

Annual Research & Community Service Report (2022)

Introduction:

Electrical Engineering Department is committed to conduct profound research that contributes to the advancement of engineering knowledge and engineering practices. The department encourages its faculty members to produce intellectual contributions of high quality. The department schedule the workload in such a way that each faculty member could have more time to be used for scholarly activities. The department recognizes the intellectual contributions by its faculty members that create new knowledge, strengthen its scholarly environment, or find practical solutions to industry and community-related problems. In addition, the department encourages research collaboration and dissemination of research interest among its faculty members. Financial and technical support, internally and externally, are made available and easily accessible to the department faculty.

The electrical engineering program chair has established a Scientific Research and Community Service Committee to plan, execute and manage the research activities in the department. The committee members are listed in Table 1.

Table 1. Scientific Research and Community Service Committee

Committee Members	Role
Dr. Ahmad Alzahrani	Committee Head
Dr. Muhammad Irfan	Member
Dr. Belqasem Aljafari	Member
Dr. Hasan Algadi	Member

The Program Research Mission:

To develop a research culture in the department and to contribute to the society in establishing knowledge-based economy.

The Program Research Objectives:

- Contribution to building a knowledge-based society, and assistance to the priorities of industry and economic growth in the Kingdom.
- Develop and support a more active research culture at the department.
- Discover and innovate through high quality competitive research in electrical engineering.
- Establish national and international partnerships and develop collaborative projects within NU and with external academic and industrial partners.
- Contributing to the community service through organizing technical seminars and workshops.

Research Directions:

The department has identified eight areas for the fundamental and applied research. These research areas are identified keeping in view the Vision 2030 of the Kingdom.

- Renewable Energy
- Stability of Power Systems
- Modernization of Power Grid
- Communications and Internet of things
- NANO technology and MEMS
- Cognitive Radio and Emerging Technologies
- Image Processing and Multimedia Communications
- Artificial Intelligence and Machine Learning

Research Facilities:

The department has the state of the art laboratories to conduct the research. The list of the laboratories are given below:

- Renewable Energy Lab
- National Instruments Hardware and Software Set-Up
- Power Machines Lab
- Control Lab
- Circuits Lab
- Communication Lab

Mapping of EE Research KPIs with NU KPIs

The EE KPIs related research have been mapped with the KPIs of the Najran University KSA. The mapping table has been given below.

Research KPIs of the University Research KPIs of EE	S10.2 Number of citations in refereed journals in the previous year per full time equivalent faculty members	S10.3 Proportion of full time member of teaching staff with at least one refereed publication during the previous year
KPI-P-16 Citations rate in refereed journals per faculty member	√	
KPI-P-15 Rate of published research per faculty member		√
KPI-P-14 Percentage of publications of faculty members		√

Research Publications in Academic Year 2022:

The EE faculty members have published **209 papers** in various peer-reviewed, Web of Science and Scopus journals. The total number of faculty members in the department are 18 out of which 16 faculty members have Ph.D degrees. The target of publishing a minimum 15 journal papers per year has been achieved. The journal publications list has been given in Table 2 and the analysis has been given in Table 3.

Table 2. Journal Publication in 2022 (in WoS and Scopus)

No.	Article Title	Authors	Journal Title	Date
1	Morphology controllable urchin-shaped bimetallic nickel-cobalt oxide/carbon composites with enhanced electromagnetic wave absorption performance	Fushan Li, Qiuyu Li, Hideo Kimura, Xiubo Xie, Xiaoyu Zhang, Nannan Wu, Xueqin Sun, Ben Bin Xu, Hassan Algadi, Rami Adel Pashameah, Abdullah K Alanazi, Eman Alzahrani, Haodong Li, Wei Du, Zhanhu Guo, Chuanxin Hou	Journal of Materials Science & Technology	2022
2	High Power-Conversion Efficiency of Lead-Free Perovskite Solar Cells: A Theoretical Investigation	Ahmad Umar, Pravin Kumar Singh, DK Dwivedi, Hassan Algadi, Ahmed A Ibrahim, Mohsen AM Alhammai, Sotirios Baskoutas	Micromachines	2022
3	Label-Free Myoglobin Biosensor Based on Pure and Copper-Doped Titanium Dioxide Nanomaterials	Ahmad Umar, Mazharul Haque, Shafeeqe G Ansari, Hyung-Kee Seo, Ahmed A Ibrahim, Mohsen AM Alhamami, Hassan Algadi, Zubaida A Ansari	Biosensors	2022
4	Effect of Ca addition on the microstructure, mechanical properties and corrosion behavior of AZ61-Nd alloy	Zhechao Zhang, Hua Hou, Yuezhong Zhang, Mohamed E El Sayed, Mohammad N Murshed, Ahmed Samir, Pengpeng Wu, Changwei Gong, Hui Yong, Guangling Song, Daqing Fang, Deepak Sridhar, Hassan Algadi, Baosheng Liu	Advanced Composites and Hybrid Materials	2022
5	Effective Fluorescence Detection of Hydrazine and the Photocatalytic Degradation of Rhodamine B Dye Using CdO-ZnO Nanocomposites	Ahmad Umar, Ramesh Kumar, Mohinder Singh Chauhan, Rajesh Kumar, Ahmed A Ibrahim, Mohsen AM Alhamami, Hassan Algadi, Mohammad Shaheer Akhtar	Coatings	2022
6	Modeling and Simulation of Tin Sulfide (SnS)-Based Solar Cell Using ZnO as Transparent Conductive Oxide (TCO) and NiO as Hole Transport Layer (HTL)	Ahmad Umar, Pooja Tiwari, Vaibhava Srivastava, Pooja Lohia, Dilip Kumar Dwivedi, Hussam Qasem, Sheikh Akbar,	Micromachines	2022

		Hassan Algadi, Sotirios Baskoutas		
7	Improving water resistance and mechanical properties of waterborne acrylic resin modified by 3, 3', 5, 5'-tetramethyl-4, 4'-biphenyl diglycidyl ether	Jialin Bi, Yan Liu, Fengjun Gao, Shengsong Ge, Zeinhom M E-IBahy, Mina Huang, Gaber AM Mersal, A Alhadhrami, Mohamed M Ibrahim, Ben Bin Xu, Hassan Algadi, Qian Shao, Zhanhu Guo	Surfaces and Interfaces	2022
8	Improvement of thermodynamic properties of poly(butanediol sebacate-butanediol terephthalate) (PBSeT) composites based on the dispersion of PCaCO ₃ @tannic acid formed by complexation of tannic acid and Ti	Tong Liu, Zhimao Li, Tianxiang Jiang, Shaohua Xi, Yingchun Li, Jiang Guo, Mina Huang, Hassan Algadi, Xinming Ye, Qinglong Jiang	Advanced Composites and Hybrid Materials	2022
9	Applications of machine learning in perovskite materials	Ziman Wang, Ming Yang, Xixi Xie, Chenyang Yu, Qinglong Jiang, Mina Huang, Hassan Algadi, Zhanhu Guo, Hang Zhang	Advanced Composites and Hybrid Materials	2022
10	Modified low-temperature synthesis of graphene oxide nanosheets: Enhanced adsorption, antibacterial and antioxidant properties	Rohit Goyat, Joginder Singh, Ahmad Umar, Yajvinder Saharan, Vikas Kumar, Hassan Algadi, Sheikh Akbar, Sotirios Baskoutas	Environmental Research	2022
11	In-vitro cytotoxicity of nickel oxide nanoparticles against L-6 cell-lines: MMP, MTT and ROS studies	Renu Bala, Bhawna Pareek, Ahmad Umar, Saroj Arora, Davinder Singh, Ashun Chaudhary, Abdulrab Ahmed M Alkhanjaf, Abdulrhman A Almadiy, Hassan Algadi, Raman Kumar, Vivek Sheel Jaswal, Sotirios Baskoutas	Environmental Research	2022
12	MXene@ nitrogen-doped carbon films for supercapacitor and piezoresistive sensing applications	Anli Chen, Chaoying Wang, Ola A Abu Ali, Samy F Mahmoud, Yuting Shi, Yanxiu Ji, Hassan Algadi, Salah M El-Bahy, Mina Huang, Zhanhu Guo, Dapeng Cui, Huige Wei	Composites Part A: Applied Science and Manufacturing	2022
13	Theoretical study of perovskite solar cell for enhancement of device performance using SCAPS-1D	Pranjal Srivastava, Shambhavi Rai, Pooja Lohia, DK Dwivedi, Hussam Qasem, Ahmad Umar, Sheikh Akbar, Hassan Algadi, Sotirios Baskoutas	Physica Scripta	2022

