

CURRICULUM VITAE



Mohd Zahirasri bin Mohd Tohir, PhD
 Department of Chemical & Environmental Engineering,
 Faculty of Engineering,
 Universiti Putra Malaysia,
 43400 UPM Serdang, Selangor

Website: zahirasri.github.io/web

Email: zahirasri@upm.edu.my

Education

1. PhD Fire Engineering, 2015, University of Canterbury, New Zealand.
 Thesis title: Multiple Vehicle Design Fire Scenarios in Car Parking Buildings
2. MEng (Hons) Chemical Engineering, 2009, University of Manchester, United Kingdom.

Areas of Interest

- Fire Safety Engineering, Risk Analysis, Probabilistic Analysis, Risk Assessment

Professional Qualification / Membership / Affiliation

- Regular Member, International Association of Fire Safety Science (IAFSS)
- Member, Institute of Chemical Engineers (IChemE)
- Graduate Member, Board of Engineers Malaysia (BEM)

Appointments

Position	Duration
1. Senior Lecturer, Department of Chemical & Environmental Engineering, Faculty of Engineering, UPM	November 2015 to date
2. Tutor, Department of Chemical & Environmental Engineering, Faculty of Engineering, UPM	February 2010 to November 2015
3. Research Assistant, Department of Chemical & Environmental Engineering, Faculty of Engineering, UPM	October 2009 to January 2010

Publications

Journals

1. **Tohir, M.Z.M.**, and Spearpoint, M., (2013) Distribution analysis of the fire severity characteristics of single passenger road vehicles using heat release rate data, *Fire Science Reviews* 2:5, <http://dx.doi.org/10.1186/2193-0414-2-5>
2. Spearpoint, M., **Tohir, M.Z.M.**, Abu, A.K., and Xie, P. (2015) Fire load energy densities for the risk-based design of car parking buildings. *Case Studies in Fire Safety*, Volume 3, 2015, Pages 44-50, ISSN 2214-398X. <http://dx.doi.org/10.1016/j.csfs.2015.04.001>
3. **Tohir, M.Z.M.**, and Spearpoint, M., (2017) The Capability of B-RISK Zone Modelling Software to Simulate BRE Multiple Vehicle Fire Spread Test. In: Mohamed Ali M., Wahid H., Mohd Subha N., Sahlan S., Md. Yunus M., Wahap A. (eds) *Modeling, Design and Simulation of Systems. AsiaSim 2017. Communications in Computer and Information Science*, vol 751. Springer, Singapore. https://doi.org/10.1007/978-981-10-6463-0_4
4. Zainuddin, N. A. and Tohir, **M. Z. M.** (2017) Egress time analysis for Ledang floating, production, storage and offloading unit using EvacuatioNZ. *Perintis eJournal* 7:1. Pp 20 – 30.
5. **Tohir, M.Z.M.**, Spearpoint, M., and Fleischmann, C.M., (2018) Prediction of time of ignition in a multiple vehicle fire spread experiment. *Fire and Materials* 42:1. pp 69-80.

