- Development of cubic GaN based resonant tunneling diode (RTD)

2004 – 2006

- Simulation of III-V nitrides-based LEDs.

LIST OF 5 KEY PUBLICATIONS

1. Muhamad Ikram Md Taib, Mohd Anas Ahmad, Ezzah Azimah Alias, Abdullah Ibrahim Alhassan, Idris Ajia, Mufasila Mumthaz Muhammed, Iman Roqan, Steven P. DenBaars, James Speck, Shuji Nakamura, (2023) 'Growth modification via indium surfactant for InGaN/GaN green LED' *Semiconductor Science and Technology* **38** 035025.
2. M. Ikram Md Taib, S.N. Waheeda, F. Jasman, M.Z.M. Yusop, N. Zainal, (2022) 'GaN nucleation on patterned sapphire substrate with different shapes for improved GaN overgrowth', *Vacuum* **197** 110848.

3. EA Alias, N Ibrahim, SP DenBaars, N Chanlek, MIM Taib, N Zainal, (2021), 'Improving backside (N-face) GaN substrate roughening by pre-annealing for GaN-on-GaN LED', *Optical Materials* **121** 111570.
4. Y Yusuf, MEA Samsudin, MM Sahar, Z Hassan, W Maryam, N Zainal, (2021), 'High quality aluminum nitride layer grown with a combined step of nitridation and trimethylaluminum preflow ', *Thin Solid Films* **736** 138915.
5. MEA Samsudin, EA Alias, MIM Taib, H Li, M Iza, SP Denbaars, S Nakamura, N Zainal, (2021), 'Limiting factors of GaN-on-GaN LED', *Semiconductor Science and Technology* **36** (9), 095035.

OTHERS

1. **Source of Grant Received (as Principle Investigator):**
   - International:
     - TWAS-COMSTECH Research Grant Program
     - Nippon Sheet Glass Foundation
   - National
     - Ministry of Higher Education
     - Ministry of Science, Technology and Innovation, Universiti Sains Malaysia

   Total awarded amount: RM 1,439,260.00.

2. **Patents:**
   - Method of producing a freestanding bulk polycrystalline Gallium Nitrides substrate
     Granted on 4th Aug 2021 with Patent no. MY-186662-A.
   - Ge-Doped transparent conductive layer for GaN based visible LEDs
     Filed on 16th July 2021 with Application no. PI2021004060.
   - Method and apparatus for generating an Aluminium Nitride (AlN) template
     Filed on 11th June 2021 with Application no. PI2021003271.

3. **Visiting Researcher Profile**
   - Graz University of Technology, Austria. Period: Almost 1 month
   - The University of Sheffield, United Kingdom. Period: 2 weeks
   - King Abdullah University of Science and Technology, Saudi Arabia. Period: 10 days
   - University of California, Santa Barbara, United State of America. Period: 6 months

4. **International collaborators:**
   - University of California, Santa Barbara, USA
   - King Abdullah University of Science and Technology, Saudi Arabia
   - The University of Sheffield, UK
   - University of Technology Graz, Austria
   - Université Côte d'Azur, France

5. **Number of graduated students (as main supervisor):**
   1 PhD and 5 MSc.

6. **Current number of supervised students (as main supervisor):**
   5 PhD and 1 MSc – *4 PhD students are expected to graduate by September 2022.*