Department of Electrical Engineering

14	Electrospun Co3O4 nanofibers as potential material for enhanced supercapacitors and chemo-sensor applications	Ahmad Umar, M Shaheer Akhtar, Ahmed A Ibrahim, Hassan Algadi, Mohsen AM Alhamami, Faheem Ahmed, Moaaed Motlak, Sheikh Akbar	Journal of Materials Research and Technology	2022
15	Hydrothermally synthesized ZnO-RGO-PPy for water-borne epoxy nanocomposite coating with anticorrosive reinforcement	Qingsong Zhu, Yao Zhao, Baoji Miao, Hala M Abo-Dief, Muchao Qu, Rami Adel Pashameah, Ben Bin Xu, Mina Huang, Hassan Algadi, Xianhu Liu, Zhanhu Guo	Progress in Organic Coatings	2022
16	Effect of K2CO3 doping on CO2 sorption performance of silicate lithium-based sorbent prepared from citric acid treated sediment	Junya Wang, Kai Chen, Yi Wang, Jiuming Lei, Abdullah Alsubaie, Ping Ning, Shikun Wen, Taiping Zhang, Abdulraheem SA Almalki, A Alhadhrani, Zhiping Lin, Hassan Algadi, Zhanhu Guo	Chinese Journal of Chemical Engineering	2022
17	Facile green synthesis of magnesium oxide nanoparticles using tea (Camellia sinensis) extract for efficient photocatalytic degradation of methylene blue dye	S Ashok Kumar, M Jarvin, SSR Inbanathan, Ahmad Umar, NP Lalla, Nelson Y Dzade, Hassan Algadi, Qazi Inamur Rahman, Sotirios Baskoutas	Environmental Technology & Innovation	2022
18	Influence of Efficient Thickness of Antireflection Coating Layer of HfO2 for Crystalline Silicon Solar Cell	Deb Kumar Shah, Devendra KC, Ahmad Umar, Hassan Algadi, Mohammad Shaheer Akhtar, O-Bong Yang	Inorganics	2022
19	Enhanced sunlight-driven photocatalytic, supercapacitor and antibacterial applications based on graphene oxide and magnetite-graphene oxide nanocomposites	Ahmad Umar, S Ashok Kumar, SSR Inbanathan, Maryam Modarres, Rajesh Kumar, Hassan Algadi, Ahmed A Ibrahim, Rune Wendelbo, R Packiaraj, Mohsen AM Alhamami, S Baskoutas	Ceramics International	2022
20	Poly (1-Naphthylamine) Nanoparticles as Potential Scaffold for Supercapacitor and Photocatalytic Applications	Ahmad Umar, Sundararajan Ashok Kumar, Daniel Rani Rosaline, Hassan Algadi, Ahmed A Ibrahim, Faheem Ahmed, Edson Luiz Foletto, Savariroyan Stephen Rajkumar Inbanathan	Micromachines	2022
21	Norbornene-based acid-base blended polymer membranes with low ion exchange capacity for proton exchange membrane fuel cell	Guofeng Li, Ruxing Shen, Shengliang Hu, Bin Wang, Hassan Algadi, Chao Wang	Advanced Composites and Hybrid Materials	2022

22	High-sensitive ferrocene labeled aptasensor for the detection of Mucin 1 by tuning the sequence constitution of complementary probe	Chengxian Zhao, Wenjuan Guo, Ahmad Umar, Hassan Algadi, Meishan Pei, Ahmed A Ibrahim, Xueying Yang, Zhe Ren, Xiangyun Mi, Luyan Wang	Microchimica Acta	2022
23	Highly sensitive strain sensors with wide operation range from strong MXene-composited polyvinyl alcohol/sodium carboxymethylcellulose double network hydrogel	Deshuo Kong, Zeinhom M El-Bahy, Hassan Algadi, Tuo Li, Salah M El-Bahy, Mohamed A Nassan, Jiongru Li, Abeer A Faheim, Ang Li, Cuixia Xu, Mina Huang, Dapeng Cui, Huige Wei	Advanced Composites and Hybrid Materials	2022
24	Synthesis and characterization of poly(butanediol sebacate-butanediol) terephthalate (PBSeT) reinforced by hydrogen bond containing amide group, with good mechanical properties and improved water vapor barrier	Yu Feng, Yingchun Li, Abdulraheem SA Almalki, Xiangning Meng, A Alhadhrami, Xinming Ye, Mohamed M Ibrahim, Xin Guo, Hassan Algadi, Mina Huang, William Winchester, Zhe Wang	Advanced Composites and Hybrid Materials	2022
25	An efficient bifunctional Ni-Nb ₂ O ₅ nanocatalysts for the hydrodeoxygenation of anisole	Juan Xu, Ping Zhu, Islam H El Azab, Ben Bin Xu, Zhanhu Guo, Ashraf Y Elnaggar, Gaber AM Mersal, Xiangyi Liu, Yunfei Zhi, Zhiping Lin, Hassan Algadi, Shaoyun Shan	Chinese Journal of Chemical Engineering	2022
26	Sandwich-like CoMoP ₂ /MoP heterostructures coupling N, P co-doped carbon nanosheets as advanced anodes for high-performance lithium-ion batteries	Yiming Zhang, Liyuan Liu, Lanling Zhao, Chuanxin Hou, Meina Huang, Hassan Algadi, Deyuan Li, Qing Xia, Jun Wang, Zhaorui Zhou, Xue Han, Yuxin Long, Yebing Li, Zidong Zhang, Yao Liu	Advanced Composites and Hybrid Materials	2022
27	Photodegradation of methyl orange based on manganese-substituted bismuth ferrite nanoparticles	Ahmad Umar, Subburaj Ruby, Savariroyan Stephen Rajkumar Inbanathan, Daniel Rani Rosaline, Rajesh Kumar, Hassan Algadi, Ahmed A Ibrahim, Pau Loke Show, Sotirios Baskoutas	Emerging Materials Research	2022
28	Graphene and Nickel Nanomaterials Based Surface Plasmon Resonance (SPR) Biosensor: A Theoretical Study	Ahmad Umar, Pooja Lohia, Sachin Singh, Vipin Kumar, DK Dwivedi, Ahmed A Ibrahim, Hassan Algadi	Journal of Nanoelectronics and Optoelectronics	2022
29	Design and Simulation of Efficient SnS-Based Solar Cell Using Spiro-OMeTAD as Hole Transport Layer	Pooja Tiwari, Maged F Alotaibi, Yas Al-Hadeethi, Vaibhava Srivastava, Bassim Arkook,	Nanomaterials	2022