<https://doi.org/10.1002/fam.2458>

6. **Tohir M.Z.M.**, and Spearpoint M. (2019) Probability of Fire Spread Between Vehicles in Car Parking Buildings. In: Pradhan B. (eds) Lecture Notes in Civil Engineering, vol 9. Springer, Singapore
7. Ali, S., Hussain, S. A., and **Tohir M.Z.M.** (2019) Fire Test and Effects of Fire Retardant on The Natural Ability of Timber: A Review. *Pertanika Journal of Science and Technology JST* Vol. 27 (2).
8. Akhyani, A. H. and **Tohir M.Z.M.** (2019) Tenability Analysis of Office Rooms Using Probabilistic Fire Load Energy Density Data. *Journal Of Advanced Research In Fluid Mechanics And Thermal Sciences* (in press)
9. Said, M.S.M and **Tohir, M.Z.M.** (2019) Prediction of Lithium-ion Battery Thermal Runaway propagation for Large Scale Applications Fire Hazard Quantification. *Processes* 2019, 7, 703.
10. A. K. Najeeb, **Tohir, M. Z. M.**, Said M. S. M. (2019) Quantitative risk calculation and ALOHA simulation towards leakage accident in natural gas power plant at Telok Gong, Malacca. *Perintis eJournal* Volume 9(1).
11. Tajudin M. A. S., **Tohir M. Z. M.** and Said M. S. M. (2020) Probabilistic assessment of off-the-shelf fire sprinkler Head activation time through laboratory experiments. *IOP Conf. Ser.: Mater. Sci. Eng.* 778 012075.
12. Rowshanaie O, **Tohir M. Z. M.**, Mustapha F., Ya'acob. M. E. and Rowshanaie H. (2020) Optimization and Analyzing of Subcritical Organic Rankine Cycle Using R1234ze(E) for Low and Medium Temperature Heat Source. *IOP Conf. Ser.: Mater. Sci. Eng.* 778 012074.
13. **Tohir M.Z.M.**, Spearpoint M., and Fleischmann C. (2020) Probabilistic design fires for passenger vehicle scenarios, *Fire Safety Journal*, In press, Journal pre-proof.
<https://doi.org/10.1016/j.firesaf.2020.103039>
14. Zermane A., **Tohir M.Z.M.**, Yusoff H.M., and Baharudin M.R. (2020) Analysis of the Contributing Factors for Fatal Accidents due to Falls from Heights in Malaysia and the USA, *Pertanika Journal of Science and Technology* 28 (S1), 15 - 36.
15. Ali, S., Hussain, S. A., **Tohir M.Z.M.** and Nuruddin M.A. (2020) Statistical Analysis of Malaysian Timber's Combustion data from Cone Calorimeter Test, *Pertanika Journal of Science and Technology* 28 (S1), 185 – 198.
16. Said M.S.M and **Tohir M.Z.M.** (2020) The effect of ultraviolet coating on containment and fire hazards of phase change materials impregnated wood structure, *Journal of Energy Storage* 32, 101727.
17. Ali, S., Hussain, S. A., **Tohir, M. Z. M.**, & Nuruddin, A. A. (2021). Investigation of kinetic decomposition characteristics of Malaysian wood species using Coats and Redfern (CR) method. *Materials Today: Proceedings*, 42, 178-185.
18. Ong, N.A.F.M.N. & **Tohir, M. Z. M** (2021) Investigation of The Effects of Photovoltaic (PV) System Component Aging on Fire Properties for Residential Rooftop Applications. *SFPE Europe Digital Magazine*
19. Malik, A. A., Nasif, M. S., Mokhtar, A. A., & **Mohd Tohir, M. Z.** (2021) Numerical investigation of the effect of weather conditions on the escalation and propagation of fire-induced domino effect. *Process Safety Progress*, e12251.
20. Hamid, M. R. A., Yaw, T. C. S., **Tohir, M. Z. M.**, Ghani, W. A. W. A. K., Sutrisna, P. D., & Jeong,

- H. K. (2021). Zeolitic imidazolate framework membranes for gas separations: Current state-of-the-art, challenges, and opportunities. *Journal of Industrial and Engineering Chemistry*.
21. Md Said, M. S., **Mohd Tohir, M. Z.** (2021) Characterisation of thermal runaway behaviour of cylindrical lithium-ion battery using Accelerating Rate Calorimeter and oven heating, *Case Studies in Thermal Engineering*, 2021, 101474.
 22. Gian, C.M., **Mohd Tohir, M.Z.**, Md Said, M.S., Tharima, A.F., Mohd Nizam Ong, N.A.F. and Ramali, M.R. (2021), "Effectiveness of travel time during evacuation in high-rise residential buildings: a case study in Selangor, Malaysia", *International Journal of Emergency Services*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJES-09-2020-0053>
 23. Mohd Nizam Ong, N. A. F., Sadiq, M. A., Md Said, M. S., Jomaas, G
 - 24.
 25. , **Mohd Tohir, M. Z.**, & Kristensen, J. S. (2021). Fault tree analysis of fires on rooftops with photovoltaic systems. *Journal of Building Engineering*, 103752. doi:10.1016/j.job.2021.103752

