



## CURRICULUM VITAE

### DR. MOHAMAD REZI ABDUL HAMID



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**Google Scholar** : Mohamad Rezi Abd Hamid (H-index = 13)  
**ResearchGate** : Mohamad Rezi Abdul Hamid  
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#### Education

- Ph.D. Chemical Engineering, 2019, Texas A&M University, College Station, TX, USA
- B.E. Chemical Engineering, 2012, Stevens Institute of Technology, Hoboken, NJ, USA

#### Research Interest

- Materials engineering, porous materials (e.g., metal-organic frameworks, zeolitic-imidazolate frameworks, zeolites), separation technologies, membranes, gas or liquid separation, process simulation, refinery process, energy

#### Professional Membership

- American Institute of Chemical Engineers (AIChE)
- North American Membrane Society (NAMS)
- Board of Engineers Malaysia (BEM)

#### Appointments

- Senior Lecturer, Dept. of Chemical and Environmental Engineering, UPM 2020–to date
- Process Executive (Attachment), PETRONAS GTS Refinery 2024–2025
- Teaching Assistant, Dept. Chemical and Environmental Engineering, UPM 2015–2016
- Operation Executive, AG Resources Sdn. Bhd. Blackhem Holdings 2013–2015

#### Journal Publications

- Integrated Computational and Experimental Investigation of Hybrid Mixed-Linker ZIF-7-8 Crystals for H<sub>2</sub>/CO<sub>2</sub> Separation. L Yang, M Abdul Razak, TSY Choong, **MRA Hamid**. Korean Journal of Chemical Engineering. 2026. 1-16 (IF 3.200)
- S Bathumaly, HC Man, N Hashim, R Omar, **MRA Hamid**. Investigation of Drying Behavior of Glutinous Rice (*Oryza Sativa* Var. *Glutinosa*) in a Fixed-Bed Dryer. ASEAN Journal of Chemical Engineering. 2025. 1 (Scopus)
- K Anand, **MRA Hamid**, MF Ismail, WAWAK Ghani, MA Razak. On the Selectivity and Self-Diffusion of CO<sub>2</sub> and H<sub>2</sub> in Mixed-Layer Zeolitic-Imidazolate Frameworks. Materials Science Forum. 2025. 1153 (Scopus)
- NNA Nuar, SNAM Jamil, TSY Choong, SI Mahadzir, IDM Azmi, MSM Basri, **MRA Hamid**. Optimized Degradation of Doxycycline in Aqueous Systems Using Calcium Peroxide Nanoparticles via Response Surface Methodology. ACS Omega. 2025. 10 (IF 4.300)

