

CURRICULUM VITAE

DR. AHMAD HUSSAIN

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Biography

Dr. Hussain has bachelors in Mechanical Engineering from NED University of Engineering & Technology, Karachi in 1989. After completing the Masters in Nuclear Engineering from Quaid-e-Azam University, Islamabad, Pakistan, he joined Karachi Institute of Power Engineering in 1991 which is an affiliated with PIEAS, Islamabad. Dr. Hussain was associated with this institute as a faculty member and researcher until 2010. In 2002, he was awarded Commonwealth Scholarship for Ph.D in Mechanical Engineering. During my Ph.D, he had designed and fabricated my combustion test rig and did a number of experiments on that rig for low grade coal combustion and gasification. During his stay in Malaysia, he was involved in a number of research projects for state owned giants like SIRIM Berhad and Tenaga Nasional Berhad. Dr Hussain moved to Saudi Arabia in December 2010 and have worked for King Abdul University at Jeddah Campus for about five years during which he acquired research funding for various research projects whose details will follow later in his resume. Dr. Hussain has recently got a US patent accepted a patent number has been issued. After his return to Pakistan in 2016, he joined as Tenure Track Professor at NED University, Karachi. Dr. Hussain has more than 2 years of post Ph.D experience and a total teaching experience of 27 years.

During his stay at King Abdulaziz University, Jeddah, KSA, he worked as Advisor Research for two years. During this period he organized the research publications work at KAU which helped the University to climb up in QS Rankings. A number of grants were also secured during this period. Later on I was actively involved in the ABET accreditation process. Worked as Director, ORIC at SZABIST, Karachi. A number of startups were initiated our which were supported by private companies. Also handling a grant of about 81 Million Pak Rupees on Predictive Analytics Lab. SZABIST has won a TDF grant of 14 M to make documentaries Highlighting H.E.C/T.D.F Success Stories. This is the video documentary project. Currently working as Professor, Department of Mechanical Engineering, Suffa University, Karachi

WORK EXPERIENCE (Total Teaching/Administrative and Research Experience of 27 Years)

- DHA Suffa University, Karachi (August 2020 – to date) working as Professor
- SZABIST, Karachi (Mar. 2018 --- July 2020) Working as Director, ORIC
- Hamdard University, Karachi (Nov 2017 – Feb 2018) - Professor
- NED University of Engineering & Technology, Karachi. (June 2016 – Oct 2017- 1.5 years) - TTS Professor
- King Abdulaziz University (QS Ranked 50 in Asia), Jeddah, Saudi Arabia (2011-2015 – 5 years) Research Advisor/ Professor
- Karachi Institute of Power Engineering (KINPOE, PIEAS) (From 1991-2010- 19 years) – Head Mechanical
- Faculty Member University Technology Malaysia, Johor Bharu Malaysia (2006-2007) – Research Associate

ACADEMICS

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|----------------------------|-------------------------------------------------------------------------------------------------------|------|
| Ph.D (Thermo-fluids) | University Technology Malaysia, Johor, Malaysia | 2006 |
| M.Sc (Nuclear Engineering) | Centre for Nuclear Studies, Pakistan Institute of Engineering & Applied Sciences, Islamabad, Pakistan | 1991 |
| B. E. (Mechanical) | NED University of Engineering & Technology, Karachi., Pakistan | 1988 |

PROFESSIONAL AFFILIATIONS

- ◆ Member of the Accreditation Committee of the Pakistan Engineering Council to visit various engineering universities for zero visits or follow up visits and OBE accreditation visits.
- ◆ Member of the Expert Committee of HEC for Scientific and Engineering Journals – attended various meetings in Islamabad
- ◆ Registered as Professional Engineer with Pakistan Engineering Council, Islamabad, Pakistan (Life Member)
- ◆ Member, American Society of Mechanical Engineers (ASME)
- ◆ Member, Society of Petroleum Engineers (SPE), USA
- ◆ Member IASTED, Canada

27 YEARS OF PROFESSIONAL & ADMINSTRATIVE EXPERIENCE

Worked for about 20 years at Karachi Nuclear Power Complex which is first installed nuclear power plant of Pakistan. I was involved in addressing design related issues of the plant in addition to teaching professional courses related to Plant. Before coming to Saudi Arabia, I was working as Head, Mechanical at KINPOE/PIEAS.