Conference Proceedings

1. **Tohir, M.Z.M.**, and Spearpoint, M., (2014) Development of Fire Scenarios for Car Parking Buildings using Risk Analysis. *Fire Safety Science* 11 (in press).
2. **Tohir, M.Z.M.**, and Spearpoint, M., (2014) Simplified approach to predict heat release rate curves from multiple vehicle fires in car parking buildings. Published in the Proceedings from the 3rd International Fires in Vehicles Conference, Berlin, Germany.
3. **Tohir, M.Z.M.**, and Spearpoint, M., (2017) Travelling fire spread between vehicles in car parking buildings. Published in the Proceedings from the 15th International Fire and Materials Conference, San Francisco, USA.
4. **Tohir, M.Z.M.**, and Spearpoint, M., (2017) Probability of Fire Spread Between Vehicles In Car Parking Buildings. *Global Civil Engineering Conference 2017*, UPM. Kuala Lumpur.
5. Othman, W.N.A.W. and **Tohir, M.Z.M.** (2017) A Study On Evacuation Time From Lecture Halls In Faculty Of Engineering, Universiti Putra Malaysia. 4th International Conference on Civil and Environmental Engineering for Sustainability. Langkawi, Kedah.
6. Rowshanaie O., **Tohir M.Z.M.**, Mustapha F., Ya'acob M.E. and Rowshanaie H. (2019) Optimization and Analyzing of Subcritical Organic Rankine Cycle Using R1234ze(E) for Low and Medium Temperature Heat Source, *Regional Symposium for Chemical Engineering*.
7. Tajuddin M.A.S and **Tohir M.Z.M.** (2019) Probabilistic assessment of off-the-shelf fire sprinkler head actuation time through laboratory experiments, *Regional Symposium for Chemical Engineering*.

Academic Talks

1. "The capability of B-RISK zone modelling software to simulate BRE multiple vehicle fire spread test" Presented at Society of Fire Protection Engineers' 2014 Engineering Technology Conference, Long Beach, California, USA.
2. "What is the probability of fire to spread in a car park?" Presented at Fire Protection Association New Zealand (FPANZ) FIRE NZ 2015 Conference and Exhibition, Wellington, New Zealand as International Speaker.
3. "Fire and Explosion Risk Management" Presented for Fire and Explosion Safety, Protection and Dynamic Risk for Petroleum and Process Plants, UTP, 2020.
4. "Fire and Explosion Risk Management" Presented for Fire and Explosion Safety, Protection and Dynamic Risk for Petroleum and Process Plants, UTP, 2021.



Teaching Experience

1. Engineering Mathematics 1 (ECC3001) – 2015/2016, 2016/2017, 2017/2018, 2018/2019, 2019/2020
2. Chemical Process Laboratory II (ECH3904) – 2015/2016 and 2016/2017
3. Pollution Control Engineering (ECH3501) – 2015/2016, 2016/2017, 2017/2018, 2018/2019
4. Dissertation Project course (ECH5988) – 2015/2016 and 2016/2017
5. Hazard Identification and Risk Assessment (ECH5502) – 2015/2016
6. Forensic Science (EAB5421) – 2015/2016 and 2016/2017
7. Fire Safety Engineering and Regulations (EMM5201) – 2017/2018, 2018/2019
8. Engineering Statistics (ECC3004) – 2017/2018

Professional Services

Editorial tasks:

- Guest Editor for Sains Malaysiana Special Issue (2019)
- Editorial Member for Asean Journal of Automotive Technology
- Editorial Member for Perintis eJournal

Journal manuscript reviewer for:

- Fire Safety Journal
- IEEE Access
- Journal of Chemical Engineering of Japan
- Journal of Engineering Science and Technology
- International Journal of Building Pathology and Adaptation
- Public Transport
- International Journal of Integrated Engineering
- Perintis eJournal
- Journal of Asian Architecture and Building Engineering
- JoVE Journal
- PERTANIKA Journal of Science and Technology
- IUM Engineering Journal

Conference reviewer for:

- TENCON 2017 - 2017 IEEE Region 10 Conference
- International Conference of Chemical Engineering & Industrial Biotechnology
- 26th Regional Symposium on Chemical Engineering
- 31st Symposium of Malaysian Chemical Engineers
- Loss Prevention Asia 2021

Committee member for:

- 26th Regional Symposium on Chemical Engineering
- 31st Symposium of Malaysian Chemical Engineers
- RCChE and ICICET 2021

