

Ts. Dr. Warid Wazien Bin Ahmad Zailani

Senior Lecturer,
Structural and Materials Engineering (STRUCM),
School of Civil Engineering,
College of Engineering
Universiti Teknologi MARA (UiTM),



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Area of Research:

Geopolymer concrete and advance construction materials
Google Scholar h-Index – 9; Scopus h-Index – 9

SECTION 1: PROFESSIONAL AFFILIATION

1. Graduate Engineer, Board of Engineers Malaysia (BEM)
(Registration No: 168489A)
2. Graduate Technologist, Malaysia Board of Technologist (MBOT)
(Registration No: GT19100868)
3. Associate Member, Concrete Society of Malaysia (CSM)
(Membership No: M0635)
4. Professional Technologist (Ts), Malaysia Board of Technologist (MBOT)
(Registration No: PT20050026)
5. Associate Member, International Association of Innovation Professionals
(IAOIP) (Membership No: 63947331)

SECTION 2: AREA OF SPECIALIZATION

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| 1) Geopolymer Concrete Technology | 4) Advanced Material Characterizations |
| 2) Construction and Building Materials | 5) Repair and Rehabilitation |
| 3) Structural and Advance Construction Materials | |

SECTION 3: ACADEMIC QUALIFICATION

- 2016 – 2019 : Universiti Malaysia Perlis (UniMAP)**
Doctor of Philosophy (PhD) (Concrete Materials)
Area : Concrete Materials and Structures
Thesis Title : Performance and Durability of Fly Ash Based
Geopolymer as Concrete Repair Material.
- 2011 – 2015 : Universiti Sains Malaysia (USM)**
Bachelor of Engineering in Civil Engineering
Area : Construction Management
Thesis Title : Performance Evaluation of Public Private
Partnership (PPP) Highway Projects in
Malaysia.
CGPA: 3.5 (Second Upper Class)
- 2010 – 2011 : Kolej Matrikulasi Kejuruteraan Kedah, Pendang.**
(Civil Engineering Certificate)
CGPA: 4.00 (First Class)

SECTION 4: TEACHING/SUPERVISING/PROFESSIONAL EXPERIENCES

1. **Senior Lecturer, Universiti Teknologi MARA (UiTM) Shah Alam**
(Jan 2021 – Now)
 - Lecturer, Faculty of Civil Engineering in Universiti Teknologi MARA (UiTM) –
Courses Taught : ECS436 Engineering Materials
ECS426 Structure and Materials Laboratory
ECS536 Special Concrete
ECS444 Steel and Timber Design
ECS428 Solid Mechanics
 - Assist in the **development** of learning materials, scheme of work as well as monitor student progress, achievement and attendance.
 - Prepare **teaching** materials such as notes, study manuals and visual aids.
 - **Scholarly activities** and academic development (Paper publications and research grant applications).
 - **Professional Programme Coordinator**, College of Engineering, UiTM Shah Alam

2. **Postdoctoral Researcher, Universiti Malaysia Perlis (UniMAP)**
(Jan 2020 – Dec 2020)
 - Committee of journal publication for School of Materials Engineering.
 - Assisting laboratory work and student assessment
 - Delivering teaching on Geopolymer Concrete Technology Subjects
 - Supervising undergraduate dissertations
 - Student assessment

3. **Guest lecturer, National Science and Technology Development Agency (NSTDA), Bangkok, Thailand** (1 March 2019 – 14 March 2019)
 - Delivered lecture by invitation
 - Visiting Structure and Ceramics Laboratory
 - Conducting advanced material characterization experiment using FTIR, XRD, SEM, EDX, XPS tools for concrete materials and structures.

4. **Company Address** : Universiti Malaysia Perlis (UniMAP)
Position : Research Assistant
Duration : 15 August 2015 to 15 February 2019
Work Description : Optimizing geopolymer formulation for repair and rehabilitation works. Structure analysis for OPC and Geopolymer construction binder.
Project Leader : Professor Dr. Mohd Mustafa Al Bakri Bin Abdullah

5. **Company Address** : USAINS Holding Sdn Bhd, School of Civil Engineering, Universiti Sains Malaysia (USM)
Position : Project Assistant
Duration : July 2013 to August 2013
Work Description : Ductility Demands of Inelastic Structure Affected By Repeated Earthquakes.
Project Leader : Professor Dr. Taksiah Binti A. Majid