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- L. Yang, S. Park, WZ Han, M. Abdul Razak, LY. Zhen, M. Faires, R. Omar, TSY Choong, R. Rohani, **MRA Hamid**. Systematic Narrowing of ZIF-8 apertures via controlled 2-ethylimidazole doping for hydrogen/carbon dioxide separation. *Korean Journal of Chemical Engineering*. 2024 (IF 2.700)
  - V. Sooriyanarayanan, OY Wen, MZM Tohir, TSY Choong, M Abdul Razak, **MRA Hamid**. Hydrophobic and fire-resistant polydimethylsiloxane/ZIF-8 hybrid coating on cotton textile for efficient oil-water separation. *Journal of Applied Science and Engineering*. 2024. 17. (IF 1.300)
  - MS Mohd Shukor, R Omar, **MRA Hamid**, MR Harun, MS Md Said. Dispersion evaluation of H<sub>2</sub>S inclusion in a cryogenic distillation pilot plant. *Process Safety Progress*. 2024. (IF 1.000)
  - S Sinurat, RSRM Hafriz, SH Habib, A Salmiaton, S Izhar, **MRA Hamid**, S Sobri, NM Razali. Preparation of a single metal catalyst loaded on alumina support to refine waste tire pyrolysis oil (WTPO) via catalytic hydrogenation. *Journal of Analytical and Applied Pyrolysis*. 2023. 176. (IF 6.000)
  - NR Ahmad, L Yang, **MRA Hamid**, TI Mohd Ghazi, R Nasir, CP Leo, SP Koh, J Pasupuleti, SK Tiong. Unlocking the Potential of Metal-Organic Frameworks-Based Mixed Matrix Membranes for H<sub>2</sub> Separation and Purification. *Journal of Industrial and Engineering Chemistry*. 2023 (IF 6.100)
  - OY Wen, MZM Tohir, TCS Yeaw, MA Razak, HS Zainuddin, **MRA Hamid**. Fire-resistant and flame-retardant surface finishing of polymers and textiles: A state-of-the-art review. *Progress in Organic Coatings*. 2023. 175 (IF 6.206)
  - NH Harun, ZZ Abidin, UA Majid, **MRA Hamid**, AH Abdullah, R Othaman, MY Harun. Adopting Sustainable Jatropha Oil Bio-Based Polymer Membranes as Alternatives for Environmental Remediation. *Polymers*. 2022. 14. (IF 4.967)
  - NAB Kamaruddin, WAWAK Ghani, **MRA Hamid**, AB Alias, AB Shamsudin. Simulation And Analysis of Calorific Value for Biomass Solid Waste as A Potential Solid Fuel Source for Power Generation. *Journal of Applied Science and Engineering*. 2022. 26 (IF 1.300)
  - **MRA Hamid**, Y Qian, R Wei, Z Li, Y Pan, Z Lai, HK Jeong. Polycrystalline metal organic framework (MOF) membranes for molecular separations: engineering prospects and challenges. *Journal of Membrane Science*. 2021. 640. (IF 10.530)
  - **MRA Hamid**, TCS Yeaw, MZ Mohd Tohir, WAWAK Ghani, PD Sutrisna, HK Jeong, Zeolitic imidazolate framework membranes for gas separations: current state-of-the art, challenges, and opportunities. *Journal of Industrial and Engineering Chemistry*. 2021. 98 (IF 6.760)
  - F Hillman, **MRA Hamid**, P Krokidas, S Moncho, EN Brothers, IG Economou, HK Jeong. Delayed-linker addition (DLA) synthesis for hybrid SOD ZIFs with unsubstituted imidazolate linkers for propylene/propane and n-butane/i-butane separations. *Angewandte Chemie International Edition*. 2021. 60. (IF 16.823)
  - S Berens, F Hillman, **MRA Hamid**, HK Jeong, S Vasenkov. Influence of 2-ethylimidazole linker-doping in ZIF-8 crystals on intracrystalline self-diffusion of gas molecules by high field diffusion NMR. *Microporous and Mesoporous Materials*. 2021. 315 (IF 5.876)
  - **MRA Hamid**, HK Jeong. Flow synthesis of polycrystalline ZIF-8 membranes on PVDF hollow fibers for recovery of H<sub>2</sub> and propylene. *Journal of Industrial and Eng. Chemistry*. 2020. 88 (IF 6.760)
  - AB Makama, A Salmiaton, TSY Choong, **MRA Hamid**, N Abdullah, E Saion. Influence of parameters and radical scavengers on the visible-light-induced degradation of ciprofloxacin in ZnO/SnS<sub>2</sub> nanocomposite suspension: identification of transformation product. *Chemosphere*, 2020. 253 (IF 8.943)
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- **MRA Hamid**, S Park, JS Kim, YM Lee, HK Jeong. In-situ formation of zeolitic-imidazolate framework thin films & composites using modified polymer substrates. *Journal of Materials Chemistry A*. 2019. 7 (IF 14.511)
  - **MRA Hamid**, S Park, JS Kim, YM Lee, HK Jeong. Synthesis of ultrathin zeolitic-Imidazolate framework ZIF-8 membranes on polymer hollow fibers using a polymer modification strategy for propylene/propane separation. *Industrial Engineering Chemistry Research*. 2019. 58 (IF 4.326)
  - S Park, **MRA Hamid**, HK Jeong. Highly propylene-selective mixed-matrix membranes by in-situ metal-organic framework formation using a polymer-modification strategy. *ACS Applied Materials & Interfaces*, 2019, 11 (IF 10.383)
  - MJ Lee, **MRA Hamid**, J Lee, JS Kim, YM Lee, HK Jeong. Ultrathin zeolitic-imidazolate framework ZIF-8 membranes on polymeric hollow fibers for propylene/propane separation. *Journal of Membrane Science*. 2018. 559 (IF 10.530)
  - **MRA Hamid**, HK Jeong. Recent advances on mixed-matrix membranes for gas separation: opportunities & engineering challenges. *Korean Journal of Chemical Eng.* 2018. 35 (IF 3.146)
  - F Hillman, JM Zimmerman, SM Paek, **MRA Hamid**, WT Lim, HK Jeong. Rapid microwave-assisted synthesis of hybrid zeolitic-imidazolate frameworks with mixed metals & mixed linkers. *Journal of Materials Chemistry A*. 2017. 5 (IF 14.511)
  - ZZ Abidin, FM Yassin, MR Harun, MY Harun, HS Zainuddin, **MRA Hamid**, MAM Salleh. Video as e-learning approach for enhancing laboratory teaching in biochemical engineering - a Malaysia case study. *7th World Eng. Edu. Forum*, 2017, 222

