

Iftikhar Ahmad

Associate Professor

School of Chemical & Materials Engineering

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About

Dr. Iftikhar Ahmad is working as Associate Professor in the School of Chemical & Materials Engineering. Dr. Iftikhar Ahmad has a PhD in Chemical Engineering. Dr. Iftikhar Ahmad has published 48 research articles & conference papers having a citation count of 470, carried out 4 projects and filed 0 intellectual property.

Qualifications

PhD in Chemical Engineering Kyoto University , Pakistan	2011 - 2014
MS in Process Systems Engineering Kyoto University , Japan	2009 - 2011
MS in Chemical Engineering UET Peshawar , Pakistan	2005 - 2008
BS in Chemical Engineering UET Peshawar , Pakistan	2001 - 2005
F.Sc in Pre-Engineering BISE, Peshawar , Pakistan	1997 - 2000

Experience

Associate Professor School of Chemical & Materials Engineering	2019- Present
Assistant Professor School of Chemical & Materials Engineering	2014 - 2019

Awards

Outstanding Paper of the Outstanding Paper of the Year 2014 Award from The Society of Chemical Engineers, Japan.	2015
ORIC Innovation Award ORIC Innovation Award at 3rd National Conference on Sustainability in Process Industries (SPI-16), Peshawar.	
Won NRPB grants Won NRPB grant in 2017 for research project on "Uncertainty Quantification for Efficient Process Design and Operation of Naphtha Reforming Process"	
Member of IPC PSE 2021 Member of the International Program Committee (IPC) for PSE 2021 Kyoto, Japan. This PSE symposium is a triennial international conference series on process systems engineering. It is the pioneering events' series that formally introduced the term PSE in 1982.	

Professional Memberships

PEC	Since 2018
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Research Projects

National Projects

Plant-Wide Energy Analysis of Petroleum Refinery Process: An Integrated Framework of Energy Analysis, Uncertainty Analysis and Process Optimization2019

Funding Agency: HEC

Amount: PKR 3,790,000.00

Status: Completed

Uncertainty Quantification for Efficient Process Design and Operation of Naphtha Reforming Process2017

Funding Agency: HEC

Amount: PKR 1,870,000.00

Status: Completed

International Projects

Industry Projects

National Projects

Techno-Economic Assessment Study of Coal Gasification Project for Thar Coal2023

Client: Policy Research Institute For Equitable Development (PRIED)

Amount: PKR 1,350,000.00

Status: Approved_inprocess

Implementation of an Integrated Energy Management Systems in Fazal Steel Manufacturing Plant2021

Client: Fazal Steels Pvt Limited

Amount: PKR 1,373,000.00

Status: Approved_inprocess

International Projects

Research Articles

Experimental validation and optimization of bendable linear shaped charges with degressive explosive thickness for aerospace and defense applications2025

Muhammad Soulam Khan Muhammad Ahsan Sarah Farrukh Ittikhar Ahmad Erum Pervaiz Abdul Qadeer Malik

Journal of Energetic Materials , 1-33

Impact Factor: 1.700 | Quartile: 3

DOI: <https://doi.org/10.1080/07370652.2025.2495558>

Quantification of Impact of Uncertainty on Emissions in a Cement Manufacturing Plant: Surrogate Modeling-Based Approach2025

Muhammad Usman Ittikhar Ahmad Manabu Kano Farooq Ahmad Muhammad Ahsan

ACS Omega , Volume:10, Issue:9, Pages 9453-9462

Impact Factor: 3.700 | Quartile: 2

DOI: <https://doi.org/10.1021/acsomega.4c10194>

Artificial intelligence assisted prediction of optimum operating conditions of shell and tube heat exchangers: A grey-box approach2024

Zahid Ullah Ittikhar Ahmad Abdul Samad Husnain Saghir Farooq Ahmad Manabu Kano Hakan Caliskan Nesrin Caliskan Hiki Hong

CAAI Transactions on Intelligence Technology , Pages 1-10

Impact Factor: 8.400 | Quartile: 1 | Citations: 5

DOI: <https://doi.org/10.1049/cit2.12393>

Grey-box modelling for estimation of optimum cut point temperature of crude distillation column2024

