



PROF. IR. DR. AHMAD KAMAL ARIFFIN MOHD IHSAN
BEng, PhD, PEng, FIMM

Field of Specialization: Computational Mechanics

Research Area: Computational Fracture & Fatigue, Computational Corrosion, Finite/Boundary/Discrete Element Methods/Parallel Computation, Uncertainty Analysis

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Date and Place of Birth : July, 11th, 1964, Klang, Selangor, MALAYSIA
Nationality : Malaysian

Education/ Academic Qualification

1992 – 1995 : Ph.D. in Mechanical Engineering
University of Wales Swansea, U.K.
1986 – 1990 : B.Eng in Mechanical Engineering
Universiti Kebangsaan Malaysia.

Academic Appointments

2006 – present : Professor
2000 – 2006 : Associate Professor
1996 – 2000 : Lecturer

Working Experience

1990 – 1991 : Engineer, SMK Electronics (M) Sdn. Bhd.

Professional Affiliation

P.Eng, Board of Engineers, Malaysia
President & Founder, Malaysian Association for Computational Mechanics
Fellow, Institute of Materials, Malaysia
Member, International Association for Computational Mechanics
Member, Institute of Engineers Malaysia

Prize/Award

2016	UTP Guest Professor
2015	TUS Japan Guest Professor
2010 – 2011	DAAD Winter Semester Guest Professor
2009	UKM Quality Special Award
2008	Innovative Award (Academic-Individual) Researcher Award (Individual) Researcher Award (Group)
2006 – 2007	Who's Who in Science & Engineering
2005	UKM Young Researcher Award Silver awards in UKM Expo
2002, 2013	Teaching Excellent Award
1996	Third Country Training Programme in Mould and Die Design Technology Japan International Corporation Agency
1992 – 1995	Academic Training Scheme for Bumiputra, JPA/UKM
1990	Muslim Hj. Taib Award, UKM
1989 – 1990	Deans List Award, Engineering Faculty

Teaching Experience

- M.Eng./M.Sc. : Advanced Computational Methods, Nano-Mechanics and Materials, Probabilistic Structural Mechanics, Metallic Materials Selection.
- Undergraduate : Finite Element Methods, Computational Methods, Mechanics of Materials, Engineering Design Graphics.

International Level Committees/Members

- Editorial Board*, International Journal of Computational Methods
- International Organizing Committee Member* for Asian-Pacific Association for Computational Mechanics 2006-present
- International Steering Committee* for Numerical Analysis for Engineering (NAE2000, NAE2001, NAE2003, NAE2005, NAE2007, NAE2009, NAE2011, NAE2013).
- International Organizing Committee* for Far East Oceanic Fracture Of Solids (FEOfS2005, FEOfS2007, FEOfS2010, FEOfS2013).
- International Steering Committee* for Computational Mechanics and Numerical Analysis 2003-2009 (CMNA2003-2012)

National Level Committees/Members

- President & Founder*, Malaysian Association for Computational Mechanics
- Technical Advisor*, Caddcam Technology Sdn Bhd.
- Technical Advisor*, Pusat Sains Negara.
- Research Collaboration with Malaysian Institute for Nuclear Technology Research.

Professional Activities

- Fellow*, Institute of Materials, Malaysia.
- Registered Graduate Engineer, Board of Engineers, Malaysia
- Member of International Society Boundary Elements
- Member of International Association for Computational Mechanics
- Member of American of Powder Metallurgy Institute (until 1997)

Administration

- Deputy Dean*, Faculty of Engineering & Built Environment., UKM, 2011-2015.
- Head*, Quality Management, Faculty of Engineering, UKM, 2008 - 2011.
- Head*, Dept of Mechanical & Materials Engr., UKM, 2003 - 2008.
- Chairman*, Alumni UKM Engineering Faculty, 2004 - 2006.
- Chairman*, Retreat and Colloquium, Dept. of Mech. & Mat. Eng., 2001.
- Chairman*, Engineering Faculty Library, UKM, 2000 - 2003.
- Coordinator*, Mechanical Engineering Programme, UKM-UNITEK, 1996 - 2000.
- Manager*, PC and Server Lab, Dept. of Mech. & Mat. Eng, 1996 - 1999.
- Manager*, Mechanics of Materials Lab., Dept. of Mech. & Mat. Eng, 1999 - present.
- Committee Member*, TVFK, 2002 - 2010.
- Committee Member*, Perpustakaan Universiti, 2000 - 2003.
- Committee Member*, Audit and Quality, Faculty of Engineering, 2000 - present.
- Committee Member*, Engineering Faculty Computer System, 1996 - 2002.

