

# Dr. Muhammad Arif

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**Research -gate:** [https://www.researchgate.net/profile/Muhammad\\_Arif143](https://www.researchgate.net/profile/Muhammad_Arif143)

**GoogleScholar:** <https://scholar.google.com/citations?hl=en&authuser=2&user=KQJxCJEAAAAJ>

## CAREER VISION

To pursue my career as a Researcher in the field of Hydrogen energy and its application for renewable energy storage and power production sectors.

## EDUCATIONAL QUALIFICATIONS

### PhD in Mechanical and Manufacturing Engineering

Royal Melbourne Institute of Technology, University, Melbourne, Australia

2017-2021

### Master's in Mechanical Engineering

National University of Science and Technology, Islamabad, Pakistan

2013-2015

### Bachelor's in Mechanical Engineering

University of Engineering and Technology, Peshawar, Pakistan

2009-2013

## TECHNICAL SKILLS

### Software

CFD	Matlab
Fluent	Pro-E
Gambit	ABAQUS
Autocad	Revit
Solidworks	Office
Origin	Catia
ANSYS	C++ coding

## PROJECTS

- **Ph.D. THESIS TITLE:** “A systematic approach to the simulation modelling and design of Proton Exchange Membrane Unitized Regenerative Fuel Cells with experimental comparison”
- **M.Sc. THESIS TITLE:** “Analysis of thermal demand from renewable energy sources for domestic buildings”
- **B.Sc. THESIS TITLE:** “Design & Fabrication of Speed Breaker for Power generation”

## Work Experience

1. **Assistant Professor at Mechanical & Manufacturing Engineering Department of Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur (April 2022 to date)**

### Job Responsibilities:

- i. Teaching of core Mechanical Engineering courses to BS and MS students
- ii. Supervision of BS final year projects and MS and PhDs research projects
- iii. Department representative of PAF-IAST Energy lab
- iv. Establishment of mechanical engineering labs

## 2. Post-Doctoral Research Fellow at RMIT University (February 2021-January 2022)

### Job Responsibilities:

I have worked as a Research assistant (Post-Doc) on a project titled: "A prototype portable, rechargeable and silent power supply based on a reversible hydrogen fuel cell", which was funded by Defence Innovation Hub, Australia. My responsibilities in this project were:

- i. Assisting in research in the DIH project, with emphasis on computer simulation modelling of the reversible fuel cell stacks and conduct of associated experiment.
- ii. Assisting in writing quarterly progress reports and milestone reports, focusing on the modelling and experimental work conducted.
- iii. Liaising with research students contributing to the projects.
- iv. Publishing of high-quality articles in high impact journals, consistent with RMIT's intellectual property obligations set out in the primary contract for the DIH project.
- v. Undertaking 10% teaching and learning activities appropriate to their areas of expertise.

## 3. Casual Lecturer/Tutor at RMIT University (2019-2021)

### Job Responsibilities:

- i. Conducting tutorials for students.
- ii. Guiding students in completing their assignments/projects.
- iii. Marking assignments and exams.

## 4. Lecturer at Mechanical Engineering department of Sarhad University of Information and Technology, Peshawar, Pakistan (September 2014- December 2015)

### Job Responsibilities:

#### *Taught the following courses:*

- i. Thermodynamics
- ii. Machine Design
- iii. Solid Mechanics
- iv. Project Management
- v. Industrial Management.

#### *Final Year Projects Supervised by me:*

- i. Design and fabrication of Solar powered Stirling Engine.
- ii. Optimization of aircraft wing using FEM

## Research and Publications

S.N.	List of Journal Articles	Status
1	"A systematic approach for matching simulated and experimental polarization curves for a PEM fuel cell". Arif, M., S.C.P. Cheung, and J. Andrews, <b>International Journal of Hydrogen Energy (Q1-IF: 5.816)</b> , 2020. 45(3): p. 2206-2223 <a href="https://doi.org/10.1016/j.ijhydene.2019.11.057">https://doi.org/10.1016/j.ijhydene.2019.11.057</a> .	Published
2	"The influence of hydrophobicity and porosity of the gas diffusion layer on mass transport losses in PEM fuel cells: A simulation study supported by experiment". Arif, M., S.C.P. Cheung, and J. Andrews, <b>Energy &amp; Fuels (Q1-IF:3.605)</b> , 2020. 34(10): p. 13010 -13022. <a href="https://doi.org/10.1021/acs.energyfuels.0c02596">https://doi.org/10.1021/acs.energyfuels.0c02596</a> .	Published