Department of Electrical Engineering

		Pooja Lohia, Dilip Kumar Dwivedi, Ahmad Umar, Hassan Algadi, Sotirios Baskoutas		
30	Numerical Study to Enhance the Sensitivity of a Surface Plasmon Resonance Sensor with BlueP/WS2-Covered Al ₂ O ₃ -Nickel Nanofilms	Maged F Alotaibi, Yas Al-Hadeethi, Pooja Lohia, Sachin Singh, DK Dwivedi, Ahmad Umar, Hamdah M Alzayed, Hassan Algadi, Sotirios Baskoutas	Nanomaterials	2022
31	Waterborne polyurethane and its nanocomposites: a mini-review for anti-corrosion coating, flame retardancy, and biomedical applications	Jianchen Cai, Vignesh Murugadoss, Jinyun Jiang, Xiang Gao, Zhiping Lin, Mina Huang, Jiang Guo, SA Alsareii, Hassan Algadi, Murugavel Kathiresan	Advanced Composites and Hybrid Materials	2022
32	Nanoporous and hydrophobic new Chitosan-Silica blend aerogels for enhanced oil adsorption capacity	Yajvinder Saharan, Joginder Singh, Rohit Goyat, Ahmad Umar, Hasan Algadi, Ahmed A Ibrahim, Raman Kumar, Sotirios Baskoutas	Journal of Cleaner Production	2022
33	Supramolecularly assembled isonicotinamide/reduced graphene oxide nanocomposite for room-temperature NO ₂ gas sensor	Ahmad Umar, Ahmed A Ibrahim, Hassan Algadi, Hasan Albargi, Mabkhoot A Alsairi, Yao Wang, Sheikh Akbar	Environmental Technology & Innovation	2022
34	A redox-additive electrolyte for cobalt-manganese-layered double hydroxides-based asymmetric supercapacitor	Subbiah Vijaya, Piyush Sharma, Belqasem Aljafari, Sambandam Anandan	International Journal of Energy Research	2022
35	Configuration of Ce-doped LaNiO ₃ as an alternative to platinum-free counter electrodes for dye-sensitized solar cells	Ahalya Gunasekaran, Sneha James, Madappa C Maridevaru, Belqasem Aljafari, Sambandam Anandan	International Journal of Energy Research	2022
36	Analysis and Implementation of Sliding Mode Controller-Based Variable Frequency Drive Using the SCADA System	Belqasem Aljafari, L Ashok Kumar, V Indragandhi, V Subramaniaswamy	International Transactions on Electrical Energy Systems	2022
37	Composites for Aqueous-Mediated Heterogeneously Catalyzed Degradation and Mineralization of Water Pollutants on TiO ₂ —A Review	Madappa C Maridevaru, Andrea Sorrentino, Belqasem Aljafari, Sambandam Anandan	Journal of Composites Science	2022
38	Acid red 88 dye doped polyaniline framed by soft template method: A potential candidate for dye-sensitized solar cells	Belqasem Aljafari, Sneha James, Gunasekaran Ahalya, Sambandam Anandan	Journal of Saudi Chemical Society	2022
39	Low-frequency acoustic irradiation coupled photocatalytic degradation of dye pollutant using LaNiO ₃ . 5CoO. 5O ₃ /g-C ₃ N ₄ nanocatalyst	Madappa C Maridevaru, Afreen Hooriya Naceruddin, Belqasem Aljafari, Sambandam Anandan	Journal of the Taiwan Institute of Chemical Engineers	2022

Department of Electrical Engineering

40	Nanotextured La _{0.95} Ce _{0.05} MnO ₃ /GCE assemblage for ultrasensitive and precise electrochemical detection of arsenic (III) at neutral pH	Madappa C Maridevaru, Reshma Kaimal, Afreen Hooriya Naceruddin, Belqasem Aljafari, Sambandam Anandan	Surfaces and Interfaces	2022
41	Power Quality Analysis of a Hybrid Microgrid-Based SVM Inverter-Fed Induction Motor Drive with Modulation Index Diversification	Subramanian Vasantharaj, Vairavasundaram Indragandhi, Mohan Bharathidasan, Belqasem Aljafari	Energies	2022
42	Automatic Monitoring System for Online Module-Level Fault Detection in Grid-Tied Photovoltaic Plants	Belqasem Aljafari, Siva Rama Krishna Madeti, Priya Ranjan Satpathy, Sudhakar Babu Thanikanti, Bamidele Victor Ayodele	Energies	2022
43	Reliability Enhancement of Photovoltaic Systems under Partial Shading through a Two-Step Module Placement Approach	Belqasem Aljafari, Priya Ranjan Satpathy, Siva Rama Krishna Madeti, Pradeep Vishnuram, Sudhakar Babu Thanikanti	Energies	2022
44	Synthesis of Ce _{0.1} La _{0.9} MnO ₃ Perovskite for Degradation of Endocrine-Disrupting Chemicals under Visible Photons	Madappa C Maridevaru, Afreen Hooriya Naceruddin, Belqasem Aljafari, Sambandam Anandan	Catalysts	2022
45	Partial shading mitigation in PV arrays through dragonfly algorithm based dynamic reconfiguration	Belqasem Aljafari, Priya Ranjan Satpathy, Sudhakar Babu Thanikanti	Energy	2022
46	Performance Analysis of PLA Material Based Micro-Turbines for Low Wind Speed Applications	Belqasem Aljafari, Devakirubakaran Samithas, Praveen Kumar Balachandran, Sambandam Anandan, Thanikanti Sudhakar Babu	Polymers	2022
47	Biowaste assisted preparation of self-nitrogen-doped nanoflakes carbon framework for highly efficient solid-state supercapacitor application	Mohammed Jalalah, Shapna Sankari Sivasubramaniam, Belqasem Aljafari, Muhammad Irfan, Saleh S Almasabi, Turki Alsuwian, Mohammed Iqbal Khazi, Arpan Kumar Nayak, Farid A Harraz	Journal of Energy Storage	2022
48	A Critical Review on the Estimation Techniques of the Solar PV Cell's Unknown Parameters	Papul Changmai, Sunil Deka, Shashank Kumar, Thanikanti Sudhakar Babu, Belqasem Aljafari, Benedetto Nastasi	Energies	2022
49	Optimization of DC, AC, and Hybrid AC/DC Microgrid-Based IoT Systems: A Review	Belqasem Aljafari, Subramanian Vasantharaj, Vairavasundaram Indragandhi, Rhanganath Vaibhav	Energies	2022

Department of Electrical Engineering

50	Stability Analysis of the Dual Half-Bridge Series Resonant Inverter-Fed Induction Cooking Load Based on Floquet Theory	Belqasem Aljafari, Pradeep Vishnuram, Sureshkumar Alagarsamy, Hassan Haes Alhelou	International Transactions on Electrical Energy Systems	2022
51	Copper doped manganese dioxide as counter electrode for dye-sensitized solar cells	Belqasem Aljafari, Subbiah Vijaya, Arash Takshi, Sambandam Anandan	Arabian Journal of Chemistry	2022
52	Insights into MoS ₂ and its composites for dye-sensitized solar cells	Subbiah Vijaya, Killian Lobato, Belqasem Aljafari, Sambandam Anandan	International Journal of Energy Research	2022
53	Phase change materials integrated solar desalination system: An innovative approach for sustainable and clean water production and storage	Reji Kumar, AK Pandey, M Samykano, Belqasem Aljafari, Zhenjun Ma, Suvanjan Bhattacharyya, Varun Goel, Imtiaz Ali, Richa Kothari, VV Tyagi	Renewable and Sustainable Energy Reviews	2022
54	Design and Implementation of Hybrid PV/Battery-Based Improved Single-Ended Primary-Inductor Converter-Fed Hybrid Electric Vehicle	Belqasem Aljafari, Gunapriya Devarajan, Selvi Arumugam, Indragandhi Vairavasundaram	International Transactions on Electrical Energy Systems	2022
55	Analysis of a Photovoltaic System Based on a Highly Efficient Single-Phase Transformerless Inverter	Belqasem Aljafari, Ashok Kumar Loganathan, Indragandhi Vairavasundaram, Selvamathi Ramachadran, Amutha Prabha Nagarajan	Energies	2022
56	Preparation of poly (ϵ -caprolactone) as a gel electrolyte for dye-sensitized solar cells	Ahalya Gunasekaran, Hsuan-Ying Chen, Vinoth Kumar Ponnusamy, Belqasem Aljafari, Anandan Sambandam	Polymers for Advanced Technologies	2022
57	Integration of photovoltaic-based transformerless high step-up dual-output–dual-input converter with low power losses for energy storage applications	Belqasem Aljafari, Senthil Kumar Ramu, Gunapriya Devarajan, Indragandhi Vairavasundaram	Energies	2022
58	Fuzzy-Based EV Charging Station and DVR-Fed Voltage Compensation for a DFIG-Fed Wind Energy System during Grid Faults	R Uthra, D Suchitra, Thanikanti Sudhakar Babu, Belqasem Aljafari	International Transactions on Electrical Energy Systems	2022
59	A Novel Single-Phase Shunt Active Power Filter with a Cost Function Based Model Predictive Current Control Technique	Belqasem Aljafari, Kanagavel Rameshkumar, Vairavasundaram Indragandhi, Selvamathi Ramachandran	Energies	2022
60	Evaluation of On-Line MPPT Algorithms for PV-Based Battery Storage Systems	Belqasem Aljafari	CMC-Computers Materials & Continua Journal	2022