1. Ph.D. Research Project on Circulating Fluidized Bed Coal Combustor

The purpose of this study is to investigate the hydrodynamic behavior and thermochemical performance of biomass and coal blends in a Circulating Fluidized Bed (CFB), which is an upcoming technology in Malaysia. Thermochemical studies for palm shell wastes and coal blends were done in a hot circulating fluidized-bed (CFB) test rig, installed at SIRIM Berhad, Shah Alam,

2. Consultation Work For SIRIM Berhad, Malaysia On Municipal Waste Combustion

A consultation work was done for SIRIM Berhad, Shah Alam on the project titled “**Computer modelling of a municipal solid waste combustor for different fuel mixtures**” from May-July 2004. Numerical simulations of the flow field inside the primary and secondary combustion chambers provided the temperature profiles and the concentration data at the nodal points of computational grids. Parametric study was also done to minimize the NO_x emissions.

3. Consultation work for Tenaga Nasional Berhad, Malaysia on Combustion Simulation for Palm Olein Blended Fuel

Work related to experimental and combustion simulation was done for TNB from September 2004 – April 2005 on a project titled “**Experimental and simulations studies of combustion test firing of blended palm olein-distillate oil in laboratory combustion test rig**”. As far as the temperature distribution, flame structure and NO_x emissions are concerned; it is not useful that the palm olein blending should be used in excess of 40%. For high blended fuel, the excessive soot particles may cause damage to turbine blades.

4. Consultation Work for SIRIM Berhad, Malaysia on Combustion Studies of Oil Palm Shell Waste

A joint research project is being initiated in June 2005 between Faculty of Mechanical Engineering, UTM and SIRIM Berhad, Shah Alam to investigate efficient combustion method for solid wastes in Malaysia. Circulating fluidized-bed technology is considered to be one of the most suitable techniques to thermally convert different fuels into useful energy. The purpose of the tests is to investigate the suitability of the selected fuels for energy production using CFBC while taking care of the flue gas emissions.

5. Quality Assurance Criteria For Managers In Energy Sector

This research was done to develop energy conservation culture in our society and also prepare manpower for designated posts such as energy officers, energy auditors and energy managers. The importance of energy management and conservation will help to withstand nation in upcoming competitive industrialized global environment. Certification methodology for energy officers, energy auditors and energy managers is designed particularly for Pakistani working environment along with the accreditation

of institutes in private sector which will provide training and carry out official energy audits.

6. Nuclear Desalination

There is a grown interest in the area of nuclear desalination i.e., the production of freshwater via seawater desalination using nuclear energy using nuclear generating units. A number of countries are currently engaged in this activity. A nuclear desalination demonstration facility (4,500 m³/d MED coupled to a PHWR) in Karachi, Pakistan is currently working under testing phase. Techno-economic feasibilities are being done to make nuclear desalination a viable option is being done now which is important for coastal countries, which are suffering or will soon suffer serious water shortages.

RESEARCH GRANTS

The following funded projects were done during my stay at King Abdul Aziz University.

