
MIMI AZLINA ABU BAKAR



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BORN

15 DECEMBER 1974

KOTA BHARU, KELANTAN

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RESEARCH AND TEACHING AREAS

- Research interest in natural fibre reinforced polymer composites, biomaterials, characterization of materials, including fabrication and processing, mechanical testing and characterization.
- Teaching areas : Strength of materials, materials science and mechanical engineering design II

EDUCATION/ACADEMIC QUALIFICATION/FIELD/INSTITUTION AND YEARS OF AWARD

- 1) B. Eng (Hons) Materials Engineering
Universiti Sains Malaysia (1994 – 1998)
- 2) MSc (Materials Engineering)
Universiti Sains Malaysia (1999 – 2003)
- 3) PhD (Applied Physics)
Universiti Kebangsaan Malaysia (2007 – 2011)

WORKING EXPERIENCE

2000 – current : Faculty of Mechanical Engineering, UiTM Shah Alam.

PREVIOUS RESEARCH

1) B. Eng

Flexural and fracture toughness of hydroxyapatite

2) MSc

Effects of binders on the porosity and strength of hydroxyapatite

3) PhD

Mechanical and thermal properties of rubber toughened epoxy composite filled with kenaf, carbon and hybrid kenaf/carbon fibre

Major research interests

Research interest in natural fibre reinforced polymer composites and biomaterials for bone implant including fabrication and processing methods, materials characterization and mechanical testing and characteristic.

PUBLICATIONS

Thesis

- **B. Eng (Hons) Materials Engineering**

Flexural and fracture toughness of hydroxyapatite

- **MSc (Materials Engineering)**

Effects of binders on the porosity and strength of hydroxyapatite

- **PhD (Applied Physics)**

Mechanical and thermal properties of rubber toughened epoxy composite filled with kenaf, carbon and hybrid kenaf/carbon fibre

Selected Journal Papers

1. **Mimi Azlina Abu Bakar** and Valliyappan David a/l Natarajan. 2005. Effects of binders on the porosity and strength of hydroxyapatite. *Journal of Solid State Science and Technology Letters*, 12, 1, 7
2. **MAA Bakar**, VD Natarajan, A Kalam and NH Kudiran. 2007. Mechanical properties of oil palm fibre reinforced epoxy for building short span bridge. *Proceedings of 13th International Conference on Experimental Mechanics*, pp97-98
3. **Abu Bakar, M.A**, Ahmad, S. and Kuntjoro, W. 2010. The mechanical properties of treated and untreated kenaf fibre reinforced epoxy composite. *Journal of Biobased Materials and Bioenergy*, 4, 2, pp 159-163

4. **Abu Bakar, M.A.**, Ahmad, S. and Kuntjoro, W. 2010. Effect of gamma radiation surface treatment to the mechanical properties of short carbon fibre reinforced epoxy composites. *Canadian Journal of Scientific and Industrial Research*, 1, 3, pp 34-49
5. **Abu Bakar, M.A.**, Ahmad, S. and Kuntjoro, W. 2011. Effect of matrix modification to the mechanical properties of short carbon fibre reinforced epoxy composites. *Journal of Reinforced Plastics and Composites*, 30, 4, pp 357-361
6. **Mimi Azlina Abu Bakar**, Sahrim Hj Ahmad and Wahyu Kuntjoro. 2011. Effect of LENR addition to the mechanical properties of kenaf fibre reinforced epoxy composites. *International Journal of Plastic Technology*, 15, 1, pp 33-42
7. **Mimi Azlina Abu Bakar**, Sahrim Hj Ahmad and Wahyu Kuntjoro. 2011. Mechanical and thermal properties of LENR modified epoxy composites. *Journal of Mechanical Engineering*, 8, 1, pp77-89
8. **Mimi Azlina Abu Bakar**, Sahrim Hj Ahmad and Wahyu Kuntjoro. 2012. Effect of epoxidized natural rubber on mechanical properties of epoxy reinforced kenaf fibre composites. *Pertanika Journal of Science and Technology*, 20, 1, pp 141-149
9. Salmiah Kasolang, Mohamad Ali Ahmad, **Mimi Azlina Abu Bakar** and Ahmad Hussein Abdul Hamid. 2012. Specific wear rate of kenaf epoxy composite and oil palm empty fruit bunch (OPEFB) epoxy composite in dry sliding. *Jurnal Teknologi*, 58, pp85-88
10. **Mimi Azlina Abu Bakar**, Sahrim Ahmad, Wahyu Kuntjoro and Salmiah Kasolang. 2013. Effect of carbon fibre ratio to the impact properties of hybrid kenaf/carbon fibre reinforced epoxy composites. *Applied Mechanics and Materials*, 393, pp136-139
11. Norhanifah Abdul Rahman, Salmiah Kasolang, Mohamad Ali Ahmad and **Mimi Azlina Abu Bakar**. 2013. Analysis of transmission fluid in manual diesel engine by ferrographic technique, *Applied Mechanics and Materials*, 393, pp925-930