Honours and Awards

- Recipient of Shell Global Solutions Asia Pacific scholarship for Bachelor degree study in the United Kingdom in 2005-2009
- Recipient of Malaysian Government Scholarship for PhD study in New Zealand in 2011
- Recipient of SILVER medal for Massive Online Open Competition course in 2018
- Top downloaded article 2017-2018 in Fire and Materials journal
- Recipient of Skim Kecemerlangan Penyelidik 2018 awarded by Universiti Putra Malaysia
- Invited to attend 2018 Summer Course: Data Mining on Air Pollution Modelling as Impacts of Forest Fires (MAPFire)
- Invited to attend Frontiers of Development organized by Royal Academy of Engineering, United Kingdom in 2019
- Invited to attend 2019 Humboldt Summer School
- Appointed as a jury for XFire Innovation Challenge organized by World Wildlife Fund (WWF)

2019 - 2021

Research Grants				
Project title	Role	Year	Source Fund	Amount (RM)
Fire spread assessment of passenger vehicles in car parks using computational fluid dynamics simulation	Project leader	2016-2018	Geran Putra Muda (GP-IPM)	55,000
Hybrid-micro vortex generator to control boundary-layer separation in subsonic flow	Member	2014-2017	RAGS (KPM)	74,000
Thermal Behaviour and Toxic Emission Of Commonly Use Timber In Malaysia Housing Industry	Member	2017-2019	Geran Putra	50,000
Fire Performance and Toxic Gas Emissions Of Commonly Used Timber In Malaysian Construction Industry	Project leader	2017-2019	Geran Putra IPS	24,000
Development of Fire Safety Guidelines for Photovoltaic (PV) solar panels installed on building structures	Project leader	2019 - 2022	AAIBE, MESTECC	1,000,000
Preparation and characterization of fire retardant coating using graphene/bamboo aerogel mixtures on SAR Robotics System	Project leader	2019 - 2021	Matching Grant, Geran Putra & CRG UTM 2019	40,000
Smart Robotics System for Search And Rescue	Member	2019 - 2021	CRG UTM 2019	160,000
Kajian Pembangunan Indeks Budaya Keselamatan Di Sektor Pembinaan	Member	2019 - 2020	NIOSH	90,000
3-Dimensional Modelling of Peat Thermal Decomposition for Prediction and Hazard Mitigation of Peat Forest Fire Propagation	Member	2020 - 2022	FRGS (KPM)	96,200

Students Supervision		
PhD as main supervisor		
2017/2018 - Present	Work at heights safety	Abderrahim Zermane
2016/2017 - Present	Applying Transcritical Organic Rankine Cycle Driven by Fluegas to Generate Optimum Power	Omid Rowshanaie
2019/2020 - Present	Pre-evacuation during fire emergencies	Abdelmoutaleb Noumeur
2020/2021 - Present	Peat fire suppression	Dayang Nur Sakinah Musa
2020/2021 – Present	Investigation of Burning Behaviour and Smoke Toxicity of Different Types of Photovoltaic Solar Modules of Different Ages	Mays Mahmood Mutlak



2020/2021 - Present	Investigation of Heat Release Rate for different Components of Photovoltaic System for Residential Application	Nur Fatin Aliah Mohd Nizam Ong
2021/2022 – Present	Assessment of probabilistic input on zone and field model simulations	Iffah Umairah
2021/2022 - Present	Assessment of Thermal Radiation Models Performance for Different Fuel Variants	Michael Chong Vui San
PhD co-supervision		
2016/2017 - Graduated	Combustion and Charring Properties of Common Wood Species in Malaysia	Sulaiha Ali
2016/2017 - Present	A Fuzzy Reliability with Monte Carlo Simulation And Integration With Supply Chain Management	Ahmad Fauzi Sagap
2018/2019 - Present	Numerical simulation of hydrogen explosion consequences	Najeeb Khalid
2018/2019 - Present	Optimization of Building Information Modelling (BIM) system with fire simulation and fire evacuation softwares	Nur Delisha Abdullah
2019/2020 - Present	Recovery of ceramics from aluminium oxide waste	Wang Jing Jing
2019/2020 – Present	Machine Learning for palm oil detection applications	Boon Cheong
2019/2020 - Present	High rise hospital evacuation research	Seif Abdullah
Master's with thesis supervision		
2019/2020 - Present	Air pollution prediction from a coal-fired generated electricity plant in Johor	Mohd Shahril Kamarudin
2020/2021 - Present	PV fire suppression study	Mohd Rashid Ramali
2019/2020 - Present	Hospital emergency evacuation simulation	Farah Wahida Mohd Razelan
Master's without thesis supervision		
2016/2017 Graduated	Quantitative Risk Calculation and Aloha Simulation Towards Leakage Accident In Natural Gas Power Plant At Telok Gong, Malacca	Najeeb Khalid
2016/2017 Graduated	Human Behavior: Evacuation Time of Fire Event At Lecture Hall Using Fds+Evac Simulation	Nur Amilia Zainuridin
2016/2017 Graduated	A Study on Evacuation Time From Lecture Hall In Faculty Of Engineering, UPM	Wan Nur Asnida
2015/2016 Graduated	Evaluation of risk and safety in kindergarten	Siti Salbiah Mutalib
2017/2018 Graduated	Tenability Analysis of Occupants in Single Office Rooms in Faculty of Engineering, Universiti Putra Malaysia	Abdul Haqeeem Akhyani
2017/2018 Ongoing	Fire load analysis in Kuala Lumpur International Airport	Ku Abdullah Ulwan Ku Sulong
2017/2018	Assessment of patients during evacuation at	Stephen Pardamean