- i. Energy Management Studies of Faculty of Engineering at King Abdul Aziz University, Rabigh, Saudi Arabia (**SR 50,000** KAU Funded Project, Already Completed)
- ii. Pyrolysis and devolatilization behavior of Palm dates wastes (KAU Funding available – **SR 50,000**, Completed)
- iii. Pyrolysis process development and surface chemical treatment of palm wastes based activated carbon to improve its adsorption capacity in industrial wastewater treatment process (KACST Funded Project – **2 Million SR**)
- iv. Hydrodynamic and fluidization behavior in a Circulating Fluidized Bed Riser (KAU Funding Available – **SR 50,000**, Completed)

United States PATENT:

Iqbal Ahmed, Ahmad Hussain, Hani Hussain Sait (2017) HIGH PERFORMANCE MINI-PUMP FOR LIQUIDS, United States Patent Application Publication, Pub. No.: US 2017/0184122 A1; Pub. January, 2019

SELECTED IMPACT FACTOR JOURNALS PUBLICATIONS

1. Asifa Bashir, Farzana Hanif, Ghazala Yasmeen, Fazal Mabood, Ahmad Hussain, Naseem Abbas, Ammar Bin Yousaf, Muhammad Aamir, Suryyia Manzoor (2019) Polyaniline based magnesium nanoferrite composites as efficient photocatalysts for the photodegradation of Indigo Carmine in aqueous solutions, Desalination and Water Treatment, doi:10.5004/dwt.2019.24394, Accepted Article 7-6-2019,
Impact Factor = 1.383

2. Ahmad Hussain, Iqbal Ahmad, Mahrukh Zaidi (2019) The Importance of Seawater Intake and Its Treatment Techniques for RO Desalination Plant, Pakistan Journal of Scientific and Industrial Research, PCSIR, Scientific Information Centre. Accepted Article in Press. **(HEC – Y Category Journal) Accepted 5-3-2019**
3. Ahmad Hussain, Faraz Junejo, Muhammad Nauman Qureshi, Afzal HAque (2019) Hydrodynamic and combustion behavior of low-grade coals in the riser of a circulating fluidized bed combustor, NUST Journal of Engineering Sciences, Accepted Article in Press. **(HEC – X Category Journal) Accepted 10-3-2019**
4. Lubna Khilaid, Ahmad Hussain (2019) From Theory to Practice: Classroom Application of Outcome-Based Education in SZABIST Schools at Larkana, Pakistan, 3rd International Social Sciences and Humanities Berlin Conference, Berlin, 02-05 May, 2019
5. Ahmad Hussain, Syed Murtuza Mehdi, Amjad Ali, Muhammad Adeel, Mohammed Hassan Jabal, Farid Nasir Ani (2018) Investigation of tribological characteristics of castor oil with mineral oil blends, First online 23 October (2018), Journal of Engineering and Applied Sciences (JEAS), Vol 37 No 1 (**HEC Recognized X – Category Journal**)
6. Farhad Ali, Ahmad Hussain, Yasmin Nergis,, Mughal Sharif, Sadaf Faryal Shah, Absar Ahmed Khan (2018) Impact of Eutrophication on Shallow Marine Water near Karachi , Coast, Pakistan, Proceedings of the Pakistan Academy of Sciences: Pakistan Academy of Sciences B. Life and Environmental Sciences 55 (2): 27–36 **(HEC – Y Category Journal)**
7. Shamooun Jamshed, Shafiq Rehman Qureshi, Aqueel Shah, Ahmad Hussain (2018) Investigation of Entropy Generation Rate and its Minimization in Helical Grooved Tubes, Journal of Mechanical Science and Technology (Springer), Accepted Article. **Impact Factor = 1.194**
8. Maaz Akhtar, Sayyad Zahid Qamar, Syed Murtuza Mehdi, Ahmad Hussain (2018) Diffusion-based swelling in elastomers under low- and high-salinity brine, Journal of Elastomers & Plastics, 51 (1): 75-84, First Online 9 September 2018 **(IF = 0.783)**
<https://doi.org/10.1177/0095244318796622>
9. Ahmad Hussain, Murtuza Mehdi, Maaz Akhtar, Farid Nasir Ani, Iqbal Ahmed (2018) Combustion Performance of Diesel Palm Olein Fuel: A Combined CFD and Experimental Approach, Arabian Journal for Science and Engineering, Volume 43, Issue 3: pp 1291–1300 <https://doi.org/10.1007/s13369-017-2823-5> **Impact Factor = 0.86**
10. Ahmad Hussain, Syed Murtuza Mehdi, Amjad Ali, Muhammad Adeel, Mohammed Hassan Jabal, Farid Nasir Ani (2018) Investigation of tribological characteristics of castor oil with mineral oil blends, Journal of Engineering and Applied Sciences (JEAS), Vol 37 No. 1 **(HEC Recognized X – Category Journal)**
<https://journals.uetjournals.com/index.php/JEAS/article/view/2688>
11. Farhad Ali, Ahmad Hussain, Yasmin Nergis, Mughal Sharif, Sadaf Faryal Shah (2018) Impact of Eutrophication on Shallow Marine Water near Karachi Coast, Pakistan, Proceedings of the Pakistan Academy of Sciences, 55 (2): 27–36 (**HEC Recognized X – Category Journal**) <http://www.paspk.org/proceedings/>
12. Murtuza Mehdi, Maaz Akhtar, Ahmad Hussain, Muhammad Nauman, Dheya Shuja Alothmany, Iqbal Ahmed and Kyung-Hyun Choi (2017) Dip coated stretchable and