Supervision (*main supervisor*)

- Ph.D (21 - completed, 6 students - in progress)
- M.Sc./M.Eng. (30 - completed, 3 students - in progress)
- B.Eng. (76 - completed)

External Examiner

- MSc & PhD at UTM, 2001 - 2015.
- MSc & PhD at USM, 2001 - 2015.
- MSc & PhD at UIAM, 2002 - 2015.
- MSc & PhD at UPM, 2004 - 2015.
- MSc & PhD at UNITEN, 2006-2015.
- MSc & PhD at UTP, 2007 - 2015.
- MSc at UM, 2006 - 2014.
- MSc at UiTM, 2002.
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Research

- Development of reliability analysis for mixed mode loading, FRGS/2/2013/TK01/UKM/02/5, RM92,000, Head, 2013-2015
- Prediction of Fatigue Behaviour in Nanoscale-Structure, AP-2012-015, RM190,000, Head, 2012-2015
- Polarization Mechanism under Mechanical Loading for Corrosion Prevention, ERGS/1/2012/TK01/UKM/01/1, RM80,000, Head, 2012-2015.
- New Local-Global Overlay Formulation for Surface Crack Model, FRGS/1/2012/TK01/UKM/01/2, RM39,000, Head, 2012-2014
- Boundary Element Analysis of Metal Corrosion using Polarisation Curve, 03-01-02-SF0722, RM192,232, Head, 2011-2013
- Constitutive model and characterizations of fatigue fracture for multi scale structures, UKM-DLP-2011-040, RM100,000, Head, 2011-2012
- Mechanical Joints reliability Assessment using Theory of Critical Distance, UKM-KK-FRGS0112-2010, (RM44,000), Head, 2010-2012
- Fatigue crack growth simulation and safety evaluation of pressure vessel of power plant, MOSTI/BGM/R&D/31, RM98,252, Head, 2011-2012
- Inverse Analysis for Corrosion Detection Problem, Sciencefund 02-01-01-SF0257 & Exxonmobil, Head, 2006-2009.
- Prediction of Stochastic Fatigue Crack Using Probabilistic Method, Sciencefund 02-01-01-SF0258, Head, 2006-2009
- Computer Aided Analysis of Free Piston Linear Generator Engine Development, IRPA 03-02-02-0056-PR0025/04-03 (RM3,130,000) Head, 2002-2004.
- Development of Fatigue Life Criteria For Useful Life Prediction of Machine Components, IRPA 09-02-02-0038-EA134 (RM259,000), Head, 2002-2004.

Publications

Selected recent works are listed below.

Book (Total of 7):

1. *Computational & Experimental Mechanics*, **Ahmad Kamal Ariffin** et. al, 2007, pps. 445. ISBN 967-5048-06-7.
2. *MATLAB – Application in Engineering (Aplikasi Dalam Kejuruteraan)*, **Ahmad Kamal Ariffin** & Mohd Jailani Mohd Nor, McGraw-Hill, 2002, pps. 119. ISBN 967-942-499-5.
3. *Computation Methods in Engineering (Pengiraan Berangka Kejuruteraan)*, **Ahmad Kamal Ariffin** & Shahrir Abdullah, Penerbit UKM, 2000, pps. 266. ISBN 967-942-499-5.