Department of Electrical Engineering

61	Power losses mitigation through electrical reconfiguration in partial shading prone solar PV arrays	Priya Ranjan Satpathy, Belqasem Aljafari, Sudhakar Babu Thanikanti	Optik	2022
62	Sonochemical decoration of palladium on graphene carpet for electrochemical methanol oxidation	Belqasem Aljafari, Subramanian Arulmani, Arash Takshi, Sambandam Anandan	Journal of Electroanalytical Chemistry	2022
63	Sustainable synthesis of heteroatom-doped porous carbon skeleton from Acacia auriculiformis bark for high-performance symmetric supercapacitor device	Mohammed Jalalah, Siddheswar Rudra, Belqasem Aljafari, Muhammad Irfan, Saleh S Almasabi, Turki Alsuwian, Mohammed Iqbal Khazi, Arpan Kumar Nayak, Farid A Harraz	Electrochimica Acta	2022
64	Steady state modeling and performance analysis of a wind turbine-based doubly fed induction generator system with rotor control	Belqasem Aljafari, Jasmin Pamela Stephenraj, Indragandhi Vairavasundaram, Raja Singh Rassiah	Energies	2022
65	Novel porous heteroatom-doped biomass activated carbon nanoflakes for efficient solid-state symmetric supercapacitor devices	Mohammed Jalalah, Siddheswar Rudra, Belqasem Aljafari, Muhammad Irfan, Saleh S Almasabi, Turki Alsuwian, Akshay A Patil, Arpan Kumar Nayak, Farid A Harraz	Journal of the Taiwan Institute of Chemical Engineers	2022
66	A new multi-output DC-DC converter for electric vehicle application	Mudadla Dhananjaya, Devendra Ponuru, Thanikanti Sudhakar Babu, Belqasem Aljafari, Hassan Haes Alhelou	IEEE Access	2022
67	Ultrasound-aided synthesis of gold-loaded boron-doped graphene quantum dots interface towards simultaneous electrochemical determination of guanine and adenine biomolecules	Reshma Kaimal, Patel Nishant Mansukhlal, Belqasem Aljafari, Sambandam Anandan, Muthupandian Ashokkumar	Ultrasonics Sonochemistry	2022
68	Ancient Chinese magic square-based PV array reconfiguration methodology to reduce power loss under partial shading conditions	Rupendra Kumar Pachauri, Sudhakar Babu Thanikanti, Jianbo Bai, Vinod Kumar Yadav, Belqasem Aljafari, Santosh Ghosh, Hassan Haes Alhelou	Energy Conversion and Management	2022
69	A nanosecond pulsed laser-ablated MWCNT-Au heterostructure: an innovative ultra-sensitive electrochemical sensing prototype for the identification of glutathione	Reshma Kaimal, Periyathambi Senthilkumar, Belqasem Aljafari, Sambandam Anandan	Analyst	2022
70	Synergistic impacts of sonolysis aided photocatalytic degradation of water pollutant over perovskite-type CeNiO ₃ nanospheres	Madappa C Maridevaru, Belqasem Aljafari, Sambandam Anandan, Muthupandian Ashokkumar	New Journal of Chemistry	2022

Department of Electrical Engineering

71	Highly sensitive and selective detection of glutathione using ultrasonic aided synthesis of graphene quantum dots embedded over amine-functionalized silica nanoparticles	Reshma Kaimal, Victor Vinoth, Amol Shrikrishna Salunke, Héctor Valdés, Ramalinga Viswanathan Mangalaraja, Belqasem Aljafari, Sambandam Anandan	Ultrasonics sonochemistry	2022
72	Design of Active Fault-Tolerant Control System for Air-Fuel Ratio control of Internal Combustion engine using nonlinear regression-based observer model	Turki Alsuwian, Arslan Ahmed Amin, Muhammad Sajid Iqbal, Muhammad Bilal Qadir, Saleh Almasabi, Mohammed Jalalah	Plos one	2022
73	Waste cooking oils (WCOs) to biogas nexus: Kinetics, active microbes, and functional enzymes	Nandini Thakur, Mohammed Jalalah, Saeed A Alsareii, Farid A Harraz, El-Sayed Salama, Monika Sharma, Xiangkai Li	Fuel	2022
74	Preliminary Studies on Conversion of Sugarcane Bagasse into Sustainable Fibers for Apparel Textiles	Mohammed Jalalah, Zubair Khaliq, Zulfiqar Ali, Adnan Ahmad, Muhammad Bilal Qadir, Ali Afzal, Umer Ashraf, M Faisal, Mabkhoot Alsaiari, Muhammad Irfan, Saeed A Alsareii, Farid A Harraz	Sustainability	2022
75	Nonwoven/Nanomembrane Composite Functional Sweat Pads	Muhammad Bilal Qadir, Mohammed Jalalah, Muhammad Usman Shoukat, Adnan Ahmad, Zubair Khaliq, Ahsan Nazir, Muhammad Naveed Anjum, Abdul Rahman, Muhammad Qamar Khan, Rizwan Tahir, M Faisal, Mabkhoot Alsaiari, Muhammad Irfan, Saeed A Alsareii, Farid A Harraz	Membranes	2022
76	Biochar addition augmented the microbial community and aided the digestion of high-loading slaughterhouse waste: Active enzymes of bacteria and archaea	Zhaodi Guo, Mohammed Jalalah, Saeed A Alsareii, Farid A Harraz, Nandini Thakur, El-Sayed Salama	Chemosphere	2022
77	Electrospun Nanofiber/Textile Supported Composite Membranes with Improved Mechanical Performance for Biomedical Applications	Mohammed Jalalah, Adnan Ahmad, Asad Saleem, Muhammad Bilal Qadir, Zubair Khaliq, Muhammad Qamar Khan, Ahsan Nazir, M Faisal, Mabkhoot Alsaiari, Muhammad Irfan, Saeed A Alsareii, Farid A Harraz	Membranes	2022

Department of Electrical Engineering

78	Manifestation of the Enhanced Photovoltaic Performance in Eco-Friendly AgBiS ₂ Solar Cells Using Titanium Oxynitride as the Electron Transport Layer	S Akhil, Mithun Prakash Ravikumar, Mohammed Jalalah, Mabkhoot Alsaiani, Farid A Harraz, Sakar Mohan, R Geetha Balakrishna	ENERGY & FUELS	2022
79	Sensitive Electrochemical Detection of 4-Nitrophenol with PEDOT: PSS Modified Pt NPs-Embedded PPy-CB@ ZnO Nanocomposites	Mohd Faisal, Md Mahmud Alam, Jahir Ahmed, Abdullah M Asiri, Mohammed Jalalah, Raja Saad Alruwais, Mohammed M Rahman, Farid A Harraz	Biosensors	2022
80	Ginger Loaded Polyethylene Oxide Electrospun Nanomembrane: Rheological and Antimicrobial Attributes	Anum Javaid, Mohammed Jalalah, Rimsha Safdar, Zubair Khaliq, Muhammad Bilal Qadir, Sumra Zulfiqar, Adnan Ahmad, Aamir Naseem Satti, Aiman Ali, M Faisal, SA Alsareii, Farid A Harraz	Membranes	2022
81	Developing a high-performance aqueous zinc battery with Zn ²⁺ pre-intercalated V3O7·H ₂ O cathode coupled with surface engineered metallic zinc anode	Pranav Kulkarni, Hemanth Kumar Beere, Mohammed Jalalah, Mabkhoot Alsaiani, R Geetha Balakrishna, Farid A Harraz, Debasis Ghosh	Journal of Electroanalytical Chemistry	2022
82	A comprehensive review of pre-lithiation/sodiation additives for Li-ion and Na-ion batteries	Pranav Kulkarni, Hyunyoung Jung, Debasis Ghosh, Mohammed Jalalah, Mabkhoot Alsaiani, Farid A Harraz, R Geetha Balakrishna	Journal of Energy Chemistry	2022
83	High optical performance of Gd ₂ O ₃ -doped PVA/PVP composite films for electronic and laser CUT-OFF filters	TH AlAbdulaal, Ali Almoadi, IS Yahia, HY Zahra, Mohammed S Alqahtani, Khalid I Hussein, Mohammed Jalalah, Farid A Harraz, MS Al-Assiri	Optik	2022
84	Highly sensitive and selective electrochemical sensor for detecting imidacloprid pesticide using novel silver nanoparticles/mesoporous carbon/hematite ore ternary nanocomposite	Md A Rashed, M Faisal, SA Alsareii, Mabkhoot Alsaiani, Mohammed Jalalah, Farid A Harraz	Journal of Environmental Chemical Engineering	2022
85	Hybrid fault-tolerant control for air-fuel ratio control system of internal combustion engine using fuzzy logic and super-twisting sliding mode control techniques	Turki Alsuwian, Umar Riaz, Arslan Ahmed Amin, Muhammad Bilal Qadir, Saleh Almasabi, Mohammed Jalalah	Energies	2022