bendable PEDOTPSS films on low modulus micro-bumpy PDMS substrate, Journal of Polymer Engineering, Published ahead of printing, <https://doi.org/10.1515/polyeng-2017-0081>

Impact Factor = 0.66

13. Ahmad Hussain, Murtuza Mehdi, Maaz Akhtar, Farid Nasir Ani, Iqbal Ahmed (2017) Combustion Performance of Diesel Palm Olein Fuel: A Combined CFD and Experimental Approach, Arabian Journal for Science and Engineering, **Accepted Article in Press.**
Impact Factor = 0.86
14. Yasmin Nergis, Mughal Sharif, Ahmad Hussain, Jawad A Butt1 and Yusra Tahir (2017) Reed Bed Technology and Recharging on Groundwater: Mitigating the Climate Effect of Coastal Areas, Journal of Earth Science & Climatic Change 8:7, DOI: 10.4172/2157-7617.1000406 **Impact Factor = 1.06**
15. Ahmad Hussain, Shahid Ali, Iqbal Ahmed, Jolius Gimbut, Muhammad H. Albeirutty and Zulfiqar Ahmad Rehan (2016) Microwave Reinforced Transesterification of Rubber Seed Oil Using Waste Cement Clinker Catalyst, Current Nanoscience Volume 12 (E-pub ahead of print). **Impact Factor = 1.096**
16. Syed Murtuza Mehdi, Maaz Akhtar, Ahmad Hussain (2016) CFD Study of Liquid Sodium inside a Wavy Tube for Laminar Convectors: Effect of Reynolds Number, Wave Pitch and Wave Amplitude, Mathematical Problems in Engineering, Volume 2016, Article ID 6146195, 7 pages
<http://dx.doi.org/10.1155/2016/6146195>
Impact Factor = 1.381
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Impact Factor = 0.4
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21. Dheya Shujaa Al-Othmany, Ahmad Hussain, Essam Banoqitah (2015) High-Level Radioactive Waste Storage Feasibility for the Kingdom of Saudi Arabia Arabian

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25. Abdullah Alshehri, Ahmad Hussain, Yousof Almubarak (2014) Energy Conversion Measures in the Industries of Saudi Arabia and Development of Methodology for Certification of Energy Personnel in the Kingdom, **Energy Policy (Elsevier) 64: 203-208** **Impact Factor = 3.382**
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30. Ahmad Hussain, Iqbal Ahmed, Hani Hussain Sait, Mohamed Ismail Basayoni, Hegab, Abdelkarim Morsy Hegab, Syed Waheed, Farid Nasir Ani (2013) An Experimental and Simulation Study of Fluidization Behavior of Palm Biomass in a Circulating Fluidized Bed Riser, Industrial & Engineering Chemistry Research 52: 17529–17537 DOI: 10.1021/ie401856b **Impact Factor = 2.206**
31. F. A. Abolaban, M. A. Najem, Ahmad Hussain, Majdi Alnowaimi, David Bradley (2013) Improving MVCBCT image quality using a Cu target with flattening filter-

