

Assoc. Professor, Dr.

KHAIREL RAFEZI BIN AHMAD



Contact Details

Telephone : 019-450511 / 012-4205373

Email : rafezi@unimap.edu.my

Professional Experience:

Assoc. Prof., School of Materials Engineering, UniMAP 2016 - Now

Dean, School of Materials Engineering, UniMAP 2008 - 2018

Deputy Dean (Academic & Research), School of Materials Engineering, UniMAP 2007 - 2008

Programme Chairman (Materials Eng.), School of Materials Engineering, UniMAP 2004 – 2007

Graduate Tutor, School of Materials & Mineral Resources Eng., USM 2002-2004

Research Contributions:

My research interests are concerned mainly with the fabrication and characterization of metal matrix composite, heat treatment of metals and alloys, materials testing and characterization, material processing, non-destructive testing, wear and tribology of metals and alloys, and batteries cathode materials. Current researches include:

Development of aluminium/alumina metal matrix composite (MMC).

Development of copper/alumina metal matrix composite (MMC).

Aluminum Composite for Piston Application

Synthesis of Conductive $\text{Li}_2\text{FeSiO}_4/\text{C}$ Composite Cathode Materials for Lithium - ion Battery Application

Teaching Contributions:

Courses taught are in the areas of: Surface Engineering; Non Destructive Testing (NDT); Composite Materials; Corrosion Engineering; and Quality Control.

Current and Recent Researchers:

Current Research Students

Mohd Izha Ishak (PhD) – Synthesis of Conductive $\text{Li}_2\text{FeSiO}_4/\text{C}$ Composite Cathode Materials for Lithium – ion battery application.

Mohd Fizam Zainon (PhD) – Effect of Tribology And Hardness of AA332.0 Reinforced with Mg_2Si in Aluminium Matrix Composites (AMCs) Via Powder Metallurgy Route

Nur Hidayah Ahmad Zaidi (PhD) – The Ageing Behavior Of Mg-Al-Zn (AZ91) and AZ91 Reinforced with Carbon Nanotube (CNT).

Nur Khuzaimah Azman (MSc.) - Preparation of Titanium Oxycarbonitride (TiOxCyNz) by Separating Ferrous Element from Langkawi Black Sand Ilmenite

Some Recent Research Students

Riyadh A. al-Samaria (PhD)– Study the effect of surface roughness on the friction coefficient and wear between the surfaces sliding .

Roshida Mustaffa (PhD) – Study on sensing properties of chitosan-roselle blend film sensors on fertilizer concentration monitoring.

Voon Chun Hong (PhD) – Development of anodised aluminium oxide nanstructure from Al-Mn alloy for electronic applications.

Alaba Oladeji Araoyinbo (PhD) – Electrochemical anodization of aluminium at room temperature by electronically controlled direct current circuit.

Haider T. Naeem (PhD) – Enhancement of microstructural and mechanical properties of AlZnMgCu alloys using various techniques.

Mohd Fizam Hj. Zainon (MSc) – Effect of heat on aluminium alloys: A study of motorcycle piston.

Nurul Syuhada Shahrudin (MSc) – Synthesis of iron aluminide from iron mill scale via powder metallurgy method

Teoh Ai Ling (MSc) – Fabrication and properties of ternary aluminium-magnesium-zinc alloy filled with polypropylene.

Wan Mohd Arif W. Ibrahim (MSc) – Effect of different process parameters on the heat transfer of liquid coolant.

Mohd Hafiz Zainol (MSc) – Ammonia and toluene vapour sensing characteristic of chitosan films.

Zamri Yusoff (MSc) - Corrosion behavior on AA2014/15vol.% Al₂O₃(p) and AA2009/20vol.% SiC_(w) composite after ageing treatment.

Honours, Awards and Memberships:

2018 – Panel of Interviewer MyBrains15, Ministry of Higher Education.

2018 – Committee of Materials Lecture Competition (MLC2018), Institute of Materials, Malaysia (IMM).

2017 – Anugerah Pendidik Cemerlang (UniMAP)

2017 – Committee of X-Ray Applications, Malaysian Nuclear Society (Xapp Malaysia-MNS)

2017 – Committee of Materials Lecture Competition (MLC2017), Institute of Materials, Malaysia (IMM).

2016 – Committee of Malaysian Doctorate Association (MDA)

2016 – Committee of Materials Lecture Competition (MLC2016), Institute of Materials, Malaysia (IMM).

2015 – Anugerah Perkhidmatan Cemerlang (UniMAP)
2015 – Committee of Materials Lecture Competition (MLC2015), Institute of Materials, Malaysia (IMM).
2014 – Ikon Jelajah Saintis, Agensi Nuklear Malaysia, Kementerian Sains, Teknologi dan Inovasi
2009 - Committee of Young Engineer Section, Institute Engineers Malaysia, (YES, IEM)(Kedah, Perlis)
2008 - Construction Industry Development Board Malaysia (CIDB)
2006 – Anugerah Perkhidmatan Cemerlang (UniMAP)
2005 – Board of Engineers Malaysia (BEM)
2002 – Institute of Materials, Malaysia (IMM).