Department of Electrical Engineering

86	Microwave Assisted Preparation of Barium Doped Titania (Ba/TiO ₂) as Photoanode in Dye Sensitized Solar Cells	Awais Ahmad, Safia Khan, Mariam Khan, Rafael Luque, Mohammed Jalalah, Mabkhoot A Alsaiari	Applied Sciences	2022
87	Simple synthesis and characterization of novel polyvinyl alcohol capped sodium selenite solid composite film (PVA: NaSe SCF) samples	A Bouzidi, W Jilani, TH AlAbdulaal, Mohammed Jalalah, Farid A Harraz, IS Yahia, Medhat A Ibrahim, HY Zahran	Journal of Science: Advanced Materials and Devices	2022
88	Greener Approach for Pd-NPs Synthesis Using Mangifera Indica Leaf Extract: Heterogeneous Nano Catalyst for Direct C-H Arylation of (Poly)Fluorobenzene, Hiyama Coupling Reaction and Hydrogen Evolution Reaction Study	Akshay S Limaye, Mabkhoot Alsaiari, Pratik V Shinde, Arnab Ghosh, Mohammed Jalalah, Chandra Sekhar Rout, Siddappa A Patil, Farid A Harraz, Ramesh B Dateer	Catalysis Letters	2022
89	Ionic Liquid-Aided Synthesis of Anatase TiO ₂ Nanoparticles: Photocatalytic Water Splitting and Electrochemical Applications	TL Soundarya, T Jayalakshmi, Mabkhoot A Alsaiari, Mohammed Jalalah, Antonio Abate, Fahad A Alharthi, Naushad Ahmad, G Nagaraju	Crystals	2022
90	Design of a Hybrid Fault-Tolerant Control System for Air-Fuel Ratio Control of Internal Combustion Engines Using Genetic Algorithm and Higher-Order Sliding Mode Control	Turki Alsuwian, Muhammad Tayyeb, Arslan Ahmed Amin, Muhammad Bilal Qadir, Saleh Almasabi, Mohammed Jalalah	Energies	2022
91	A Comparative Study of Design of Active Fault-Tolerant Control System for Air-Fuel Ratio Control of Internal Combustion Engine Using Particle Swarm Optimization, Genetic Algorithm, and Nonlinear Regression-Based Observer Model	Turki Alsuwian, Muhammad Sajid Iqbal, Arslan Ahmed Amin, Muhammad Bilal Qadir, Saleh Almasabi, Mohammed Jalalah	Applied Sciences	2022
92	Sensitive Electrochemical Detection of Thiourea Utilizing a Novel Silver Nanoparticle-Decorated Porous Silicon-Polyaniline Nanocomposite	Jahir Ahmed, M Faisal, SA Alsareii, Mohammed Jalalah, Farid A Harraz	Journal of The Electrochemical Society	2022
93	Platinum-Dysprosium Alloys as Oxygen Electrodes in Alkaline Media: An Experimental and Theoretical Study	Jadranka Milikić, Nikola Nikolić, Diogo MF Santos, Daniele Macciò, Adriana Saccone, Mabkhoot Alsaiari, Mohammed Jalalah, M Faisal, Farid A Harraz, Yizhao Li, Abu Bakr Nassr, Igor Pašti, Biljana Šljukić	Nanomaterials	2022

94	Highly sensitive and selective thiourea electrochemical sensor based on novel silver nanoparticles/chitosan nanocomposite	Md A Rashed, Jahir Ahmed, M Faisal, SA Alsareii, Mohammed Jalalah, Farid A Harraz	Colloids and Surfaces A: Physicochemical and Engineering Aspects	2022
95	One-pot synthesis of multifunctionalized Nd ₂ O ₃ dispersed ZnO nanocomposites for enhancing electrical, optical, and photocatalytic applications	TH AlAbdulaal, M AlShadidi, Mai SA Hussien, V Ganesh, A Bouzidi, H Algarni, HY Zahran, Mohamed Sh Abdel-wahab, IS Yahia, Dalia Elfiky, Mohammed Jalalah, Farid A Harraz, MS Al-Assiri	Journal of Materials Research and Technology	2022
96	Surface modification of CuO nanoparticles with conducting polythiophene as a non-enzymatic amperometric sensor for sensitive and selective determination of hydrogen peroxide	Md A Rashed, Jahir Ahmed, M Faisal, SA Alsareii, Mohammed Jalalah, Vineet Tirth, Farid A Harraz	Surfaces and Interfaces	2022
97	Ag nanoparticle-decorated chitosan/SrSnO ₃ nanocomposite for ultrafast elimination of antibiotic linezolid and methylene blue	M Faisal, Md Abu Rashed, Jahir Ahmed, Mabkhoot Alsaari, Mohammed Jalalah, Saeed A Alsareii, Farid A Harraz	Environmental Science and Pollution Research	2022
98	Troubleshooting the Limited Zn ²⁺ Storage Performance of the Ag ₂ V ₄ O ₁₁ Cathode in Zinc Sulfate Electrolytes via Favorable Synergism with Reduced Graphene Oxides	Rangaswamy Puttaswamy, Hemanth Kumar Beere, Prahlad Yadav, Mohammed Jalalah, M Faisal, Farid A Harraz, Debasis Ghosh	ACS Applied Energy Materials	2022
99	Towards high nonlinear optical susceptibility of Acid Fuchsin dye deposited on FTO substrate for optoelectronic applications	TH AlAbdulaal, IS Yahia, HY Zahran, SS Shenouda, Mohammed Jalalah, Farid A Harraz, MS Al-Assiri, Dalia Elfiky, Medhat A Ibrahim	Journal of Materials Science: Materials in Electronics	2022
100	Advanced Fault-Tolerant Anti-Surge Control System of Centrifugal Compressors for Sensor and Actuator Faults	Turki Alsuwian, Arslan Ahmed Amin, Muhammad Taimoor Maqsood, Muhammad Bilal Qadir, Saleh Almasabi, Mohammed Jalalah	Sensors	2022
101	Microalgal growth coupled with wastewater treatment in open and closed systems for advanced biofuel generation	Hu Xiaogang, Mohammed Jalalah, Wu Jingyuan, Yuanzhang Zheng, Xiangkai Li, El-Sayed Salama	Biomass Conversion and Biorefinery	2022
102	Highly sensitive and selective amperometric hydrazine sensor based on Au nanoparticle-decorated conducting polythiophene prepared via oxidative	Md A Rashed, M Faisal, Jahir Ahmed, SA Alsareii, Mohammed Jalalah, Farid A Harraz	Journal of Saudi Chemical Society	2022

