Publications

Journal Papers

1. Jefin F., Chaithra R, LM Shahid, A Sethi, **Harshal Agarwal**, S. Thawarkar, Vishal M Dhavale, Unveiling Halide Perovskites: An Emerging Electrocatalyst for Oxygen and Hydrogen Electrocatalysis, Adv. Sustain. Systems, 2025. https://doi.org/10.1002/adsu.202500713

2. Baskaran Mohan Dass, Ramya Padmanaban, Aparna Mahalingam, Neeshma Maniprakundil, Harshal Agarwal, Sreekuttan M. Unni, Vishal M. Dhavale and Santoshkumar D. Bhat*, Short-side-chain composite membranes with Polyaminobenzene sulfonic acid-enriched single-walled carbon nanotubes for polymer electrolyte fuel cells, RSC Applied Polymers, 2025, 3, 1376 - 1384. https://doi.org/10.1039/D5LP00172B

3. Felix Dittmar, **Harshal Agarwal**, Jens Tübke, Prognostics and health management (PHM) of proton exchange membrane water electrolyzers: A review-based guideline, International Journal of Hydrogen Energy 106 (2025) 806-824. https://doi.org/10.1016/j.ijhydene.2025.01.443

4. S. Thapa, **Harshal Agarwal**, V. Ganesh, A.K. Sahu, Electrochemical impedance spectroscopy analysis and thermal mapping of different cross-sectional cathode channels in open-cathode polymer electrolyte membrane fuel cell stack, J Power Sources 613 (2024) 234967. https://doi.org/10.1016/j.jpowsour.2024.234967

5. S. Thapa, V. Ganesh, **Harshal Agarwal**, A.K. Sahu, "Performance evaluation of cathode channels with different cross-sections for open-cathode polymer electrolyte membrane fuel cell stack", J Power Sources 603 (2024) 234398. https://doi.org/10.1016/j.jpowsour.2024.234398

6. **Harshal Agarwal***, A. U. Thosar, S.D. Bhat, A. K. Lele, "Interdigitated flow field impact on mass transport and electrochemical reaction in high-temperature polymer electrolyte fuel cell", J Power Sources 532 (2022), 231319. https://doi.org/10.1016/j.jpowsour.2022.231319

7. **Harshal Agarwal***, Ramendra Pandey, S.D. Bhat, "Improved polymer electrolyte fuel cell performance with membrane electrode assemblies using modified metallic plate: Comparative study on impact of various coatings", International Journal of Hydrogen Energy, Volume 45, Issue 37, 24 July 2020, Pages 18731-18742, https://doi.org/10.1016/j.ijhydene.2019.05.243

8. A. U. Thosar, **Harshal Agarwal**, Govarthan S. and A. K. Lele, "Comprehensive analytical model for polarization curve of a PEM fuel cell and experimental validation", Chemical Engineering Science, Volume 206, 12 October 2019, Pages 96-117; https://doi.org/10.1016/j.ces.2019.05.022

9. **Harshal Agarwal**, Vishnu R. Unni, K.T. Akhil, N.T. Ravi, S. Md. Iqbal, R.I. Sujith, Bala Pesala, "Compact standing wave thermoacoustic generator for power conversion applications", Applied Acoustics, Volume 110, September 2016, Pages 110-118; https://doi.org/10.1016/j.apacoust.2016.03.028

10. Ramendra Pandey, **Harshal Agarwal**, B. Saravanan, P. Sridhar, and Santoshkumar D. Bhat, "Internal Humidification in PEM Fuel Cells Using Wick Based Water Transport", Journal of The Electrochemical Society, Volume 162, 2015, Number 9; https://doi.org/10.1149/2.0621509jes

Conference Papers

11. S. Thapa, **H. Agarwal**, V. Ganesh, A.K. Sahu, Graphite based Flow Plates with different Cross-Sections Cathode Channels Designs for Open Cathode Fuel Cell Stack, National Workshop on Advanced Carbon Materials for Next Generation Energy Solutions (NWCM-February 20-21, 2025), CSIR-IIP, Dehradun.

12. S. Thapa, **H. Agarwal**, A.K. Sahu, EIS Analysis and Optimization Using AI for Different Cathode Channel Cross-Sections for Open Cathode Fuel Cell Stack, PRiME 2024 (October 06-11, 2024), Honolulu, Hawaii, USA.

13. S. Thapa, **H. Agarwal**, A.K. Sahu, Design and Analysis of Different Cathode Channel Cross-Sections for Open Cathode Fuel Cell Stack, 245th ECS Meeting (May 26-30,2024), San Francisco, CA, USA. (Digital presentation)

14. S. Thapa, **H. Agarwal**, A.K. Sahu, 3D, Two-Phase Multispecies Transport Model of PEM Fuel Cells (PEMFC), COMSOL Conference (November 30-December 1, 2023), Bengaluru.

15. S. Thapa, **H. Agarwal**, A.K. Sahu, Gaining Insights into Open Cathode PEMFC by Investigating Key Operating Parameters, in Proceedings of the National Symposium on Electrochemical Science and Technology (NSEST – August 17- 18, 2023), ARCI, Hyderabad.

16. S. Thapa, **H. Agarwal**, V. Ganesh, A.K. Sahu, Proton Exchange Membrane Fuel Cell and Machine Learning/ Artificial Intelligence, National Convention of Electrochemists (NCE), Coimbatore (August 26-27, 2022), PSG college of Technology, Coimbatore.

17. Ramendra Pandey, **Harshal Agarwal**, P. Sridhar, and Santoshkumar D. Bhat, “Wick based in-situ humidification in PEMFCs: A comparative study”.2014 1st International Congress on Computer, Electronics, Electrical, and Communication Engineering (ICCEECE2014), IPCSIT vol. 59 (2014), IACSIT Press, Singapore, DOI: 10.7763/IPCSIT.2014.V59.35