Journal Reviewer/Editor

RSC Advances, Royal Society of Chemistry
The Journal of The Minerals, Metals & Materials Society (TMS) (JOM)
Journal of Alloys and Compounds (JALCOM)
ARPJ Journal of Engineering and Applied Sciences

Research Funding:

Over the past fourteen years, extensive research funding has been received from the Universiti Malaysia Perlis and Ministry of Higher Education. Funding has been received for raw materials, testing fees and consultation. Together with a wide range of SEM/FESEM/XRD facilities.

Some Recent Individual Grants (exc. CoE Projects)

UniMAP Short Term Grant - Development of Novel Tin (Sn) Base Lead-Free Composite Solder Material From Recycled Aluminium (Feb 2012- Feb 2013)
KUKUM short term grant - Study of Aqueous Corrosion Behavior on Metal Matrix Composite. (2004 - 2005)

Selected Publications:

Over 200 journal and conference papers, book chapters and books.

Some Recent Publications

F Zainon, KR Ahmad, R Daud (2017). Effect of intermetallic phase on microstructure and mechanical properties of AA332/Mg₂Si(p) composite, AIP Conference Proceedings 1835 (1).

NHA Zaidi, SB Jamaludin, AMA Zaidi, KR Ahmad (2016). Semi empirical hardness predictive model for AZ91 nanocomposite, AIP Conference Proceedings 1756 (1).

F Zainon, KR Ahmad, R Daud (2016). The effects of Mg₂Si (p) on microstructure and mechanical properties of AA332 composite, Advances in Materials Research, 5 (1), 055-066.

SSM Saleh, HM Akil, MHA Kudus, KR Ahmad, NSAA Bakhtiar (2016). Effect of different hybrid method on properties of carbon nanotubes/dolomite hybrid filled phenolic composites, Procedia Chemistry, 19, 45-49.

AZ Nur Hidayah, JB Shamsul, KR Ahmad, AA Sinar, AMA Zaidi (2016). Ageing Response of Powder Metallurgy AZ91 and AZ91 Reinforced with Multiwall Carbon Nanotube, Materials Science Forum, 857, 261-265.

HT Naeem, KS Mohammed, KR Ahmad (2015). Effect of friction stir processing on the microstructure and hardness of an aluminum-zinc-magnesium-copper alloy with nickel additives, The Physics of Metals and Metallography 116 (10), 1035-1046.

HT Naeem, KS Mohammad, KR Ahmad, WMH Hussein (2015). The properties of aluminum alloys containing nickel, produced using powder metallurgy method, AIP Conference Proceedings 1660 (1), 070013.

R Mustaffa, I Nainggolan, TI Nasution, KR Ahmad, N Derman (2015). Roselle Blend Film Sensor (RBFS) for Detecting Fertilizer Concentration of Grape Tree. Applied Mechanics & Materials.

NHA Zaidi, SB Jamaludin, KR Ahmad, NA Halif, SA Adnan (2015). Effect of Heat Treatment on Hardness Behavior of AZ91 and AZ91 Reinforced Carbon Nanotube, Applied Mechanics and Materials 815, 79-83.

Books

Pengenalan Kepada Ujian Bahan Tanpa Musnah (2013), Mohd Arif Anuar Mohd Salleh, Khairrel Rafezi Ahmad, Dewi Suriani Che Halin, Siti Hawa Mohd Salleh, Muhammad Hafiz Zan, Penerbit UniMAP, ISBN 978-967-541547-0.

Pengenalan Bahan Komposit (2012) Khairul Rafezi Ahmad, Mohd Mustafa Al Bakri Abdullah, Che Mohd Ruzaidi Ghazali, Alida Abdullah, Shamsul Baharin Jamaluddin, Mohamed Faisal Mohamed Nor, Penerbit Universiti Malaysia Perlis., ISBN: 978-967-5415-29-6

Metallurgist Pocket Handbook (2011), Mohd Ichwan Nasoution, Khairul Rafezi Ahmad, Ruhiyuddin Mohd Zaki, Shamsul Baharin Jamaluddin, Mohd Fitri Muhammad Wahid, Penerbit UniMAP, ISBN 978-967-5415-21-0.

Quality and Management Planning Tools Basic QC Tools and New QC Tools (2008), Mohd. Mustafa Al Bakri., Prof. Dr. Zuraidah Mohd. Zain., Norazian Mohamed Noor., Khairul Rafezi Ahmad, Penerbit UniMAP, ISBN 978-983-44182-1-2.