#### Book Chapters

- **MRA Hamid**, M Abdul Razak, F Hillman. Role of metal-organic framework (MOF) composites in gas and liquid phase separation in Metal-organic framework composites: energy storage, catalysis, adsorption and drug delivery, 2026
- **F Hillman and MRA Hamid**. Characterization techniques for metal-organic frameworks (MOFs) and MOF composites in Metal-organic framework composites: energy storage, catalysis, adsorption and drug delivery, 2026

#### Conference Proceedings/Academic Talks

- **MRA Hamid**, MZ Arnan, Y Mohd Siran, MI Khairi, MS Baharudin. Process Digitalization of Steam Boiler Utilizing Palm Oil Mill Byproducts. 7th International Conference on Agricultural & Food Engineering, Langkawi, 2025
  - **MRA Hamid**. Plant Equipment Design. Undergraduate guest lecture. 2024. Xiamen University Malaysia Campus.
  - **MRA Hamid** & Mus'ab Abdul Razak. Aspen Plus simulation and heat exchanger network. Undergraduate guest lecture. 2023. Xiamen University Malaysia Campus.
  - LY Zhen, M Abdul Razak, TSY Choong, and **MRA Hamid**. Polysulfone mixed matrix membrane with highly dispersed 2-ethylimidazole doped ZIF-8 Crystals for Enhanced hydrogen/carbon dioxide separation. 2nd International Conference on Innovation in Chemical Engineering and Technology. UPM Malaysia, 2023
  - SJ Yee, M Abdul Razak, TSY Choong, and **MRA Hamid**. High performance ZIF-8-90/PDMS mixed matrix membrane for CO<sub>2</sub>/N<sub>2</sub> separation. 2nd International Conference on Innovation in Chemical Engineering and Technology. UPM Malaysia. 2023
  - **MRA Hamid**. Thin ZIFs/PDMS/PSF nanocomposite membrane for CO<sub>2</sub> capture. The World Research & Innovation Convention on Engineering & Technology. Terengganu. Malaysia. 2023
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- S Bathumaly, H Che Man, N Hashim, R Omar, **MRA Hamid**. Drying kinetics and mass transfer properties of glutinous rice (*Oryza sativa* var. glutinosa) in a fixed-bed dryer unit: experiment and simulation. 6th International Conference on Agricultural & Food Engineering. UPM. Malaysia. 2023
- **MRA Hamid** and HK Jeong. Polymer supported zeolitic imidazolate framework ZIF-8 molecular sieve membranes exhibiting high hydrogen permeability. 16th International Conference in Inorganic Membrane (ICIM16). Taiwan. 2022
- **MRA Hamid**. Aspen Plus simulation on distillation & adsorption process unit. Postgraduate guest lecture separation technologies & processes course. 2021. Xiamen University Malaysia.
- S Ali, TI Mohd Ghazi, **MRA Hamid**, MFM Gunam Resul. 1st International Conference on Innovation in Chemical Engineering and Technology (ICICET2021), Non-Citation-Indexed. International. 9789672659709. 1-168. 2021
- NH Harun, AH Abdullah, **MRA Hamid**, MY Harun, ZZ Abidin. A comparative study between various vegetable oil-based polyurethane membranes. 14th Regional Conference in Chemical Engineering and 1st International Conference on Innovation in Chemical Engineering and Technology. 2021
- **MRA Hamid**, F Hillman, HK Jeong. Polymer supported zeolitic imidazolate framework ZIF-8 molecular sieve membranes exhibiting high hydrogen permeability. 14th Regional Conference on Chemical Engineering (RCChE2021) and 1st International Conference on Innovation in Chemical Engineering and Technology. 2021.
- F Hillman, **MRA Hamid**, HK Jeong. Linker doping strategy for hybrid ZIFs and membranes for tunable gas separations. AIChE Annual Conference. Orlando. Florida. USA. 2021
- **MRA Hamid**, HK Jeong. A scalable method to synthesize zeolitic-imidazolate framework ZIF-8 membranes on polymer hollow fibers for propylene/propane separation. AIChE Annual Conference. Pittsburgh. Pennsylvania. USA. 2018
- **MRA Hamid**, MJ Lee, JM Lee, JS Kim, YM Lee, HK Jeong. Ultrathin zeolitic-imidazolate framework ZIF-8 membranes on polymer hollow fibers for propylene/propane separation. North American Membrane Society Conference. Lexington. Kentucky. USA. 2018
- MJ Lee, **MRA Hamid**, JM Lee, JS Kim, YM Lee, HK Jeong. Preparation of ZIF-8 membranes supported on polymer hollow fibers using microwave-assisted seeding and secondary growth. AIChE Annual Conference. Minneapolis. Minnesota. USA. 2017

