
Mahvash Afzal

Assistant Professor

Dept. of Mechanical Engineering, Islamic University of Science and Technology
Awantipora -192122, J&K, India
+91-8879121095
mahvash.afzal@iust.ac.in

Academic Summary

Phd 2015-2021	Energy Systems, IIT Bombay <i>Thesis: Metal Hydride-based Hydrogen Storage Reactor with Hexagonal Heat Transfer Enhancements</i>
M. Tech. (Hons.) 2011-2013	Aligarh Muslim University as a GATE scholar (AIR 2300), graduating with 82.16%
B. Tech. (Hons.) 2007-11	Mechanical Engineering, Aligarh Muslim University, graduating with 78.83%

Professional Summary

Roles and Responsibilities - University Level

Coordinator Dec 2023- Present	Centre for Industry 4.0, IUST
Dy. Director Jun 2023-Present	Directorate of Internal Quality Assurance, IUST
Member, Coordination Committee Oct 2023-Present	Unnat Bharat Abhiyan, IUST
Member, Advisory Committee Apr 2024 - Present	Centre for Renewable Energy System and Technology
Member Feb 2023 - Present	Technology and Business Incubation Centre (TBIC), CIED
I/C Head Jan 2022-Dec 2023	Dept. of Mechanical Engg., IUST
Assistant Professor Apr 2018- Present	Dept. of Mechanical Engg., IUST

Roles and Responsibilities - Department Level

Present Roles :

- Research Coordinator
- Coordinator - Students' Club - DynaMecX
- Member, Departmental Academic Affairs Committee (DAAC)
- Member, Departmental Purchase cum Technical Committee (DPTC)
- Member, Departmental Consultancy Committee
- In charge Heat Transfer Lab

Previous Roles:

- B.Tech Project Coordinator
- Timetable Coordinator
- Co-incharge Examinations
- In charge Fluid Mechanics Lab
- In charge Energy Systems

Publications (reverse chronological order)

Journal Articles

- Muthukumar, P., et al. "Review on large-scale hydrogen storage systems for better sustainability." *International Journal of Hydrogen Energy* (2023). <https://doi.org/10.1016/j.ijhydene.2023.04.304>, (IF- 7.2)
- Gupta, Nandlal, et al. "Experimental studies on novel multi tubular reactor with shell having integrated buffer storage." *Journal of Energy Storage* 67 (2023): 107491. <https://doi.org/10.1016/j.est.2023.107491> (IF- 9.4)
- Afzal, Mahvash, et al. "Transient simulation studies on a metal hydride based hydrogen storage reactor with longitudinal fins." *Journal of Energy Storage* 51 (2022): 104426. <https://doi.org/10.1016/j.est.2022.104426>, (IF- 9.4)
- Afzal, Mahvash, and Pratibha Sharma. "Design and computational analysis of a metal hydride hydrogen storage system with hexagonal honeycomb based heat transfer enhancements-part A." *International Journal of Hydrogen Energy* 46.24 (2021): 13116-13130. <https://doi.org/10.1016/j.ijhydene.2021.01.135> (IF- 7.2)
- Afzal, Mahvash, et al. "Experimental analysis of a metal hydride hydrogen storage system with hexagonal honeycomb-based heat transfer enhancements-part B." *International Journal of Hydrogen Energy* 46.24 (2021): 13131-13141. <https://doi.org/10.1016/j.ijhydene.2020.11.275> (IF- 7.2)
- Afzal, M. and Sharma, P., "Design of a large-scale metal hydride based hydrogen storage reactor: simulation and heat transfer optimization", *International Journal of Hydrogen Energy*, 2018. <https://doi.org/10.1016/j.ijhydene.2018.05.084> (IF- 7.2)

- Afzal, M et al, “Heat transfer techniques in metal hydride hydrogen storage: A review”, *International Journal of Hydrogen Energy*, 2017. <https://doi.org/10.1016/j.ijhydene.2017.10.166>, (IF- 7.2)

Conferences

- Afzal, M et al, “*Effect of Addition of Graphite Nanoparticles on Hydrogen Absorption in MmNi4.5Al0.5*”, 1st International Conference on Advances in Heat Transfer and Fluid Dynamics (AHTFD-22), Aligarh Muslim University, Aligarh, India, 2022.
- Afzal, M et al, “*Heat and Mass Transport in a Metal Hydride based Hydrogen Storage Reactor with Hexagonal Heat Transfer Enhancements*”, 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference, IIT Madras, Chennai, Tamil Nadu, India, 2021.
- Afzal, M. and Sharma, P. “*Modelling and Simulation of a Hydrogen Storage Reactor Including Expansion Volume Effects*”, 6th European PEFC and Electrolyser Forum, Lucerne, Switzerland, 2017.

Book Chapter

- Afzal, Mahvash. "Metal hydride hydrogen storage: A systems perspective." *Towards Hydrogen Infrastructure*. Elsevier, 2024. 257-272.

Projects

S.no.	Project	Designation	Funding Agency	Date of sanction	Grant in Aid	Status
1.	Insulation of Concrete House in Kashmir: A Thermo- Economic Analysis	PI	JKSTIC	29-12-2023	3,50,000	On-going

Patents

- 1. Sharma Pratibha, 2. Gupta, Nandlal, 3. Tiwari Saurabh, 4. Nitin, 5. Afzal, Mahvash, A Multi-tubular Metal Hydride Reactor with Integrated Buffer Storage, Patent no. 439468

Workshops and Seminars Attended

S.no	Title	Organizer	Place	Date	Mode
1.	Emerging Trends Based on Artificial Intelligence and Machine Learning in Food Processing	Dept of Food Tech, IUST	IUST, Awantipora	23.03.- 25.03.2022	Offline

2.	4th Faculty Induction Program	Aligarh Muslim University, Aligarh	Aligarh	08.02-12.03.2023	Online
3.	Biomass Valorization and Lifecycle Assessment	Centre for Rural Development and Technology, IIT Delhi	Delhi	01.12. - 05.12.2020	Online
4.	Academia Conclave on Hydrogen and Fuel Cells (Invited Participant)	DST, GoI	IISER Thiruvananthapuram	27.02 - 28.02.2020	Offline

Invited Lectures

- *Characterization of Hydrogen Storage Material* for the ATAL-FDP on **Thermal Characterization and Advanced Measurement Techniques**, March 23, 2023, NIT Srinagar.

PhD Supervision

- Ishfaq Ahmed Ganaie (IUST0123017804)

Courses Taught

- Heat Transfer
- Fluid Mechanics
- Refrigeration and Air-conditioning
- I.C. Engines
- Thermo-fluid Lab
- Heat Transfer Lab

Research Interests

- Design of Energy Systems
 - Hydrogen Energy Storage
-