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GRU2025

14/09/2023 / Unit Komunikasi Penyelidikan & Visibiliti, PTNCPI



The recipients of
PETRONAS Research Grant
(Hydrogen Programme)

Project entitled
**Advanced Catalytic System for
Hydrogen Production from Ammonia**

Amount received : **RM 923,472.00**

Members:

Assoc. Prof. Dr Mohd Lokman Ibrahim
(Faculty of Applied Sciences, UiTM Shah Alam) (Project Leader)
Assoc. Prof. Dr Mohamad Kamil Yaakob
(Faculty of Applied Sciences, UiTM Shah Alam)
Assoc. Prof. Dr Raja Razuan Raja Deris
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Ts. ChM. Dr Muhd Firdaus Kasim
(Faculty of Applied Sciences, UiTM Shah Alam)

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Dr Abdulkareem Alsultan
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ChM. Dr Asikin Mijan
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Mr Mohd Mumtas Ismail
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Mr Muhamad Faizal Omar
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from
Office of Deputy Vice-Chancellor (Research & Innovation)

Funded by PETRONAS Research Sdn. Bhd., the project titled “Advanced Catalytic System for Hydrogen Production from Ammonia” is dedicated to creating economically efficient catalysts for the conversion of ammonia (NH₃) into hydrogen (H₂). To achieve this goal, the investigation aims to evaluate the compatibility of various metals (specifically, Co, Mo, Fe, Cu, Zn, Mn) when integrated onto nickel foam (Ni-foam) catalyst substrates using computational Density Functional Theory (DFT).

This project, led by Associate Professor Dr. Lokman Ibrahim of the Faculty of Applied Sciences, involves practical validation through experimentation with a fixed-bed reactor to determine the ideal operational parameters that yield maximal H₂ production while minimizing energy consumption. Additionally, the 18-month duration of the project assesses the feasibility and longevity of the catalyst module incorporating M/Ni-foam catalysts and conducts a comprehensive techno-economic analysis to ascertain the financial viability of NH₃ decomposition employing these catalysts.

In essence, this study aspires to bring about a paradigm shift in hydrogen production by developing cutting-edge catalysts capable of substantially enhancing the efficiency of NH₃ decomposition. Through computational scrutiny, empirical validation, and economic evaluations, it endeavors to offer a sustainable and economically viable avenue for generating hydrogen from ammonia, thus making a significant contribution to the overarching objective of advancing clean energy production.

Congratulations to our dedicated researcher for their unwavering commitment and innovative spirit! 🌟💡 Your work not only elevates our institution but also brings us one step closer to a cleaner, greener future. 🌱💧

Congratulations to UiTM researchers!



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