Journal (20 H-index, 1546 citations): more detail in <https://goo.gl/7IK7K0>

1. A Othman, S Abdullah, AK Ariffin, NAN Mohamed, Investigating the crushing behavior of quasi-static oblique loading on polymeric foam filled pultruded composite square tubes, *Composites Part B: Engineering* 95, 2016, pp. 493-514.
 2. S Fonna, I. M. Ibrahim, M Ridha, S Huzni, AK Ariffin, Simulation of the Ill-Posed Problem of Reinforced Concrete Corrosion Detection Using Boundary Element Method, *International Journal of Corrosion* 2016, pp. 1-5. Article ID 6392702.
 3. MR Jamli, **AK Ariffin**, DA Wahab, Incorporating feedforward neural network within finite element analysis for L-bending springback prediction, *Expert Systems with Applications* 42 (5), 2015, pp. 2604-2614
 4. M Imran, SFE Lim, IS Putra, **AK Ariffin**, CJ Tan, J Purbolaksono, Assessment of a planar inclusion in a solid cylinder, *Engineering Failure Analysis* 48, 2015, pp. 236-246.
 5. F Djamaluddin, S Abdullah, **AK Ariffin**, ZM Nopiah, Optimization of foam-filled double circular tubes under axial and oblique impact loading conditions, *Thin-Walled Structures* 87, 2015, pp. 1-11.
 6. AE Ismail, **AK Ariffin**, S Abdullah, MJ Ghazali, AL Mohd Tobi, J-Integral Prediction for Semi-Elliptical Surface Cracks in Round Bars Subjected to Torsion Moment, *Applied Mechanics and Materials* 699, 2015, pp. 295-299.
 7. ZM Nopiah, AK Junoh, **AK Ariffin**, Vehicle interior noise and vibration level assessment through the data clustering and hybrid classification model, *Applied Acoustics* 87, 2015, pp. 9-22.
 8. A Othman, S Abdullah, **AK Ariffin**, NAN Mohamed, Investigating the quasi-static axial crushing behavior of polymeric foam-filled composite pultrusion square tubes, *Materials & Design* 63, 2014, pp. 446-459.
 9. O Inayatullah, WS Chin, N Jamaludin, S Abdullah, **A Ariffin**, Monitoring the Petrol Engine Oil Viscosity: Investigation of the Capability of the Metal Magnetic Memory Technology, *Applied Mechanics and Materials* 663, 2014, pp. 453-458.
 10. NII Mansor, S Abdullah, **AK Ariffin**, J Syarif, A review of the fatigue failure mechanism of metallic materials under a corroded environment, *Engineering Failure Analysis* 42, 2014, pp. 353-365.
 11. M.R. Jamli, **A.K. Ariffin**, D.A. Wahab, Integration of feedforward neural network and finite element in the draw-bend springback prediction, *Expert Systems with Applications* 41 (2014) 3662-3670.
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12. S Fonna, S Huzni, M Ridha, **AK Ariffin**, Inverse analysis using particle swarm optimization for detecting corrosion profile of rebar in concrete structure, *Engineering Analysis with Boundary Elements* 37 (3), 2013, pp. 585-593.
13. N.A. Khadim, S. Abdullah & **A. K. Ariffin**, Effective Strain Damage Model Associated with Finite Element Modelling and Experimental Validation, *International Journal of Fatigue*, 2012, ISSN 0142-1123 Vol. 36, Issue 1 (2012), pp. 194-205.
14. S. Ataollahi, S.T. Taher, R.A. Eshkoo, **A. K. Ariffin** & C.H. Azhari, Energy Absorption and Failure Response of Silk/Epoxy Composite Square Tubes: Experimental, *Composites Part B: Engineering*, 2012, ISSN 1359-8368 Vol. 43, Issue 2 (2012), pp. 542-548.
15. N. A. Kadhim, S. Abdullah & **A. K. Ariffin**, Effect of the Fatigue Data Editing Technique Associated with Finite Element Analysis on the Component Fatigue Design Period, *Materials and Design*, 2011, ISSN 0261-3069 Vol. 32, Issue 2 (2012), pp. 1020-1030.
16. S. M. Tahir, **A. K. Ariffin** & M. S. Anuar, Finite Element Modelling of Crack Propagation in Metal Powder Compaction using Mohr-Coulomb and Elliptical Cap Yield Criteria, *Journal of Powder Technology (powtec)*, 2010, ISSN 0032-5910 Vol. 202 (2010), Issues 1-3, 25 August – 10 October 2010, pp. 162-170.
17. S.M. Beden, S. Abdullah, **A. K. Ariffin** & N.A. Al-Asady, Fatigue Crack Growth Simulation of Aluminium Alloy Under Spectrum Loadings, *Journal of Materials & Design (matdes)*, 2010, doi: 10.1016/j.matdes.2010.01.039 Vol. 31 (2010), pp. 3449–3456.
18. S. Abdullah, S.M. Beden, **A. K. Ariffin**, & N.A. Al-Asady, Fatigue Crack Growth Modelling of Alloy under Constant and Variable Umplitude Loadings, *Structural Durability & Health Monitoring* 5 (2) (*SDHM*), 2009, Vol. 5 No. 2, pp. 109-131.