3	"Different Approaches Used for Modeling and Simulation of Polymer Electrolyte Membrane Fuel Cells: A Review". Arif, M., S.C.P. Cheung, and J. Andrews, <b>Energy &amp; Fuels (Q1-IF:3.605)</b> , 2020. 34(10): p. 11897-11915. <a href="https://doi.org/10.1021/acs.energyfuels.0c02414">https://doi.org/10.1021/acs.energyfuels.0c02414</a> .	Published
4	"Diagnostic analysis of a single-cell Proton Exchange Membrane Unitised Regenerative fuel cell using numerical simulation" Arif, M., S.C.P. Cheung, and J. Andrews, 2020. 46(57): p. 29488-29500 <b>special issue titled "Hydrogen Energy Systems" International Journal of Hydrogen Energy (Q1-IF: 5.816)</b> <a href="https://doi.org/10.1016/j.ijhydene.2020.11.165">https://doi.org/10.1016/j.ijhydene.2020.11.165</a> .	Published
5	"Numerical investigation of effects of different flow channel configurations on the 100 cm <sup>2</sup> PEM fuel cell performance under different operating conditions". Arif, M., S.C.P. Cheung, and J. Andrews, "SI:CCE-2021" of <b>Journal Catalysis Today (Q1-IF: 6.766)</b> <a href="https://doi.org/10.1016/j.cattod.2021.07.016">https://doi.org/10.1016/j.cattod.2021.07.016</a> .	Published
6	"Impact of Relative Humidity and Length-scale on the Performance of a Large PEM Fuel Cell". K. K. Lai , Arif, M.,S.C.P. Cheung, and J. Andrews, 2021. 11(4): p. 1609-1620. <b>International Journal of Renewable Energy Research</b> <a href="https://www.ijrer.com/index.php/ijrer/article/view/12475">https://www.ijrer.com/index.php/ijrer/article/view/12475</a> .	Published
<b>S.N.</b>	<b>List of Conferences</b>	<b>Status</b>
1	"Comparison between parallel and multi-serpentine channel 100 cm <sup>2</sup> PEM fuel cell". Arif, M., S.C.P. Cheung, and J. Andrews, <b>5<sup>th</sup> International Conference on Catalysis and Chemical Engineering (Virtual), February 22-26, 2021 (CCE-2021)</b>	Presented
2	"Diagnostic analysis of existing single-cell PEM URFC using numerical simulation" Arif, M., S.C.P. Cheung, and J. Andrews, <b>World Hydrogen Energy Conference 2020, Istanbul.</b>	Accepted
3	"Domestic buildings thermal demand from Renewable Energy Sources- A case study of UK"; <b>Proceedings of the 2015 International Conference on Operations Excellence and Service Engineering Orlando, Florida, USA, September 10-11, 2015.</b>	Published

#### Editor and Reviewer in International journals

##### Editor:

1. Topic editor for the Special Issue "Modelling and Simulation of PEM fuel cells" of Membranes journal; [https://www.mdpi.com/journal/membranes/topic\\_editors](https://www.mdpi.com/journal/membranes/topic_editors).

##### Reviewer:

1. Journal of Industrial and Engineering Chemistry
2. Polymers
3. Energy & Fuels

#### Awards and Certificates

1. RMIT-HEC Pakistan scholarship for PhD study.
2. Completion of 2018 Australia Grand Prix corporation-RMIT Redback Innovation Challenge (Winner), Awarded by: Strategic Innovation Unit, RMIT University.
3. Completion of RMIT Redback Innovation Challenge, Awarded by: Strategic Innovation Unit, RMIT University.
4. Networking and Project Management Skills, Awarded By: Community Appraisal and Motivation Program (CAMP).
5. How to Manage a Project Successfully, Awarded By: Sarhad University of Science and Technology, Peshawar.
6. Simulation Best Practices for Composite Materials in ANSYS, Awarded By: leap Australia.

## **Memberships and Networks**

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1. Member of Sustainable Hydrogen Energy Laboratory (SHEL) Research Group, RMIT University; <https://www.rmit.edu.au/about/schools-colleges/engineering/research/research-groups/shel/shel-team>.
2. Member of Space and Spatial Capability Cluster at RMIT (SASCCAR); <https://sites.rmit.edu.au/sasccar/the-network/people/muhammed-arif/>.
3. Lifetime member of Pakistan Engineering Council (PEC#MECH/27184).

## **HOBBIES**

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Event Management | Software Learning | Football | Movies | Photography | Cricket | Travelling

## **REFERENCES**

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References available upon request.