SECTION 5: CONSULTATION/GRANT APPLICATIONS

Research Grant

NO.	TITLE	TYPES OF GRANT	DURATION	AMOUNT
1	Development of FILGAP – A Quick Setting and High Adhesive Repair Material	Strategic Research Partnership Grant	2021 – 2022	RM 40,000
2.	Chemokinesis Ettringite Mechanism Theory and Calorimetry Evolution in Hydrated Nano Precipitate Calcium Carbonate	FRGS (Submitted)	2022-2024	RM 90,000
3.	Hydrated Cementitious Repair Materials Incorporated with Nano-Precipitated Calcium Carbonate in Repairing Concrete Structures	Geran Penyelidikan MyRA (Submitted)	2022-2023	RM 20,000

Research Consultation

NO.	TITLE	CLIENT	DURATION	AMOUNT
1	The Provision to Conduct Analytical Testing of Cement Mixed with Precipitate Calcium Carbonate (PCC)	Petronas Research Sdn. Bhd.	Mac 2021 – July 2021	RM 15,000

SECTION 6: CURRENT RESEARCH PROJECT

Current Research Projects:

- Study the potential of Carbon Dioxide (CO₂) in improving construction material properties and performance.
- Study the chemical, physical and mechanical properties of fly ash based geopolymer as a concrete repair material and reinforced concrete structures.
- Imaging the elemental distribution at interfacial transition zone between OPC and geopolymer repair materials using SEM/EDX mapping element, X-ray diffraction (XRD), and X-ray photoelectron spectroscopy (XPS) technique.
- Evaluate the performance and durability of fly ash based geopolymer repair material on site application.
- Comparison between reinforced concrete structural design using Ordinary Portland Cement (OPC) and Geopolymer binder.
- Product development:
 1. Geo-Alkali Activated Solution (GAAS) for Concrete Crack and Spalling Repairs.
 2. Effective Geopolymer-Soil Stabilisation using Nano Technology Waste for Utility Pipe Repair Underneath Road Pavement

SECTION 7: SELECTED PUBLICATIONS (SCOPUS & WOS)

Year 2021

1. **Warid Wazien, A. Z.**, Abdullah, M.M.A.B.; Arshad, M.F.; Razak, R.A.; Tahir, M.F.M.; Zainol, R.R.M.A.; Nabialek, M.; Sandu, A.V.; Wysłocki, J.J.; Błoch, K. Characterisation at the Bonding Zone between Fly Ash Based Geopolymer Repair Materials (GRM) and Ordinary Portland Cement Concrete (OPCC). *Materials* 2021, 14, 56 (ISI/WOS)
2. Muhammad, F. M. T., **Warid Wazien, A. Z.**, Ghazali A. A., Sakkas K. M. Morphological Analysis of Fly Ash based Geopolymer with Different Concentration of NaOH as Repair Materials. *AIP Conference Proceeding* (2021), 1, 2339 (Scopus)
3. Arshad, M. F., **Warid Wazien, A. Z.** Eggshell Powder as Low Cost Adsorbent for Wastewater Treatment *Journal of Physics* (2021), 1, 1960 (Scopus)

Year 2020

4. **Warid Wazien, A. Z.**, Bouaissi, A., Abdullah, M.M.A.B., Abd Razak, R., Yoriya, S., Mohd Salleh, M.A.A., Rozainy M. A. Z., M.R., Fansuri, H. (2020) Bonding Strength Characteristics of FA-Based Geopolymer Paste as a Repair Material When Applied on OPC Substrate. *Appl. Sci.* 2020, **10**, 3321 (ISI/WOS)
5. Romisuhani A., Wan M. W. I., Mohd M. A. A., Andrei V. S., Nurul A. M. M., Noratikah H. and **Warid Wazien A. Z.**, (2020) Synthesis and Characterization of Fly ash based Geopolymer Ceramics: Effect of NaOH Concentration, *IOP Conf. Ser.: Mater. Sci. Eng.* 2020, **743**, 012014 (Conf. Proceeding)
6. Ahmad S. S., Wan M. W. I., Romisuhani A., Nurul A. M. M., Fakhryna A. Z. and **Warid Wazien A. Z.**, (2020) A Review of Morphology Analysis on Dolomite as an Additive Material in Geopolymer, , **743**, 012024 (Scopus)
7. **W. W. A. Zailani**, M. F. Arshad (2020). Batu Bata Ringan Daripada Abu Arang Batu. *Jurnal Inovasi Malaysia (JOMS)* (Under Review Scopus)
8. **W. W. A. Zailani**, M. F. Arshad, M. M. A. B. Abdullah, R. A. Razak, M. R. R. M. A. Zainol, & M. F. M. Tahir (2020). Bonding Characterization and Chemistry of Fly Ash based Geopolymer Repair Material and Ordinary Portland Cement Substrate. *Construction and Building Materials*. (Under Review ISI/WOS)
9. **W. W. A. Zailani**, M. F. Arshad, M. M. A. B. Abdullah, R. A. Razak, M. R. R. M. A. Zainol, & M. F. M. Tahir (2020). Development of geopolymer for use as repair materials: A review. *Construction and Building Materials*. (Under Review ISI/WOS).