Junaid Shahzad Ittikhar Ahmad Muhammad Ahsan Farooq Ahmad Husnain Saghir Manabu Kano Hakan Caliskan Hiki Hong

CAAI Transactions on Intelligence Technology , Pages 1-15

Impact Factor: 8.4 | Quartile: 1 | Citations: 1

DOI: <https://doi.org/10.1049/cit2.12386>

Modelling and Optimization of an existing Onshore Gas Gathering Network using PIPESIM2024

Ittikhar Ahmed Aditya Prana Iswara Shahbaz Abbas Fahim Qaisar Jamal Ittikhar Ahmad Syed Tasweer Hussain Shah Afshan Naseem

Heliyon , Volume 10, Issue 15, Article Number e35006

Impact Factor: 3.400 | Quartile: 1 | Citations: 1

DOI: <https://doi.org/10.1016/j.heliyon.2024.e35006>

<p>A data-driven multi-objective optimization approach for enhanced methanol yield and exergy loss minimization in direct hydrogenation of CO₂</p> <p><i>Abdul Samad Husnain Saghir Abdul Mussawir Iftikhar Ahmad Hakan Caliskan</i> <i>Applied Thermal Engineering</i> , Volume 251, Article Number 123517</p> <p>Impact Factor: 6.100 Quartile: 1 Citations: 10 DOI: https://doi.org/10.1016/j.applthermaleng.2024.123517</p>	2024
<p>Integrative CFD and AI/ML-based modeling for enhanced alkaline water electrolysis cell performance for hydrogen production</p> <p><i>Abdullah Sirat Sher Ahmad Iftikhar Ahmad Nouman Ahmad Muhammad Ahsan</i> <i>International Journal of Hydrogen Energy</i> , Volume 83, Pages 1120-1131</p> <p>Impact Factor: 8.100 Quartile: 1 Citations: 5 DOI: https://doi.org/10.1016/j.ijhydene.2024.08.184</p>	2024
<p>Plant Wide Modelling and Thermodynamic Optimization of a Petroleum Refinery for Improvement Potentials</p> <p><i>Adil Sana Iftikhar Ahmad Husnain Saghir Manabu Kano Hakan Caliskan Hiki Hong</i> <i>Process Safety and Environmental Protection</i> , Volume 188, Pages 64-72</p> <p>Impact Factor: 6.900 Quartile: 1 Citations: 4 DOI: https://doi.org/10.1016/j.psep.2024.05.006</p>	2024
<p>Prediction and optimization of emissions in cement manufacturing plant under uncertainty by using artificial intelligence-based surrogate modeling</p> <p><i>Muhammed Usman Iftikhar Ahmad Muhammad Ahsan Hakan Caliskan</i> <i>Environment Development and Sustainability</i> , Pages 1-25</p> <p>Impact Factor: 4.700 Quartile: 2 Citations: 2 DOI: 10.1007/s10668-024-05068-5</p>	2024
<p>Prediction and optimisation of gasoline quality in petroleum refining: The use of machine learning model as a surrogate in optimisation framework</p> <p><i>Husnain Saghir Iftikhar Ahmad Manabu Kano Hakan Caliskan Hiki Hong</i> <i>CAAI Transactions on Intelligence Technology</i> , Pages 1-14</p> <p>Impact Factor: 8.400 Quartile: 1 Citations: 2 DOI: https://doi.org/10.1049/cit2.12324</p>	2024
<p>Analysis of processed natural gas injection on hydrate formation in high pressure refrigerated condensate lines</p> <p><i>Iftikhar Ahmed Shahbaz Abbas Fahim Qaiser Jamal Iftikhar Ahmad Afshan Naseem Abdul Malik Tahir</i> <i>Heliyon</i> , Volume 10, Issue 4, Article Number; e25811</p> <p>Impact Factor: 4.0 Quartile: 2 Citations: 1 DOI: 10.1016/j.heliyon.2024.e25811</p>	2024
<p>Artificial intelligence based prediction of optimum operating conditions of a plate and fin heat exchanger under uncertainty: A gray-box approach</p> <p><i>Jihad Salah Khan Iftikhar Ahmad Usman Khan Jadoon Abdul Samad Husnain Saghir Manabu Kano Hakan Caliskan</i> <i>International Journal of Heat and Mass Transfer</i> , Volume 217, Article Number 124653</p> <p>Impact Factor: 5.2 Quartile: 1 Citations: 9 DOI: https://doi.org/10.1016/j.ijheatmasstransfer.2023.124653</p>	2023
<p>Prediction and optimization of exergetic efficiency of reactive units of a petroleum refinery under uncertainty through artificial neural network-based surrogate modeling</p> <p><i>Abdul Samad Iftikhar Ahmad Manabu Kano Hakan Caliskan</i> <i>Process Safety and Environmental Protection</i> , Volume 177, Pages 1403-1414</p> <p>Impact Factor: 7.8 Quartile: 1 Citations: 13 DOI: https://doi.org/10.1016/j.psep.2023.07.046</p>	2023
<p>Thermodynamic analysis of cumene production plant for identification of energy recovery potentials</p> <p><i>Abdul Samad Husnain Saghir Iftikhar Ahmad Farooq Ahmad Hakan Caliskan</i> <i>Energy</i> , Volume 270, Article Number 126840</p> <p>Impact Factor: 8.9 Quartile: 1 Citations: 10 DOI: https://doi.org/10.1016/j.energy.2023.126840</p>	2023
<p>Prediction of optimum operating conditions of a furnace under uncertainty: An integrated framework of artificial neural network and genetic algorithm</p>	2022