- free LINAC, Life Sci J 2013;10(4):1624-1628]. (ISSN:1097-8135).
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33. Iqbal Ahmed, Ani Idris, Ahmad Hussain, Zainal A.M. Yusof, Muhammad Saad Khan (2013) Influence of Co-solvent Concentration on the Properties of Dope Solution and Performance of Polyethersulfone Membranes, **Chemical Engineering & Technology** (Wiley –VCH Verlag GmbH), 36 (10): 1-9
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34. Skakaib, M., Iqbal, A., Rosli M. Yunus, Ani Idris, **Hussain, A.** (2013) Influence of Monosodium Glutamate Additive on Morphology and Permeability Characteristics of Polyamide Dialysis Membrane, **Journal of Applied Polymer Science, Vol. 128, Issue 5: 3346-3355 DOI: 10.1002/APP.38377 Impact Factor = 1.395**
35. Hani H. Sait, **Ahmad Hussain**, Arshad Adam Salema, Farid Nasir Ani (2012) Pyrolysis and combustion kinetics of date palm biomass using thermogravimetric analysis, **Journal of Bioresource Technology (Elsevier), 118: 382-389 Impact Factor = 4.75**
36. Abdelkarim Morsy Hegab, Hani HussainSait, Ahmad Hussain, Ashraf Balabel, Mahdi Almutawa, Fathi Djouider. Modeling Of Microscale Solid Rocket Composite Propellant. Life Sci J 2013; 10(4): 523-531]. (ISSN:1097-8135).
<http://www.lifescienceite.com>.
Impact Factor = 0.167
37. Mahdi AlMutawa, Ahmad Hussain, Abdekarim Morsy Hegab, Faheem Hassan Akhtar. Feasibility Studies of Solar Assisted Desalination Technology for the Coastal Areas of Rabigh Using Multi Effect Desalination Method and Its Lab-Scale Demonstration. Life Sci J 2013;10(3):2691-2697]. (ISSN: 1097-8135).<http://www.lifesciencesite.com>. **Impact Factor = 0.167**
38. Dheya O,Ashraf S, Ahmad H. Gamma Rays Transmission Densitometry of Distillation Columns and Development of a Computerized Expert System for Faulty Analysis, Life Sci J 2013;10(2):1613-1618]. (ISSN:1097-8135).
<http://www.lifesciencesite.com>. 228 **Impact Factor = 0.167**
39. **Iqbal, A., Hussain,A., I, Hasani, S.M.F., Shakaib, M., Yunus, R.M.** (2012) Computational modeling for visualization of flow patterns in a membrane testing device, **Journal of Separation and Purification Technology 90: 1-9 Impact Factor = 3.52**
40. Iqbal Ahmed, Ahmad Hussain, Hani Hussain Sait (2017) High Performance Mini-Pump for Liquids, United States Patent Application Publication # US 2017/0184122 A1, Published 29 June 2017.