Department of Electrical Engineering

	polymerization and photo-reduction techniques			
103	Surface-enhanced Raman scattering (SERS) active substrate from gold nanoparticle-coated porous silicon for sensitive detection of horseradish peroxidase enzyme	AM Al-Syadi, M Faisal, Ahmed Mohamed El-Toni, Aslam Khan, Mohammed Jalalah, SA Alsareii, Farid A Harraz	Materials Chemistry and Physics	2022
104	Pt nanoparticles decorated chitosan/ZnTiO ₃ : Ternary visible-light photocatalyst for ultrafast treatment of insecticide imidacloprid and methylene blue	M Faisal, Md A Rashed, Jahir Ahmed, MAM Alhmami, MK Asif Khan, Mohammed Jalalah, SA Alsareii, Farid A Harraz	Journal of the Taiwan Institute of Chemical Engineers	2022
105	Testing of optical, dielectric and photocatalytic properties of Ce ³⁺ doped cobalt-cadmium nanocomposite for high frequency devices and wastewater treatment	M Irfan, M Ayyaz, MY Naz, S Shukrullah, MM Munir, K Kamran, S Rahman, M Jalalah, MKA Khan, M Alsaiari, UM Niazi	Ceramics International	2022
106	Facile and straightforward synthesis of Hydrazone derivatives	Tariq Mahmood Ansari, M Rehan H Shah Gilani, Guobao Xu, Gaolin Liang, Rafael Luque, Mabkhoot Alsaiari, Mohammed Jalalah	Journal of Nanomaterials	2022
107	Nitrogenated Graphene Oxide-Decorated Metal Sulfides for Better Antifouling and Dye Removal	Lavanya Chandra, Kusuma Jagadish, Vinothkumar Karthikeyarajan, Mohammed Jalalah, Mabkhoot Alsaiari, Farid A Harraz, R Geetha Balakrishna	ACS omega	2022
108	Review on Electrochemical Sensing of Triclosan using Nanostructured Semiconductor Materials	Vidhya R Sri, R Shwetharani, Jalalah Mohammed, Alsaiari Mabkhoot, R Geetha Balakrishna, Farid A Harraz	ChemElectroChem	2022
109	Comprehensive Analysis of Spinel-Type Mixed Metal Oxide-Functionalized Polysulfone Membranes toward Fouling Resistance and Dye and Natural Organic Matter Removal	Lavanya Chandra, Mohammed Jalalah, Mabkhoot Alsaiari, R Geetha Balakrishna, Farid A Harraz	ACS omega	2022
110	Peptide assembled in a nano-confined space as a molecular rectifier for the availability of ionic current modulation	Liu Shi, Deqi Kuang, Xuemei Ma, Mohammed Jalalah, Saeed A Alsareii, Tao Gao, Farid A Harraz, Jie Yang, Genxi Li	Nano Letters	2022
111	Hybrid Fault-Tolerant Control for Air-Fuel Ratio Control System of Internal Combustion Engine Using Fuzzy Logic and Super-Twisting Sliding Mode Control Techniques	T Alsuwian, U Riaz, AA Amin, MB Qadir, S Almasabi, M Jalalah	Energies	2022

Department of Electrical Engineering

112	Design of a Hybrid Fault-Tolerant Control System for Air–Fuel Ratio Control of Internal Combustion Engines Using Genetic Algorithm and Higher-Order Sliding Mode Control	T Alsuwian, M Tayyeb, AA Amin, MB Qadir, S Almasabi, M Jalalah	Energies	2022
113	Platinum–Dysprosium Alloys as Oxygen Electrodes in Alkaline Media: An Experimental and Theoretical Study.	J Milikic, N Nikolic, DMF Santos, D Macciò, A Saccone, M Alsaari, M Jalalah, M Faisal, FA Harraz, Y Li	Nanomaterials	2022
114	Development of an amperometric biosensor for dopamine using novel mesoporous silicon nanoparticles fabricated via a facile stain etching approach	Jahir Ahmed, M Faisal, Farid A Harraz, Mohammed Jalalah, SA Alsareii	Physica E: Low-dimensional Systems and Nanostructures	2022
115	Au nanoparticles decorated polypyrrole-carbon black/g-C ₃ N ₄ nanocomposite as ultrafast and efficient visible light photocatalyst	M Faisal, Md A Rashed, Jahir Ahmed, Mabkhoot Alsaari, Mohammed Jalalah, SA Alsareii, Farid A Harraz	Chemosphere	2022
116	Tunable properties of the defect mode of a ternary photonic crystal with a high TC superconductor and semiconductor layers	Abdulkarem HM Almwagani, Dana N Alhamss, Sofyan A Taya, Khedr M Abohassan, Adam RH Alhawari, Ilhami Colak, Shobhit K Patel	Zeitschrift für Naturforschung A	2022
117	Dielectric superconductor binary photonic crystal as an optical sensor for the detection of Escherichia coli bacteria	Sofyan A Taya, Nael Doghmosh, Arvind Sharma, Ilhami Colak, Abdulkarem HM Almwagani	Pramana	2022
118	Tunable properties of the absorption in a binary photonic crystal having a metamaterial as a defect layer and two graphene sheets in the range of GHz	Abdulkarem HM Almwagani, Arvind Sharma, Malek G Daher, Sofyan A Taya, Ilhami Colak, Shobhit K Patel	Optical and Quantum Electronics	2022
119	Energy efficient and privacy protection window system for smart home using polymer-dispersed liquid crystals glass.	Adam Reda Hasan Alhawari, Abdulkarem Hussein Mohammed Almwagani, Hisham Alghamdi, Ayman Taher Hindi, Azzan Alyami, Abdulrahman Alyami, Yahya Aldaweis, Mahdi Al-Gannas, Abdultawab Qahtan	International Journal of Electrical & Computer Engineering (2088-8708)	2022
120	Highly sensitive nano-biosensor based on a binary photonic crystal for cancer cell detection	Abdulkarem HM Almwagani, Malek G Daher, Sofyan A Taya, Ilhami Colak, Shobhit K Patel, Omar M Ramahi	Optical and Quantum Electronics	2022
121	Sucrose concentration detector based on a binary photonic crystal with a defect layer and two nanocomposite layers	Abdulkarem HM Almwagani, Bhuvneshwer Suthar, Anami Bhargava, Sofyan A Taya, Malek G Daher, Feng Wu, Ilhami Colak	Zeitschrift für Naturforschung A	2022

122	A comparative study of 1D metallic (Au, Ag, Cu, Al) thermal tunable photonic crystal filter with exponentially graded thickness	Abdulkarem HM Almawgani, Dana N Alhamss, Sofyan A Taya, Melad Olaimat, Ilhami Colak, Shobhit K Patel	Indian Journal of Physics	2022
123	The properties of a tunable terahertz filter based on a photonic crystal with a magnetized plasma defect layer	Abdulkarem HM Almawgani, Dana N Alhamss, Sofyan A Taya, Ilhami Colak, Arvind Sharma, Adam RH Alhawari, Shobhit K Patel	Physics of Fluids	2022
124	Experimental Evaluation of Thermal and Lighting Performance Using Double Dynamic Insulated Glazing	Abdultawab M Qahtan, Abdulkarem HM Almawgani	Buildings	2022
125	Design of a Novel Protein Sensor of High Sensitivity Using a Defective Ternary Photonic Crystal Nanostructure	Abdulkarem HM Almawgani, Sofyan A Taya, Malek G Daher, Adam RH Alhawari, Ilhami Colak, Shobhit K Patel	Silicon	2022
126	Detection of blood plasma concentration theoretically using SPR-based biosensor employing black phosphor layers and different metals	Abdulkarem HM Almawgani, Malek G Daher, Sofyan A Taya, Melad M Olaimat, Adam RH Alhawari, Ilhami Colak	Plasmonics	2022
127	Optimization of the temperature dependence of a defect mode in a binary defective photonic crystal	Abdulkarem HM Almawgani, Sofyan A Taya, Sahar M Abulbaid, Dana N Alhamss, Ilhami Colak	International Journal of Modern Physics B	2022
128	Optical detection of fat concentration in milk using MXene-based surface plasmon resonance structure	Abdulkarem HM Almawgani, Malek G Daher, Sofyan A Taya, Mohammad Mashagbeh, Ilhami Colak	Biosensors	2022
129	High Gain Compact UWB Antenna for Ground Penetrating Radar Detection and Soil Inspection	Tale Saeidi, Adam RH Alhawari, Abdulkarem HM Almawgani, Turki Alsuwian, Muhammad Ali Imran, Qammer Abbasi	Sensors	2022
130	Refractometric and temperature sensors based on one-dimensional binary photonic crystal including a superconducting layer	Abdulkarem HM Almawgani, Sofyan A Taya, Mariam A Abutailkh, Nael Doghmosh, Ilhami Colak	Cryogenics	2022
131	Back reflector coating using a photonic crystal for highly efficient solar cells using a new metamaterial with the most extreme positive index of refraction	Sofyan A Taya, Sahar M Abulbaid, Dana N Alhamss, Shobhit K Patel, Ilhami Colak, Abdulkarem HM Almawgani	Indian Journal of Physics	2022
132	Dispersion properties of a slab waveguide with a graded-index core layer and a nonlinear cladding using the WKB approximation method	Abdulkarem HM Almawgani, Sofyan A Taya, Aya J Hussein, Ilhami Colak	JOSA B	2022