<p><i>Muzammil Khan Iftikhar Ahmad Muhammad Ahsan Manabu Kano Hakan Caliskan</i> <i>Fuel</i> , Volume 330, Article Number 125563</p> <p>Impact Factor: 8.035 Quartile: 1 Citations: 20 DOI: https://doi.org/10.1016/j.fuel.2022.125563</p>	
<p>An integrated approach of artificial neural networks and polynomial chaos expansion for prediction and analysis of yield and environmental impact of oil shale retorting process under uncertainty</p> <p><i>Hasan Qayyum Chohan Iftikhar Ahmad Nisar Mohammad Davide Manca Hakan Caliskan</i> <i>Fuel</i> , Volume 329, Article Number 125351</p> <p>Impact Factor: 8.035 Quartile: 1 Citations: 5 DOI: https://doi.org/10.1016/j.fuel.2022.125351</p>	2022
<p>An intelligent sensing system for estimation of efficiency of carbon-capturing unit in a cement plant</p> <p><i>Usman Khan Jadoon Iftikhar Ahmad Tayyaba Noor Manabu Kano Hakan Caliskan Muhammad Ahsan</i> <i>Journal of Cleaner Production</i> , Volume 377, Article Number 134359</p> <p>Impact Factor: 11.1 Quartile: 1 Citations: 11 DOI: https://doi.org/10.1016/j.jclepro.2022.134359</p>	2022
<p>Comparative hydrodynamics study of fluidized bed gasifier incorporating static and rotating air distributor plates: A CFD approach</p> <p><i>Naveed Raza Muhammad Ahsan Muhammad Taqi Mehran Salman Raza Naqvi Iftikhar Ahmad</i> <i>Powder Technology</i> , Volume 405, Article Number 117500</p> <p>Impact Factor: 5.134 Quartile: 1 Citations: 10 DOI: https://doi.org/10.1016/j.powtec.2022.117500</p>	2022
<p>Process modeling and simulation of ethylene oxide production by implementing pinch and cost analysis</p> <p><i>Muhammad Mubashir Muhammad Ahsan Iftikhar Ahmad Muhammad Nouman Aslam Khan</i> <i>Ain Shams Engineering Journal</i> , Volume 13, Issue 3, Pages 101585 (1-9)</p> <p>Impact Factor: 3.180 Quartile: 2 Citations: 8 DOI: https://doi.org/10.1016/j.asej.2021.09.012</p>	2022
<p>Process Modeling, Optimization and Cost Analysis of a Sulfur Recovery Unit by Applying Pinch Analysis on the Claus Process in a Gas Processing Plant</p> <p><i>Muhammad Arslan Zahid Muhammad Ahsan Iftikhar Ahmad Muhammad Nouman Aslam Khan</i> <i>Mathematics</i> , Volume 10, Issues 1, Article Number 88</p> <p>Impact Factor: 2.592 Quartile: 1 Citations: 13 DOI: https://doi.org/10.3390/math10010088</p>	2021
<p>Design and Development of a Computational Tool for a Dialyzer by Using Computational Fluid Dynamic (CFD) Model</p> <p><i>Tuba Yaqoob Muhammad Ahsan Sarah Farrukh Iftikhar Ahmad</i> <i>Membranes</i> , Volume 11, Issues 12, Article Number 916</p> <p>Impact Factor: 4.106 Quartile: 2 Citations: 3 DOI: https://doi.org/10.3390/membranes11120916</p>	2021
<p>Model-Based Quality, Exergy, and Economic Analysis of Fluidized Bed Membrane Reactors</p> <p><i>Tabassam Nafees Adnan Ahmed Bhatti Usman Khan Jadoon Farooq Ahmad Iftikhar Ahmad Manabu Kano Brenno Castrillon Menezes Muhammad Ahsan Naveed ul Hasan Syed</i> <i>Membranes</i> , Volume 11, Issues 10, Article Number 765</p> <p>Impact Factor: 4.106 Quartile: 2 Citations: 4 DOI: doi.org/10.3390/membranes11100765</p>	2021
<p>Machine Learning Applications in Biofuels' Life Cycle: Soil, Feedstock, Production, Consumption, and Emissions</p> <p><i>Iftikhar Ahmad Adil Sana Manabu Kano Izzat Iqbal Cheema Brenno C. Menezes Junaid Shahzad Zahid Ullah Muzammil Khan Asad Habib</i> <i>Energies</i> , Volume 14(16), Article Number 5072</p> <p>Impact Factor: 3.004 Quartile: 3 Citations: 26 DOI: 10.3390/en14165072</p>	2021
<p>Computational Analysis of the Hydrodynamic Behavior for Different Air Distributor Designs of Fluidized Bed Gasifier</p> <p><i>Naveed Raza Muhammad Ahsan Muhammad Taqi Mehran Iftikhar Ahmad Salman Raza Naqvi</i> <i>Frontiers in Energy Research</i> , Volume 9, Issues 1, Article Number 692066</p> <p>Impact Factor: 4.008 Quartile: 2 Citations: 17</p>	2021