12. Mohamad Ali Ahmad, Salmiah Kasolang, Rob Dwyer-Joyce and **Mimi Azlina Abu Bakar**. 2013. The effects of oil groove position on torque and frictional force in hydrodynamic journal bearing, *Applied Mechanics and Materials*, 393, pp907-912.
13. N.R. Nik Roselina, A. Azizan, Koay Mei Hyie, Aidah Jumahat and **M.A. Abu Bakar**. 2013. Effect of pH on formation of Nickel nanostructures through chemical reduction method, *Procedia Engineering* 68, pp43-48
14. Norhazlin Hamzah, Yakub Md Taib and **Mimi Azlina Abu Bakar**. 2014. Tensile properties of untreated and treated long kenaf fiber/polyester composites, *Advanced Materials Research*, 871, pp179-183.
15. Siti Norazlini Abd Aziz, **Mimi Azlina Abu Bakar** and Muhammad Hussain Ismail. 2015. Effect of single binder palm stearin on sintered properties of hydroxyapatite scaffold, *Applied Mechanics and Materials*, 763, pp36-40.
16. Yusri H Muhammad, Sahrim Ahmad, **Mimi A Abu Bakar**, Abdullah A Mamun and Hans P Heim. 2015. Mechanical properties of hybrid glass/kenaf fibre-reinforced epoxy composite with matrix modification using liquid epoxidised natural rubber, *Journal of Reinforced Plastics and Composites*, 34 (11), pp896-906
17. **Mimi Azlina Abu Bakar**, Sahrim Ahmad, Salmiah Kasolang, Mohamad Ali Ahmad, Nik Roselina Nik Roseley and Wahyu Kuntjoro. 2015. Characterization of rubber toughened epoxy reinforced hybrid kenaf/carbon fiber via water absorption and thermal degradation, *Jurnal Teknologi UTM*, 76(3), pp81-85
18. **Mimi Azlina Abu Bakar**, Sahrim Ahmad, Salmiah Kasolang, Mohamad Ali Ahmad, Nik Roselina Nik Roseley and Wahyu Kuntjoro. 2015. Mechanical performance of modified epoxy reinforced hybrid natural fiber composite, *Jurnal Teknologi UTM*, 76(3), pp13-17

19. Mohd Zulfadhli Shaari, N.R. Nik Roselina, almiyah Kasolang, Koay Mei Hyie, Mardziah Che Murad and **Mimi Azlina Abu Bakar**. 2015. Investigation of tribological properties of palm oil biolubricant modified nanoparticles, *Jurnal Teknologi*, 76(9), pp69-73
20. Zulkifli Abdul Ghaffar, Salmiah Kasolang, Ahmad Hussein Abdul Hamid, Ow Chee Sheng and **Mimi Azlina Abu Bakar**. 2015. Effect of geometrical parameters interaction on swirl effervescent atomizer spray angle, *Jurnal Teknologi*, 76(9), pp63-67