Year 2019

10. Rosnita M., Rafiza A. R., M. M. A. Abdullah, Raa K. S., Nurul A. M. M. and **W. W. A. Zailani** (2019). Investigation of Heat Released during Geopolymerization with Fly Ash based Geopolymer, *IOP Conf. Ser.: Mater. Sci. Eng.* 551 012093 (Indexed by Scopus).
11. Faheem, M., Tahir, M. M. A. Abdullah, Rosli, M., Hasan, M., & **W. W. A. Zailani** (2019). Optimization of Fly Ash Based Geopolymer Mix Design for Rigid Pavement Application, *AIP Conference Proceedings*, 020144 (Indexed by Scopus).
12. Romisuhani A., M. M. A. Abdullah, Wan M. W. I., Andrei V. S., **W. W. A. Zailani** and Sharun N. S. N. (2019) Influence of Solid-To-Liquid Ratio on Properties of Fly Ash Geopolymer Ceramics, *IOP Conf. Ser.: Mater. Sci. Eng.* 551 012083 (Indexed by Scopus).

13. Nordin, N., Mustafa, M., Bakri, A., Muhammad, W., Rabbani, N., Fakri, W., & **W. W. A. Zailani** (2019). Exploration on Fly Ash Waste as Global Construction Materials for Dynamics Marketability, Applied Physics of Condensed Matter, 020143 (Published) (WOS).

Year 2018

14. P. Y. Fauziah, M. Fathullah, M. M. A. Abdullah, M. A. Faris, F. Tahir, Z. Shayfull, & **W. W. A. Zailani** (2018). A Review on Cutting Tool Wear in The Machining of Fly Ash Geopolymer. Green Design and Manufacture: Advance and Emerging Applications, 2030, 020067(1)–020067(6). (Indexed by Scopus)
15. P. Y. Fauziah, M. Fathullah, M. M. A. Abdullah, Meor Ahmad Faris, Faheem Tahir, Z. Shayfull, S. M. Nasir, M. Shazzuan, and A. Z. W. Wazien, (2018) Cutting tool wear optimization in the machining of fly ash geopolymer using Taguchi method, **2030**, 020067 (Scopus)
16. N. Kamilah, M. Fathullah, M. M. A. Abdullah, M. A. Faris, F. Tahir, Z. Shayfull, & **W. W. A. Zailani** (2018). A Review on Surface Integrity of Steel Fibre Reinforced Fly Ash Geopolymer Using Lathe Operation. Green Design and Manufacture: Advance and Emerging Applications, 2030, 020064(1)–020064(4). (Indexed by Scopus)
17. N. Kamilah, M. Fathullah, M. M. A. Abdullah, Meor Ahmad Faris, Faheem Tahir, Z. Shayfull, S. M. Nasir, M. Shazzuan, and **A. Z. W. Wazien**, (2018) Surface integrity of steel fibre reinforced fly ash geopolymer in CNC lathe operation, **2030**, 020065.
18. F. F. Zainal, M. F. Fazill, K. Hussin, A. Rahmat, M. M. A. B. Abdullah, & **W. W. A. Zailani** (2018). Effect of Geopolymer Coating on Mild Steel. Solid State Phenomena, 273, 1–7. (Published) (WOS).