NON Impact Factor

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Indexed in SCOPUS
42. Yasmin Nergis, Mughal Sahrif, Abdul Hameed Memon, Dheya AlOthmany, Khawar Naveed, Ahmad Hussain (2016) Ecosystem Approach And Hydrological Potential Study Of Port Qasim Industrial Coastal Zone Of Karachi Pakistan, Journal of Civil and Environmental Research, ISSN (Paper)2224-5790, ISSN (Online)2225-0514, Vol. 8 No. 2: 18-26 **Indexed in SCOPUS**
43. Yasmin Nergis, Mughal Sahrif, Ahmad Hussain, Khawar Naveed, Abdul Hameed Memon (2015) Ecosystem Approach and Hydrological Potential Study of Coastal area of Thatta Sindh, Pakistan, International Journal of Environmental Geology Vol:6(2): 52-55 **HEC Recognized Journal (Y-category)**
44. Amber Nasreen Anjum, Dheya Shujaa Al-Othmany, Ahmad Hussain (2015) Generalization of Motivational Factors in L2 Learners, Journal: International journal of Education & Practice Vol 6, No (30): 170-177 **Indexed in SCOPUS**
45. Ahmad Hussain, Naz Islam, Abdulraheem Abdulkrahman Kinsara, Fouad Abolaban (2014) Need for a Safety Culture in the Nuclear Facilities of Saudi Arabia, Middle-East Journal of Scientific Research, Volume22 Issue12, Pages 1771-1781 **Indexed in SCOPUS**
46. Yasmin Nergis, Mughal Sharif, Afzal Farooq Choudhry, **Ahmed Hussain**, Jawad Abdullah Butt (2012) Impact of Industrial and Sewage Effluents on Karachi Coastal Water and Sediment Quality, **Middle-East Journal of Scientific Research** 11 (10): 1443-1454, ISSN 1990-9233 **Indexed in SCOPUS**
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48. Hussain, A., Ani, F.N. and Darus, A. N. (2008). Gas-solid flow modelling in the riser of a circulating fluidised bed. **International Journal of Modelling and Simulation**, 28(1), IASTED, Acta Press. Calgary, CANADA Vol. 28 (1): 85- 90 **Cited =3 Indexed in SCOPUS**
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50. Hussain A., Ani, F.N, Darus, A.N., Mokhtar, H., Azam, S. and Mustafa, A. (2006) Thermochemical Behaviour of the Oil Palm Shell Waste in a Circulating Fluidized Bed Combustor (CFBC). **Journal of Oil Palm Research.**, **18(1),:210-218 Impact Factor =0.237**
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54. Hussain, A., Ani, F.N. and Darus, A.N. (2005) Flow modelling to investigate the effect of riser exit geometries on the riser hydrodynamics of a CFB. **Journal of Mechanical Engineering. 34: 1-10.**
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57. Ahmad Hussain, Dheya AlOthmany (2013) Design of Thermal Loop of a Compact Reactor, *International Journal of Engineering and Advanced Technology Research* Vol. 1, No. 1, pp. 1-10: Published by European Centre for Research Training and Development, UK (www.ea-journals.org)
58. Ahmad Hussain, Dheya Al-Othmany (2013) Assessment of Aging of Zr-2.5Nb Pressure Tubes for Use in Heavy Water Reactor, **Journal of Natural Sciences Research**, Vol. 3, No. 2: 98-103
59. **Ahmad Hussain**, Dheya Al-Othmany (2013) Treatment and Conditioning of Spent Ion Exchange Resin from Nuclear Power Plant, **Journal of Advances in Physics Theories and Applications**, Vol. 15: 79-89
60. Hussain, A. (2012) CFD Modeling of Grate Furnace Designs for Municipal Solid Waste Combustion, **Journal of Asian Transaction on Engineering, 2(3):41-50**
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71. Hussain, A. and Ani, F.N. (2004) CFD flow modelling of riser exit geometries of a circulating fluidized bed. **Mehran University Journal of Science & Technology. 24(3), pp 181-190.**
72. Hussain, A., Ani, F. N., Darus, A.N., Mustafa, A., Akhtar, N.A. and Ahmed, J. (2004) Hydrodynamic Modeling of gas solid flow in the riser of a circulating fluidised bed using CFD. **Journal of the Pakistan Institute of Chemical Engineers. Vol. XXXII: 75-82.**

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International and National Conference Proceedings

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