133	Design of a nano-sensor for cancer cell detection based on a ternary photonic crystal with high sensitivity and low detection limit	Malek G Daher, Sofyan A Taya, Ilhami Colak, Dhasarathan Vigneswaran, Melad M Olaimat, Shobhit K Patel, Omar M Ramahi, Abdulkarem HM Almwagani	Chinese Journal of Physics	2022
134	Hybrid image steganography method using Lempel Ziv Welch and genetic algorithms for hiding confidential data	AHM Almwagani, Adam RH Alhawari, Ayman Taher Hindi, Waled Hussein Al-Arashi, AY Al-Ashwal	Multidimensional systems and signal processing	2022
135	Numerical analysis of non-aligned inputs M-type micromixers with different shaped obstacles for biomedical applications	Muhammad Irfan, Imran Shah, Usama M Niazi, Muhsin Ali, Sadaqat Ali, Mohammed S Jalalah, Muhammad K Asif Khan, Abdulkarem Hussein Mohammed Almwagani, Saifur Rahman	Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering	2022
136	Detection of glucose concentration using a surface plasmon resonance biosensor based on barium titanate layers and molybdenum disulphide sheets	Abdulkarem HM Almwagani, Sofyan A Taya, Malek G Daher, Ilhami Colak, Feng Wu, Shobhit K Patel	Physica Scripta	2022
137	Response Surface Methodology analysis of pyrolysis reaction rate constants for predicting efficient conversion of bulk plastic waste into oil and gaseous fuels,	Muhammad Irfan, Rao Adeel Un Nabi, Hammad Hussain, Muhammad YasinNaz, Shazia Shukrullah, Hassan Abbas Khawaja, Saifur Rahman, Abdulnoor A. J. Ghanim, Izabela Kruszelnicka, Dobrochna Ginter-Kramarczyk, Stanisław Legutko,	Energies	2022
138	Trust-based Beacon Node Localization Algorithm for Underwater Networks by Exploiting Nature Inspired Meta-Heuristic Strategies,	Umar Draz, Muhammad Hasanain Chaudary, Tariq Ali, Abid Sohail, Muhammad Irfan, Grzegorz Nowakowski,	Electronics	2022
139	A review of the importance of synchrophasor technology, smart grid, and applications,	Maveeya Baba,, Nursyarizal B.M. Nor, M. Aman Sheikh, Grzegorz Nowakowski, Faisal Masood, Masood Rehman, Muhammad Irfan, Ahmed Amirul Arefin, Rahul Kumar and A. Momin Baba	Bulletin of the Polish Academy of Sciences Technical Sciences	2022
140	A review of the importance of synchrophasor technology, smart grid, and applications	Muhammad Irfan, Ch. Anwar Ul Hassan, Faisal Althobiani, Nasir Ayub, Raja Jalees ul Hussen Khan, Emad Ismat Ghandourah, Majid A Almas, Saleh	Computer Systems Science and Engineering	2022

		Mohammed Ghonaim, V.R. Shamji, Saifur Rahman		
141	Robust Data-Driven Design for Fault Diagnostics of Industrial Drives	Umair Rashid, Muhammad Asim Abbasi, Abdul Qayyum Khan, Muhammad Irfan, Muhamad Abid, Grzegorz Nowakowski	Electronics	2022
142	Health Impacts of Surface Ozone in Outdoor and Indoor Environments of Hattar Industrial Units, KPK, Pakistan	Jadoon, Suneela, Shamyala Nawazish, Zahid Majeed, Ayesha Baig, Syed Majid Bukhari, Abu ul Hassan Faiz, Abdulnoor A. J. Ghanim, Muhammad Irfan, Saifur Rahman, and Farid Ullah	Atmosphere	2022
143	Electrospun Nanofiber /Textile Supported Composite Membranes with Improved Mechanical Performance for Biomedical Applications,	Mohammed Jalalah, Adnan Ahmad, Asad Saleem, Muhammad Bilal Qadir, Zubair Khaliq, Muhammad Qamar Khan, Ahsan Nazir, M. Faisal, Mabkhoot A. Alsaiari, Muhammad Irfan, Saeed Ali Alsareii, Farid A. Harraz,	Membranes	2022
144	Computer Aided COVID-19 Diagnosis in Pandemic era Using CNN in Chest X-Ray Images	Ali Alqahtani, Mirza Mumtaz Zahoor, Rimsha Nasrullah, Ahmad Afzaal Cheema, Aqil Fareed, Abdullah Shahrose, Muhammad Irfan, Abdulmajeed Alqhatani, Abdulaziz A. Alsulami, Maryam Zaffar , Saifur Rahman,	Life	2022
145	Catalytic Hydrogen Evolution from H ₂ S cracking over CrxZnS catalyst in an atmospheric pressure cylindrical dielectric barrier discharge plasma reactor,	Saba Afzal, Humaira Hussain, Muhammad Yasin Naz, Shazia Shukrullah, Irshad Ahmad, Muhammad Irfan, Salim Nasar Faraj Mursal, Stanislaw Legutko, Izabela Kruszelnicka, Dobrochna Ginter-Kramarczyk,	Materials	2022
146	Assessment of Climate Change and Its Impacts on the Flows of a Subtropical River Basin in the Hindu-Kush Mountain, South Asia	Muhammad Naveed Anjum, Abdulnoor A. J. Ghanim, Hafiz Umar Farid, Muhammad Zaman, Usama Muhammad Niazi, Saif Ur Rahman, Mabkhoot A. Alsaiari, Muhammad Irfan	Pure and Applied Geophysics	2022
147	Synthesis and testing of photocatalytic potential of MgFe ₂ O ₄ /ZnO/ perlite	Muhammad Shoaib, Muhammad Yasin Naz, Shazia Shukrullah, Muhammad Adnan Munir,	Applied Physics A	2022

Department of Electrical Engineering

	magnetic heterojunction for degradation of synthetic dyes	Abdul Ghaffar, Muhammad Irfan, Salim Nasar Faraj Mursal, Kashif Kamran		
148	Enhancement of magneto-electric properties of Ni _{0.25} Cu _{0.25} Zn _{0.50} magnetic nanoparticles through non-thermal microwave plasma treatment for high frequency and energy storage applications	Muhammad Adnan Munir, Muhammad Yasin Naz, Shazia Shukrullah, Muhammad Tamoor Ansar, Muhammad Umar Farooq, Muhammad Irfan, Salim Nasar Faraj Mursal, Stanislaw Legutko, Jana Petru, Marek Pagac	Materials	2022
149	Deep Learning Models for Classification of Dental Diseases using Orthopantomography X-Ray OPG Images	Yassir Edrees Almalki, Asma Imam Din, Muhammad Ramzan, Muhammad Irfan, Khalid Mahmood Aamir, Abdullah Almalki, Saud Alotaibi, Ghada Alaglan, Hassan A Alshamrani, Saif Ur Rehman	Sensors	2022
150	An Improved mayfly Method to Solve Distributed Flexible Job Shop Scheduling Problem under Dual Resource Constraints	Shoujing Zhang, Tiantian Hou, Qing Qu, Adam Glowacz, Samar M. Alqhtani, Muhammad Irfan, Grzegorz Królczyk, Zhixiong Li	Sustainability	2022
151	360 Retail Business Analytics by Adopting Hybrid Machine Learning and Business Intelligence Approaches	Abdulmajeed Alqhatani, Muhammad Shoaib Ashraf, Javed Ferzand, Ahmad Shaf, Hamad Ali Abosaq, Saifur Rahman, Muhammad Irfan, Samar M. Alqhtani	Sustainability	2022
152	IoT framework for decision making system of obesity and overweight extrapolation among children, youths, and adults	Saeed Ali Alsareii, Ahmad Shaf, Tariq Ali, Maryam Zafar, Abdulrahman Manaa Alamri, Mansour Yousef AlAsmari, Muhammad Irfan, Muhammad Awais	Life	2022
153	Multiscale Ground Validation of Satellite and Reanalysis Precipitation Products over Diverse Climatic and Topographic Conditions	Muhammad Umer Nadeem, Abdulnoor A. J. Ghanim, Muhammad Naveed Anjum, Donghui Shangguan, Ghulam Rasool, Muhammad Irfan, Usama Muhamad Niazi, Sharjeel Hassan	Remote Sensing	2022
154	A Turf Feature Selection Based Technique for Predicting Factors Affecting Human Health During Pandemic	Alqahtani Saeed, Maryam Zaffar, Mohammed Ali Abbas, Khurram Shehzad Quraishi, Abdullah Shahrose, Muhammad	Life	2022