Year 2017

19. **W. W. A. Zailani**, M. M. A. B. Abdullah, R. A. Razak, M. R. R. M. A. Zainol, & M. F. M. Tahir (2017). Bond Strength Mechanism of Fly Ash Based Geopolymer Mortars: A Review. IOP Conference Series: Materials Science and Engineering, 267(1). (Indexed by Scopus)
20. **W. W. A. Zailani**, M. M. A. B. Abdullah, R. A. Razak, M. R. R. M. A. Zainol, & M. F. M. Tahir (2017). Compressive and Bonding Strength of Fly Ash Based Geopolymer Mortar. AIP Conference Proceedings, 1887. (Indexed by Scopus)

On-going:

Chapter in Book (2021): Warid Wazien, A. Z., Mohd F. A., and Abdullah, M.M.A.B. Fly Ash Based Geopolymer as Repair Material. *Penerbit UTHM* (On going)

Academic Book (2021): Warid Wazien, A. Z. and Mohd Fadzil A. (2020) Rekabentuk Campuran Konkrit. *Penerbit UiTM* (On going)

Publishing e-Journal of the Sustainability and Civil Engineering Journal, ISSN No: 2289-3253, Faculty of Civil Engineering, UiTM, Shah Alam, Selangor

SECTION 8: INNOVATION AWARD

- 2021** Gold Medal from 2021 Bangkok International Intellectual Property, Invention, Innovation and Technology Exposition – Online Event for the invention “Towards Green Construction Materials: Geopolymer Brick Fabrication Machine Vol. 2.0”.

- 2021** Gold Award from Sustainability in Civil Engineering Exhibition and Competition 2021 for the invention “Flood Emergency Road Repair”.
- 2020** Gold Medal from World Invention Creativity Olympic (WICO 2020) for the invention “DIY - Concrete Repair Material”.
- 2020** Gold Award from International Conference on Science Technology Engineering Mathematics (ICSTEM 2020) for the invention “Effect of Different Concrete Substrate Class (C25/30, C30/35, C35/45) on Bonding Strength of Fly Ash based Geopolymer Repair Material”.
- 2019** Gold Medal from International Festival Innovation on Green Technology (i-FINOG 2019) for the invention “Speedy-Fix: A Fast Setting Geopolymer Repair Material”.
- 2019** Special Award Industry from American Nuclear Society (ANS) Nation Award for the invention “Speedy-Fix: A Fast Setting Geopolymer Repair Material”.
- 2019** Silver Medal from Bangkok International Intellectual Property, Invention, Innovation and Technology Exposition for the invention “Toward Green Construction Materials: GEO GROUT”.
- 2019** Silver Medal from CEGeoGTech-SOME Postgraduate Open Day for the invention “Performance and Durability of Fly Ash based Geopolymer as Concrete Repair Material”.

SECTION 9: CORPORATE SOCIAL RESPONSIBILITY (CSR)

- 2021** Volunteer, UiTM Shah Alam Vaccination Center (PPV) (Starting July 2021)
- 2021** Invited Speaker, Sembang Kerjaya with Sekolah Menengah Teknik Alor Setar (16 July 2021)
- 2021** Jury, Darulaman International Innovation, Competition and Exhibition 2021 (DilCE’ 21) (23-30 Jun 2021)
- 2020** Frontliner, UiTM's Corporate Social Responsibility Project 1.0 & 2.0 Initiated by Deputy Vice-Chancellor (Research & Innovation) Office produced 3575 bottles of hand sanitisers (1-30 April 2020)

SECTION 10: INTERPERSONAL SKILLS

I am hardworking and passionate learner who is eager to share what I learn with others. Drive to try new experience and I love to explore new ideas. Able to work independent or in a group and have excellent skill in leadership, communication and collaboration. I greatly enjoy working with student and colleagues and willing to work for long hours and moderate traveling.

SECTION 11: ACADEMIC REFEREES

1. **Name** : Professor Madya Dr. Mohd Fadzil Arshad
Position : Associate Professor and Head of Student Affairs
Institution : College of Engineering
Universiti Teknologi MARA (UiTM)
40450 Shah Alam
Selangor
MALAYSIA
Telephone : 012-4531606
Email : mohdfadzil.arshad@uitm.edu.my

2. **Name** : Professor Dr. Mohd Mustafa Al Bakri Abdullah
Position : Senior Lecturer and Manager
Institution : Center of Excellence Geopolymer & Green Technology,
School of Materials Engineering
Universiti Malaysia Perlis (UniMAP)
Kompleks Pusat Pengajian Jejawi 2,
02600 Arau
Perlis
MALAYSIA
Telephone : 012-5055020
Email : mustafa_albakri@unimap.edu.my

3. **Name** : Professor Madya Dr. Remy Rozainy Mohd Arif Zainol
Position : Senior Lecturer
Institution : School of Civil Engineering
Universiti Sains Malaysia (USM)
Engineering Campus
14300 Nibong Tebal
Pulau Pinang
MALAYSIA
Telephone : 017-4215455
Email : remy@usm.my