DOI: <https://doi.org/10.3389/fenrg.2021.692066>

A comprehensive study on upgradation of pyrolysis products through co-feeding of waste tire into rice straw under broad range of co-feed ratios in a bench-scale fixed bed reactor

2021

Shoaib Raza Khan Muhammad Faheem Khokhar Zeshan Muhammad Zeeshan Iftikhar Ahmad
Biomass Conversion and Biorefinery , Pages 1-15

Impact Factor: 4.987 | **Quartile:** 1 | **Citations:** 18

DOI: doi.org/10.1007/s13399-021-01434-9

Lightweight Protective Configurations against Blast and Fragments Impact- Experimental and Numerical Studies

2020

Khurshid Ahmed Abdul Qadeer Malik Arshad Hussain Iftikhar Ahmad Iram Raza Ahmad
AIP Advances , Volume 10, Article Number 095221

Impact Factor: 1.548 | **Quartile:** 4 | **Citations:** 10

DOI: [10.1063/5.0022982](https://doi.org/10.1063/5.0022982)

Drivers and Barriers for Efficient Energy Management Practices in Energy-Intensive Industries: A Case-Study of Iron and Steel Sector

2020

Iftikhar Ahmad Muhammad Salman Arif Izzat Iqbal Cheema Patrik Thollander Masroor Ahmed Khan
Sustainability , Volume 12(18), Article Number 7703

Impact Factor: 3.251 | **Quartile:** 2 | **Citations:** 14

DOI: <https://doi.org/10.3390/su12187703>

Computational Fluid Dynamics (CFD) Modeling and Simulation of Flow Regulatory Mechanism in Artificial Kidney Using Finite Element Method

2020

Tuba Yaqoob Muhammad Ahsan Arshad Hussain Iftikhar Ahmad
Membranes , Volume 10, Issue no. 7, Article 139

Impact Factor: 4.106 | **Quartile:** 1 | **Citations:** 11

DOI: [10.3390/membranes10070139](https://doi.org/10.3390/membranes10070139)

Gray-box Soft Sensors in Process Industry: Current Practice, and Future Prospects in Era of Big Data