Selected Conference Papers

International:

1. **Mimi Azlina Abu Bakar** and Valliyappan David a/l Natarajan. 2005. Development of structural members using natural fibres (NF): Preliminary investigation of the mechanical properties of NF composite panels. *International Advanced Technology Congress – Conference on Advanced Materials 2005*
2. **Mimi Azlina Abu Bakar** and Valliyappan David a/l Natarajan. 2007. Mechanical properties of oil palm fibre reinforced epoxy for building short span bridge. *13th International Conference on Experimental Mechanics*
3. **Mimi Azlina Abu Bakar**, Sahrim Ahmad, Wahyu Kuntjoro and Salmiah Kasolang. 2013. Effect of carbon fibre ratio to the impact properties of hybrid kenaf/carbon fibre reinforced epoxy composites. *International Conference on Advances of Materials, ICAME2013*
4. Norhanifah Abdul Rahman, Salmiah Kasolang, Mohamad Ali Ahmad and **Mimi Azlina Abu Bakar**. 2013. Analysis of transmission fluid in manual diesel engine by ferrographic technique. *International Conference on Advances of Materials, ICAME2013*

5. Mohamad Ali Ahmad, Salmiah Kasolang, Rob Dwyer-Joyce and **Mimi Azlina Abu Bakar**. 2013. The effects of oil groove position on torque and frictional force in hydrodynamic journal bearing. *International Conference on Advances of Materials, ICAME2013*
6. Siti Norazlini Abd Aziz, **Mimi Azlina Abu Bakar** and Muhammad Hussain Ismail, 2015. Effect of single binder palm stearin on sintered properties of hydroxyapatite scaffold. *2015 2nd International Conference on Materials Engineering and Mechanical Automation (MEMA 2015)*
7. **Mimi Azlina Abu Bakar**, Sahrim Ahmad, Salmiah Kasolang, Mohamad Ali Ahmad, Nik Roselina Nik Roseley and Wahyu Kuntjoro. 2015. Characterization of rubber toughened epoxy reinforced hybrid kenaf/carbon fiber via water absorption and thermal degradation. *ICAME2015, Bali Indonesia*
8. **Mimi Azlina Abu Bakar**, Sahrim Ahmad, Salmiah Kasolang, Mohamad Ali Ahmad, Nik Roselina Nik Roseley and Wahyu Kuntjoro. 2015. Mechanical performance of modified epoxy reinforced hybrid natural fiber composite, *ICAME2015, Bali Indonesia*
9. Mohd Zulfadhli Shaari, N.R. Nik Roselina, Salmiah Kasolang, Koay Mei Hye, Mardziah Che Murad and **Mimi Azlina Abu Bakar**. 2015. Investigation of tribological properties of palm oil biolubricant modified nanoparticles, *ICAME2015, Bali Indonesia*
10. Zulkifli Abdul Ghaffar, Salmiah Kasolang, Ahmad Hussein Abdul Hamid, Ow Chee Sheng and **Mimi Azlina Abu Bakar**. 2015. Effect of geometrical parameters interaction on swirl effervescent atomizer spray angle, *ICAME2015, Bali Indonesia*

National:

1. **Mimi Azlina Abu Bakar**, Hasrawati Abu Hassan and Valliyappan David a/l Natarajan. 2005. Effects of magnesium oxide on the hardness and microstructure of hydroxyapatite. *XXIV Regional Conference on Solid State Technology 2005*
2. **Mimi Azlina Abu Bakar** and Valliyappan David a/l Natarajan. 2006. Microstructural changes of porous hydroxyapatite using acrylamide and polyvinyl alcohol. *Annual Fundamental Science Seminar 2006*