### Patents and Copyrights

- HK Jeong, **MRA Hamid**. In-situ fabrication of metal-organic framework films and mixed-matrix membranes. US Patent. US11684894B2
- **MRA Hamid** et al. Transforming fish waste to pet food. Student module. Copyright. CRLY2024W03708 (Copyright)

### Research Grants

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|---|--------|-------------|------------|
| <ul style="list-style-type: none"> <li>• Vapor phase synthesis of molecular sieve hybrid zeolitic imidazolate framework (ZIF) membranes for H<sub>2</sub> purification and light hydrocarbon separations (<b>leader</b>)</li> </ul> | GP-IPM | 2020 – 2023 | RM 49,882  |
| <ul style="list-style-type: none"> <li>• Investigation of crystal nucleation, diffusion and sorption properties of isostructural dual-linker</li> </ul>   | FRGS   | 2021 – 2023 | RM 110,000 |

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SOD zeolitic-imidazolate frameworks crystal  
**(member)**

- Synthesis and characterization of nano calcium peroxide for pollutant removal **(member)**      GPB      2021 – 2025      RM100,000
- Accessing composite structure of high flux mixed matrix membranes for carbon capture application **(leader)**      GPB      2024 – 2026      RM125,000
- Correlations of surface functional groups on green-synthesized Hofmann metalorganic frameworks for suppressing CO<sub>2</sub> plasticization in polymeric membranes **(member)**      FRGS      2025 – 2028      RM136,800

### Community or Industry Projects/Grants

- Design and optimization of solid waste incinerator using Aspen Plus. Hijau Kitar Semula Sdn. Bhd. **(member)**      2020      RM5,000
- Palm oil mill modeling and simulation (phase 1 & phase 2). Sime Darby Plantation Research Sdn. Bhd. **(leader)**      2021      RM79,275  
2022      RM99,750
- Trash to treasure **(member)**      2022      RM8,000
- Blackhem Holdings Sdn. Bhd. performance evaluation, efficiency measurement, and optimization of thermal oil heaters **(leader)**      2026      RM20,000

### Professional Services (Journal Reviewer, Editorial Works, etc.)

- **Editorial board member/associate editor/guest editor**  
Early Career Editorial Board, Gas Science and Engineering (2026 – to date)  
Associate Editor, International Journal of Engineering and Technology FEIIC-IJET (2025 – to date)  
Associate Editor, Journal of Applied Science and Engineering (2022 – to date)  
Guest Editor, IOP Conference Series, Earth Environmental Science (2026)  
Guest Editor, Journal of Applied Science and Engineering (2021 – 2022)  
Guest Editor, Scientific.Net publisher (2023 – 2024)
  - **Journal reviewer (2020 – to date)**  
Scientific Reports, Journal of Industrial and Engineering Chemistry, Membranes, Polymers, Korean Journal of Chemical Engineering, Chemical Engineering Journal, Pertanika JST, Malaysian Journal of Analytical Science, Jurnal Kejuruteraan, Journal of Applied Science and Engineering, Journal of Water Process Engineering, Separation and Purification Technology
  - **Conference reviewer**  
6th Int. Conference on Agricultural and Food Engineering (2023)  
1st Int. Conference on Innovation in Chemical Engineering & Technology (2021)  
Kyushu Inst. of Tech. International Symposium on Applied Eng. & Sciences (2021)
  - **Conference committee**  
3rd Int. Conference on Innovation in Chemical Engineering & Technology (2026)  
2nd Int. Conference on Innovation in Chemical Engineering & Technology (2023)  
1st Int. Conference on Innovation in Chemical Engineering & Technology (2021)
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### **Teaching Experience**

- Engineering Seminar, Materials Science, Computer Aided Engineering Drawing, Computer Aided Chemical Engineering Drawing, Process Safety Laboratory, Integrated Design Project, Process and Plant Design, Material Engineering Laboratory, Process Design and Integration, Aspen Plus Process Simulation

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