2020

Iftikhar Ahmad Ahsan Ayub Manabu Kano Izzat Iqbal Cheema
Processes , Volume 8(2), Article Number 243

Impact Factor: 2.847 | **Quartile:** 3 | **Citations:** 45

DOI: <https://doi.org/10.3390/pr8020243>

Quantitative analysis of product quality of naphtha reforming process under uncertain process conditions

2019

Gulsayyar Ali Arshad Chughtai Iftikhar Ahmad Arshad Hussain Manabu Kano Muhammad Bilal
Chemical Engineering Communications , Pages 1-12

Impact Factor: 1.802 | **Quartile:** 3 | **Citations:** 5

DOI: [DOI:10.1080/00986445.2019.1641488](https://doi.org/10.1080/00986445.2019.1641488)

Model Development and Exergy Analysis of a Microreactor for the Steam Methane Reforming Process in a CFD Environment

2019

Zia ur Rehman Iftikhar Ahmad Manabu Kano Jawad Mustafa
Entropy , Volume: 21, Issue: 4, Article Number: 399

Impact Factor: 2.494 | **Quartile:** 2 | **Citations:** 8

DOI: <https://doi.org/10.3390/e21040399>

Modeling of a Nickel-based Fluidized Bed Membrane Reactor for Steam Methane Reforming Process

2019

Mustafa Kamal Pasha Iftikhar Ahmad Jawad Mustafa Manabu Kano
Journal of the Chemical Society of Pakistan , Volume: 41, Issue: 2, Pages: 219-229

Impact Factor: 0.300 | **Quartile:** 4

DOI: <https://www.jcsp.org.pk/Archive.aspx>

Data-Based Prediction and Stochastic Analysis of Entrained Flow Coal Gasification under Uncertainty

2019

Iftikhar Ahmad Ahsan Ayub Nisar Mohammad Manabu Kano
Sensors , Volume: 19, Issue: 7, Article Number: 1626

Impact Factor: 3.275 | **Quartile:** 1 | **Citations:** 5

DOI: <https://doi.org/10.3390/s19071626>

Data-Based Sensing and Stochastic Analysis of Biodiesel Production Process

2019

Iftikhar Ahmad Ahsan Ayub Uzair Ibrahim Mansoor Khan Khattak Manabu Kano
Energies , Volume: 12, Issue: 1, Article Number: 63

Impact Factor: 2.702 Quartile: 3 Citations: 21 DOI: https://doi.org/10.3390/en12010063	
An Artificial Intelligence Method for Energy Efficient Operation of Crude Distillation Units under Uncertain Feed Composition <i>Muhammad Amin Durrani Iftikhar Ahmad Manabu Kano Shinji Hasebe</i> <i>Energies</i> , Volume: 11, Issue: 11, Article Number: 2993 Impact Factor: 2.707 Quartile: 3 Citations: 28 DOI: https://doi.org/10.3390/en11112993	2018
Dimensions and Analysis of Uncertainty in Industrial Modeling Process <i>Iftikhar Ahmad</i> <i>JOURNAL OF CHEMICAL ENGINEERING OF JAPAN</i> , NULL Impact Factor: 0.627 Quartile: 4 Citations: 18 DOI: 10.1252/jcej.17we362	2018
Exergy analysis and optimisation of naphtha reforming process with uncertainty <i>Asad Ullah Akram Arshad Chughtai Manabu Kano Iftikhar Ahmad</i> <i>International Journal of Exergy</i> , Vol.26 No.3, Pages:247-262 Impact Factor: 1.130 Quartile: 3 Citations: 9 DOI: 10.1504/IJEX.2018.093138	2018
Computational fluid dynamics based model development and exergy analysis of naphtha reforming reactors <i>Jawad Mustafa Manabu Kano Iftikhar Ahmad Muhammad Ahsan</i> <i>International Journal of Exergy</i> , Vol. 24, No. 2-4, Pages:344-363 Impact Factor: 0.993 Quartile: 4 Citations: 9 DOI: 10.1504/IJEX.2017.087696	2017
Prediction of Molten Steel Temperature in Steel Making Process with Uncertainty by Integrating Gray-Box Model and Bootstrap Filter <i>Iftikhar Ahmad Manabu Kano Shinji Hasebe Hiroshi Kitada Noboru Murata</i> <i>Journal of Chemical Engineering of Japan</i> , Volume: 47, Issue: 11, Pages: 827-834 Impact Factor: 0.644 Quartile: 4 Citations: 16 DOI: 10.1252/jcej.14we067	2014
Gray-box modeling for prediction and control of molten steel temperature in tundish <i>Iftikhar Ahmad Manabu Kano Shinji Hasebe Hiroshi Kitada Noboru Murata</i> <i>Journal of Process Control</i> , Volume: 24, Issue: 4, Pages: 375-382 Impact Factor: 2.653 Quartile: 1 Citations: 47 DOI: 10.1016/j.jprocont.2014.01.018	2014
Data-Based Ground Fault Diagnosis of Power Cable Systems <i>Iftikhar Ahmad Hiroyuki MABUCHI Manabu Kano Shinji Hasebe Yoshikazu INOUE Hiroaki UEGAKI</i> <i>SICE Journal of Control, Measurement, and System Integration</i> , Volume 6, Issue 4, Pages 290-297, July 2013 Impact Factor: 0 DOI: 10.9746/jcmsi.6.290	2013
High-Performance Prediction of Molten Steel Temperature in Tundish through Gray-Box Model <i>Toshinori OKURA Iftikhar Ahmad Manabu Kano Shinji Hasebe Hiroshi KITADA Noboru Murata</i> <i>ISIJ International</i> , Volume: 53, Issue: 1, Pages: 76-80 Impact Factor: 1.069 Quartile: 2 Citations: 19 DOI: 10.2355/isijinternational.53.76	2013