11. FUNDED RESEARCHES (GRANTS)

Current Researches

No.	Research Project	Source	Total Funds	Begin Year	End Year
1.	Hydrodynamic fluid behavior of bio-lubricants in pain bearings (Researcher) 600-RMI/ERGS 5/3 (35/2012)	ERGS	RM80,000	2012	2015
2.	HAP blended palm stearin binder; rheological behavior in powder injection moulding (Leader) 600-RMI/ERGS 5/3 (25/2013) Rujukan penaja : ERGS/1/2013/TK04/UITM/02/04	ERGS	RM103,000	2013	2016
3.	Two coat process of Co-Ni-Fe-Au corrosion protection (Researcher) 600-RMI/ERGS 5/3 (24/2013) Rujukan penaja : ERGS/1/2013/TK04/UITM/02/02	ERGS	RM134,000	2013	2015
4.	Environmentally friendly synthesis of monodisperse Nickel (Ni)-Gold (Au) bimetallic (Researcher) 600-RMI/RAGS 5/3 (66/2013) Rujukan penaja : RAGS/2013/UITM/TK04/3	RAGS	RM65,000	2013	2015

Completed Researches

No.	Research Project	Source	Total Funds	Begin Year	End Year
1.	Fracture toughness and impact behavior of rubber toughened epoxy reinforced kenaf fibre/CNTs hybrid nanocomposites. (Leader) 600-RMI/ST/DANA 5/3/Dst (471/2011)	Dana Kecemerlangan UiTM	RM10,000	2011	2012

POST GRADUATE SUPERVISION

PhD Student Ongoing

1. Muhammad Yusri Helmi – P57497
(Co-supervisor) : UKM

Master Student Ongoing

1. Nur Surihatun Najwa Shamsuri - 2011468716
(Co-supervisor) : UiTM
2. Norhafiza Muhammad - 2012272714
(Co-supervisor) : UiTM
3. Siti Norazlini Abd Aziz - 2013253282
(Main supervisor) :UiTM
4. Nurul Aliah Zulkefli – 2013301551
(Main supervisor) : UiTM

UNDER GRADUATE SUPERVISION

Bachelor Student (Completed)

2012

1. Khairul Anwar Ateh : The tensile and impact properties of hybrid oil palm fruit bunch (OPFB) and glass fibre reinforced polymer composites.
2. Kamarul Afiq Kamaruddin : The tensile and impact properties of hybrid kenaf and glass fibre reinforced polymer composites.
3. Nor Azman Salleh : The tensile and impact properties of hybrid kenaf and oil palm empty fruit bunch (OPEFB) fibre reinforced polymer composites.
4. Nur Sarah Mohd Nasir : Investigation on modulus of elasticity of fired clay brick containing palm oil mill bottom ash (POBA)

2013

1. Mohammed Hidhir Mohammed Shah : The tensile and flexural of hybrid kenaf and glass fibre reinforced rubber composites.
2. Mohd Aidil Ahmad : The tensile and flexural properties of hybrid oil palm fruit bunch (OPFB) and glass fibre reinforced polymer/rubber composite.
3. Norsahrikin Ahmad Khairani : Study on compressive strength of fired clay brick containing palm oil bottom ash (POBA)
4. Siti Nur Alyani Abdul Aziz : Talc effect to the densification of alumina

2014

1. Muhammad Helmyfizrie Mohd Fawzli : Processing of porous yttria plate for sintering of powder metallurgy (PM) components
2. Muhammad Hasif Hussin : Rheological behavior of alumina feedstock in injection moulding
3. Hanif Mohd Mispan : Mechanical properties of porous alumina plate produced by slip casting
4. Faiq Aizad Nazri : Effect of polyethylene glycol (PEG) binder to the mechanical properties of alumina using slip casting method
5. Muhammad Izzat Mohd Azhar : Effect of 'agar' binder to the mechanical properties of alumina using slip casting method
6. Maryam Mhd Khair : Effect of palm stearin binder to the mechanical properties of alumina using slip casting method
7. Syed Ahmad Ariff Putra Sayed Mohd Nasir : Tensile and impact properties of alkali treated oil palm fruit bunch (OPFB) reinforced polyester composites
8. Muhammad Razali Mat Sam : Tensile properties of arenga pinnata/kenaf fibre reinforced epoxy composite