Invited Paper/Speaker (Total of 10):

1. **A. K. Ariffin**, Crack Simulation using Adaptive Mesh, *4rd Center for Computational Mechanics Research (CCMR) Symposium in Toyo University, Japan*, 17 March 2009.
2. **A. K. Ariffin**, Crack Propagation Simulation and Fatigue Reliability Challenges, *3rd Asia-Pacific Congress on Computational Mechanics in conjunction with 11th International Conference on Enhancement and Promotion of Computational Methods in Engineering and Science*, Kyoto, Japan, 3-6 Dec. 2007.

Proceeding (Total of 156 Conferences):

1. **A. K. Ariffin**, Crack Propagation Simulation and Fatigue Reliability Challenges, *3rd Asia-Pacific Congress on Computational Mechanics in conjunction with 11th International Conference on Enhancement and Promotion of Computational Methods in Engineering and Science*, Kyoto, Japan, 3-6 Dec. 2007.
2. Syarizal Fonna, **A. K. Ariffin** & M. Ridha. BEM and Magnetic Field Measurement for Direction of Corrosion in Reinforced Concrete, *Computational & Experimental Mechanics (CEM) 2007*, Palm Garden Hotel IOI Resort, Putrajaya, MALAYSIA, November 27 – 28, 2007.
3. **A. K. Ariffin**, M.R.M., Akramin, S. Huzni, S. Abdullah & M. J. Ghazali. Probabilistic Analysis of Cracked Structures with Uncertainty Parameters, *7th International Conference On Fracture & Strength of Solid*, Urumiqi China, August 27 – 29, 2007.
4. M. M. Rahman, **A. K. Ariffin**, A. A. Nuraini and M. M. Khan, Effects of Surface Treatments on the Fatigue Behaviour of Cylinder Block for A New Two-Stroke Free Piston Engine, *6th International Conference on Mechanical Engineering (ICME 2005)*, BUET, Dhaka, Bangladesh, 28-30 December 2005, AM-02, pp. 1-6.
5. M. M. Rahman, **A. K. Ariffin**, N. Jamaluddin and C.H.C. Haron, Prediction of Fatigue Lifetime Caused to Vibrating Cylinder Block of A Two-Stroke Free Piston Engine Using Transient Dynamic Approach, *International Advanced Technology congress, (Conference on Spatial and Computational Engineering (SPACE 2005))*, IOI Marriott Hotel, Putrajaya, 6-8 December, 2005.
6. **A. K. Ariffin** & S. M. Tahir, Fracture in Metal Powder Compact, *8th International Conference on Computational Plasticity*, Barcelona, 5 – 7 Sept. 2005, pp. 898-901.

Consultancy Activities

Has completed more than 10 consultancy projects. Selected works are listed below.

1. Analysis and Simulation of Metal Pallets, Shell Gas (M) Berhad, Completed (April 2005)
 2. EIA Study on the Proposed Seremban-JB Double Track Train, KTM Berhad, Consultant (Vibration), Completed (Sept 2002)
 3. Deformation Analysis of Internal and External Fixator, HUKM and Consultancy Biro, Finite Element Simulation, Completed May 2002.
 4. Testing and Finite Element Analysis of Carrier Shaft, Carrier Air-Cond. Sdn Bhd and Consultancy Biro, Finite Element Simulation, Completed April 2002.
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