Conference Proceedings

Artificial Intelligence-Based Exergy analysis of Kiln and Calciner Sections of a Cement Plant under uncertainty <i>Muhammad Usman Iftikhar Ahmad</i> <i>1st International Conference on Innovative Engineering Sciences and Technological Research, ICIESTR 2024 - Proceedings, res.country(171,)</i> Citations: N/A DOI: 10.1109/ICIESTR60916.2024.10798347	2024
Sensitivity analysis of oil shale retorting process through sobol and fourier amplitude sensitivity test (FAST) <i>Hasan Qayyum Chohan Iftikhar Ahmad</i> <i>EUROCON 2021 - 19th IEEE International Conference on Smart Technologies, Proceedings, res.country(229,)</i> Citations: N/A DOI: 10.1109/EUROCON52738.2021.9535609	2021
Data based sensing of Shale Oil yield in Oil Shale Retorting process <i>Hasan Qayyum Chohan Iftikhar Ahmad</i> <i>3rd Pak-Turk International Conference ETSE2020 , res.country(177,)</i> Citations: N/A DOI: doi:10.1088/1757-899X/899/1/012009	2020
Sensitivity Analysis of Entrained Flow Coal Gasification Process through Fourier Amplitude Sensitivity Test (FAST) and Sobol Techniques <i>Iftikhar Ahmad Ahsan Ayub Muhammad Hamza Rasheed Fahad Ansari Nisar Mohammad</i> <i>In 2018 International Conference on Applied and Engineering Mathematics (ICAEM) , res.country(177,)</i> Citations: N/A DOI: 10.1109/ICAEM.2018.8536285	2018
Virtual sensing of catalytic naphtha reforming process under uncertain feed conditions <i>Dr. Iftikhar Ahmad Muhammad Bilal Gul Sayyar Ali Dr. Arshad Hussain</i> <i>2018 International Conference on Computing, Mathematics and Engineering Technologies (iCoMET), res.country(177,)</i> Citations: 4 DOI: 10.1109/ICOMET.2018.8346447	2018
An integrated mechanism of genetic algorithm and Taguchi method for cut-point temperatures optimization of crude distillation unit <i>Muhammad Amin Durrani Dr. Iftikhar Ahmad Alcantara Avila</i> <i>2018 International Conference on Computing, Mathematics and Engineering Technologies (iCoMET) , res.country(177,)</i> Citations: 3 DOI: 10.1109/ICOMET.2018.8346423	2018

Editorial Activities

Reviewed Papers for Journals Impact Factor: 7.632	2020
Reviewed Papers for Journals	2020
Reviewed Papers for Journals	2020