2015

1. Mohd Hanif Ramli : Comparison between DNV-RP E305 of simplified static stability and DNV-RP F109 of absolute static stability in on bottom stability analysis
2. Mohamad Hanif Nadzri : Effect of palm stearin binder loading to the rheological behavior and mechanical properties of alumina using injection moulding process.
3. Zulfadzli Mazlan : Wear characteristic of natural fibre composite

Paper Reviewer (National/International)

1. Photodegradation and uv penetration profiles of pvc compound and wood/pvc composites under uv weathering for **eXPRESS Polymer Letters**.
2. Synthesis, characterization and thermal properties of alkyl-functional naphthoxazines for **Applied Polymer Science Journal**.
3. Glass fibre reinforced epoxy composite with matrix modification using liquid epoxidized natural rubber for **Journal of Reinforced Plastics and Composites**.
4. Unidirectional kenaf fibre reinforced plastic composite for **International Journal of Mechanical Engineering (IJMechE), UiTM**.
5. Natural polymer electrolytes based on carboxy methycellulose : ionic transport mechanism for **AKEPT 2nd Global Annual Young Researchers Conference and Exhibition (AYRC 2012)**.
6. A crystallographic study of Bis[S-benzyl-5-bromo-2-oxindolin-3-ylidenemethanehydrazonothioate] disulfide solvated with dimethylsulfoxide for **Scientific Research Journal, UPENA UiTM**.
7. **International Conference on Sustainable Engineering 2013 (ICoSM 2013)** :
 - Thermal properties of linear-low density polyethylene (LLDPE)/Soya spent powder blends with the addition of epoxidised natural rubber.
 - Comparison of mechanical properties of polypropylene/acrylonitrile butadiene rubber/rice husk powder composites modified with silane and acetic anhydride compound.
 - The properties of recycled copper filled epoxy/unsaturated polyester composites.

- Performance of surface modification of polyvinylidene fluoride hollow fiber membrane in membrane distillation.

8. Malaysian International Tribology Conference 2013 (MITC 2013)

- Tool - Solid Lubricant - Workpiece Interactions in High Temperatures Applications
- Photodegradation of Aqueous Diisopropanolamine Using Cu/TiO₂: Effect of Calcination Temperature and Duration
- Finite element analysis of artificial hip joint movement during human activities
- Surface morphology, crystallinity, optical properties and antibacterial activity of zinc oxide films synthesized via spray pyrolysis
- Mechanical properties of polypropylene/epoxidized natural rubber blends at various mixing ratio
- Nanostructuring Ultra-thin Co Films to Active Catalyst Particles for Vertically Aligned Single-Walled CNT Growth

9. 4th International Graduate Conference on Engineering Science & Humanity 2013 (IGCESH2013)

- Sintering Temperature Effect on Surface Morphologies of Inkjet Printed Nanosilver
- Delamination failure analysis of carbon fiber-reinforced polymer (CFRP) composites

10. The 3rd International Conference and Exhibition on Sustainable Energy and Advanced Material 2013 (ICE – SEAM 2013)

- Optimisation of Machining Parameter for Milling Polyetheretherketones (PEEK) Biomaterials

- Non-linear Finite Element analysis of the dynamic axial crushing of empty aluminium honeycomb

11. International Journal of Mechanical Engineering (IJMechE) 2014

- Influence of Specimen Dimensions and Orientations on the Tensile Properties of Structural Steel
- Enhancement of Adhesive Bonding Strength : Surface Roughness and Wettability Characterisations