Graduated	Adventist Hospital Bandung	Sitorus
2017/2018 Graduated	Fire alarm audibility assessment in Faculty of Engineering, UPM	Nur Syazalina Alias
2017/2018 Graduated	Study of pre-movement time of occupants in Malaysia	Emi Fariza Shukor
2017/2018 Graduated	Study of reliability of off-the-shelf fire sprinkler systems in Malaysia	Muhammad Afiq Tajuddin
2018/2019 Graduated	Evacuation from high-rise building using Pathfinder simulation software	Caleb Michaelangelo
2019/2020 Graduated	Fire risk assessment of PV solar panels on building structures	Adnan Sadiq
2019/2020 Graduated	Fire risk assessment of landfills	Abdella Obeid
2019/2020 Graduated	Investigation of Heat Release Rate at Difference Components of Photovoltaic System for Residential Application	Nur Fatin Aliah Mohd Nizam Ong
2020/2021	Knowledge, Attitude and Practice study on the use of PPE in industry	Hazrina Hasni
2020/2021	Consequence modelling of hydrogen storage leak in hydrogen fuel station using ALOHA	Lim Chee Ho

Final year undergraduate projects

2014/2015	Analysis of vehicle distribution in parking buildings	Anderson C. M., and Bell N. M. (University of Canterbury)
2015/2016	Simulation of fire spread between multiple objects	Muhamad Syahamin Zainal Abidin
2015/2016	Determining potential fuel loads in UPM Chemical Laboratories	Farah Amr
2016/2017	Computational fluid dynamics (CFD) simulation of hot water oil extraction from palm oil fruitlets	Nur Haninah Harun
2016/2017	Fire evacuation strategies for process industries e.g. Oil rig, refineries etc.	Adhraa Al-Balushi
2017/2018	Parametric characterization of Malaysian peat soil	Muhammad Adib Khliidi
2017/2018	Carbon content characterization of Malaysian peat soil	Muhammad Nazrin Najib
2018/2019	Parametric study of carbon monoxide emission from peat soil burning	Muhammad Imran Mukmin
2018/2019	Prediction of the ignition of household fabrics in a Malaysia living room setting	Afifah Jasni
2019/2020	Incremental Cancer Risk Assessment of Pollutants Emissions From Coal-Fired Power Plant by Using ALOHA Dispersion Modelling	Noorazmin Rasid



2019/2020	Thermal Decomposition of Malaysian Peat Soil using Thermogravimetric analysis	Hamidah Jamil
2020/2021	Benchmark simulation for fire spread experiments	Iffah Umairah
2020/2021	Assessment of Thermal Radiation Models Performance for Different Fuel Variants	Michael Chong Vui San

Referees

Dr. Michael Spearpoint,
Research Leader,
OFR Consultants,
Sevendale House, Lever St,
Manchester M1 1JA, United Kingdom.

Michael.spearpoint@ofrconsultants.com

Assoc. Prof. Dr. Mohd Razif Harun,
Head of Department,
Dept. of Chemical & Environmental Engineering,
Faculty of Engineering, UPM

mh_razif@upm.edu.my