12. Engineering Science and Technology : an International Journal by Elsevier

- Hyperelastic Modeling and Toughness of Natural Rubber/Organomodified Kaolin Composites oleochemically derived from Tea Seed Oils (Camelia Sinensis)

13. IEECBMS (IEEE Conference on Biomedical and Materials Science)

- In-Situ Synthesis of Silver Nanoparticles for Ag-NPs/Cotton Nanocomposites and its Bactericidal Effect

14. Journal of Scientific Research and Studies, 2014

- An Assessment of the Causative Factors and Effects of Delays in Building Construction Projects in Osun State, Nigeria

15. ICAME 2015

- Polyetheretherketone/Hydroxyapatite Biocomposites Compounded via Nano mixer Single Screw Extruder : Thermal Characterization
- Frictional Properties of Palm Kernel Activated Carbon-Epoxy Composite Under Various Normal Loads

- The Effect of Nanofillers Dispersion on Mechanical Properties of Clay/Epoxy and Silica/Epoxy Nanocomposites.
- Empirical and Rheological Properties Evaluation of Modified Asphalt Binder Containing Nanopolyacrylate Polymer Modifier
- Activated Carbon-Titanium Dioxide Nanoparticles Composite Electrode Produced from Organic Waste Material
- The Influence of Ni-Ti Ratio on the Reversible Austenite – Martensite Transformation Produced by Metal Injection Moulding (MIM)
- Characterization of Phosphoric Acid Impregnated Activated Carbon Produced from Honeydew Rind

16. MITC 2105

- Study on the Biocompatibility of Stainless Steel 316L and UHMWPE Material using ANOVA Statistic
- Characteristic of Regenerated Cartilage Tissue Cultured Under Traction Loading

17. CSSR 2015

- The Effect of Oxalic Acid as a Doping Agent on the Electrical Properties of Polyaniline
- Vibrational Analysis of $\text{Li}_{1+x} \text{Al}_x \text{Ti}_{2-x} (\text{PO}_4)_3$ (0.0 \ll x \ll 0.5) Glass Ceramic Electrolytes Prepared Acetic Acid Assisted Sol-Gel Method
- Physical and Conductivity Studies of Plasticized Methyl Cellulose – Lithium Triflate Based Polymer Electrolyte

GLORIFICATION AND ACADEMIC AWARDS

1. ITEX Silver Medal for the invention “*Vertical tube ‘heat and drop’ furnace for Jominy Quench End test*” in (18th International Invention, Innovation and Technology Exhibition – ITEX 2007).
2. Gold Medal for the invention “*Vertical tube ‘heat and drop’ furnace for Jominy Quench End test*” in IENA Nuremberg German
3. *The mechanical properties of treated and untreated kenaf fibre reinforced epoxy composite* untuk Anugerah Jurnal Berimpak Tinggi 2010 peringkat UiTM.
4. *Effect of matrix modification on the mechanical properties of short carbon fibre reinforced epoxy composites* untuk Anugerah Jurnal Berimpak Tinggi 2011 peringkat UiTM.
5. i-ENVEX 2014 Silver Medal for the invention “*Eco Binder for Bioceramic HAP Scaffold Implant*” in (The 5th International Engineering Invention & Innovation Exhibition 2014)
6. iidex2014 Gold Medal for “*Dual Function of Palm Stearin in Processing HAP Scaffold*” in Competition & Exhibition Invention, Innovation & Design Exposition 2014
7. iidex2014 Silver Medal for “*Injection Moulding of New Synthesized Method for Hydroxyapatite Scaffold From Stearin Based Binder System*” in in Competition & Exhibition Invention, Innovation & Design Exposition 2014
8. ITEX 2014 Silver Medal for “*Dual Function of Palm Stearin in Processing HAP Scaffold*” in International Technology and Exhibition 2014

REFERENCES

1. Prof. Dr. Sahrim Hj Ahmad
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2. Prof. Madya Dr. Salmiah Kasalong @ Kasolang
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