		Irfan, Mohammed Ayed Huneif, Alqahtani Abdulwahab, Sharifa Khalid Alduraibi, Fahad Alshehri, Alaa Khalid Alduraibi, Ziyad Almushayti		
155	Statistical prediction of rate constants for pyrolysis of high-density plastic through MLR analysis using R software	Rao Adeel Un Nabi, Muhammad Yasin Naz, Shazia Shukrullah, Madiha Ghamkhar, Najeeb Ur Rehman, Muhammad Irfan, Ali O. Alqarni, Stanislaw Legutko, Izabela Kruszelnicka, Dobrochna Ginter-Kramarczyk, Marek Ochowiak, Sylwia Włodarczak, Andżelika Krupińska, Magdalena Matuszak	Materials	2022
156	Enhancement of Medical Images through Iterative McCann Retinex Algorithm: A Case of Detecting Brain Tumor and Retinal Vessel Segmentation	Yassir Edrees Almalki, Nisar Ahmed Jandan, Toufique Ahmed Soomro, Ahmed Ali, Pardeep Kumar, Muhammad Irfan, Muhammad Usman Keerio, Saifur Rahman, Ali Alqahtani, Samar Alqhtani, Mohammed Awaji M Hakami, Saeed Alqahtani, Waleed A Aldhabaan, Abdulrahman Samir Khairallah,	Applied Sciences	2022
157	Performance prediction of erosive wear of steel for two-phase flow in an inverse U-bend	Saifur Rahman, Rehan Khan, Usama Muhammad Niazi, Stanislaw Legutko, Muhammad Ali Khan, Bilal Anjum Ahmed, Jana Petrů, Jiri Hajnys, Muhammad Irfan,	Materials	2022
158	Statistical Optimization of Pyrolysis Process for Thermal Destruction of Plastic Waste based on Temperature Dependent Activation Energies and Pre-Exponential Factors	Ali O. Alqarni, Rao Adeel Un Nabi, Faisal Althobiani , Muhammad Yasin Naz, Shazia Shukrullah, Hassan Abbas Khawaja, Mohammed A. Bou- Rabee, Mohammad E. Gommosani, Hesham Abdushkour, Muhammad Irfan and Mater H. Mahnashi	Processes	2022
159	A Novel Design and Development of a Strip-Fed Circularly Polarized Rectangular Dielectric Resonator Antenna for 5G NR Sub-6GHz Band Applications	Usman Illahi, Javed Iqbal, Muhammad Irfan, Mohammad Ismail Sulaiman, Muhammad Abbas Khan, Abdul Rauf, Inam Bari, Mujeeb Abdullah, Fazal	Sensors	2022

		Muhammad, Grzegorz Nowakowski, Adam Glowacz		
160	Isolated Convolutional-Neural-Network- Based Deep Feature Extraction for Brain Tumor Classification using Shallow Classifier	Yassir Edrees Almalki, Muhammad Umair Ali, Karam Dad Kallu, Manzar Masud, Amad Zafar, Sharifa Kha-lid Alduraibi, Muhammad Irfan, Mohammad Abd Alkhalik Basha, Hassan A Alshamrani, Alaa Khalid Alduraibi, and Mervat Aboualkheir	Diagnostics	2022
161	Physical Activity Monitoring and Classification using Machine Learning Techniques	Saeed Ali Alsareii, Muhammad Awais, Abdulrahman Manaa Alamri, Mansour Yousef AlAsmari, Muhammad Irfan, Nauman Aslam, Mohsin Raza	Life	2022
162	Robust Gaussian and Non-Linear Hybrid Invariant Clustered Features Aided Approach for Speeded Brain Tumor Diagnosis	Yassir Edrees Almalki, Muhammad Umair Ali, Waqas Ahmed, Karam Dad Kallu, Amad Zafar, Sharifa Khalid Alduraibi, Muhammad Irfan, Mohammad Abd Alkhalik Basha, Hassan A Alshamrani, Alaa Khalid Alduraibi	Life	2022
163	A Review to Diagnose Faults Related to Three-Phase Industrial Induction Motors	Muhammad Aman Sheikh, Sheikh Tahir Bakhsh, Muhammad Irfan, Nursyarizal bin Mohd Nor, Grzegorz Nowakowski	Journal of Failure Analysis and Prevention	2022
164	A Novel Routing Protocol Based on Elliptical Shaped Movement of AUVs in Data Gathering Process for Underwater Wireless Sensor Network	Ghulam Ali, Tariq Ali, Insha Ul Hassan, Ahmad Shaf, Muhammad Irfan, Grzegorz Nowakowski, Kazimierz Kielkowicz, Adam Glowacz, Samar M. Alqhtani	Sensors	2022
165	Cactus-Shaped Frequency Reconfigurable Antenna for Sub 10 GHz Wireless Applications	Muhammad Irfan, Wasi Ur Rehman Khan, Sadiq Ullah, Naveed Mufti2, Muhammad Fawad Khan, Rizwan Ullah, Usman Ali, Fazal Muhammad, Faisal Althobiani, Mohammed Alshareef, Shadi Alghaffari, Saifur Rehman and V.R. Shamji	Computer Systems Science and Engineering	2022

166	Automatic Detection of Outliers in Multi-Channel EMG Signals Using MFCC and SVM,	Muhammad Irfan, Khalil Ullah, Fazal Muhammad, Salman Khan, Faisal Althobiani, Muhammad Usman, Mohammed Alshareef, Shadi Alghaffari and Saifur Rahman	Intelligent Automation & Soft Computing	2022
167	Construction of 0D/2D Schottky Heterojunctions of ZnO and Ti3C2 Nanosheets with the Enriched Transfer of Interfacial Charges for Photocatalytic Hydrogen Evolution	Muhammad Irfan, Irshad Ahmad, Shazia Shukrullah, Humaira Hussain, Atif Abbas, Stanislaw Legutko, Jana Petrů, Michal Hatala, Muhammad Yasin Naz, Saifur Rahman	Materials	2022
168	Prediction of Runoff in Watersheds Located within Data-Scarce Region	Abdulnoor A. J. Ghanim , Salmia Beddu , Teh Sabariah Binti Abd Manan, Saleh H. Al Yami, Muhammad Irfan, Salim Nasar Faraj Mursal, Nur Liyana Mohd Kamal, Daud Mohamad, Affiani Machmudah, Saba Yavari, Wan Hanna Melini Wan Mohtar, Amirudin Ahmad, Nadiah Wan Rasdi, Taimur Khan	Sustainability	2022
169	Nanocarriers for Smart Therapeutic Strategies to Treat Drug-resistant Tumors: A Review	Abdulsalam A. Alqahtani, Hira Aslam, Shazia Shukrullah, Hareem Fatima, Muhammad Yasin Naz, Saifur Rahman, Mater H. Mahnashi, Muhammad Irfan	ASSAY and Drug Development Technologies	2022
170	Evaluation of Ultrasonically ZnO Loading Effect on Photocatalytic Self-Cleaning, UV Protection and Antibacterial Activity of Plasma/Citric Acid-Activated Cotton Fabric	Muhammad Irfan, Humaira Hussain, Bisma Saleem, Muhammad Saleem, Shazia Shukrullah, Stanislaw Legutko, Jana Petrů, Muhammad Yasin Naz, Marek Pagáč, Saifur Rahman, Rehan Khan	Nanomaterials	2022
171	Liver Ailment Prediction Using Random Forest Model	Fazal Muhammad1, Bilal Khan, Rashid Naseem, Abdullah A Asiri, Hassan A Alshamrani, Khalaf A Alshamrani, Samar M Alqhtani, Muhammad Irfan, Khlood M Mehdar and Hanan Talal Halawani	Computers, Materials & Continua	2022
172	Machine Learning-Based Models for Magnetic Resonance Imaging (MRI)-Based Brain Tumor Classification	Abdullah A Asiri, Bilal Khan, Fazal Muhammad, Shams ur Rahman, Hassan A Alshamrani,	Computers, Materials & Continua	2022

		Khalaf A Alshamrani, Muhammad Irfan and Fawaz F Alqhtani		
173	Heart Disease Risk Prediction Expending of Classification Algorithms	Nisha Mary, Bilal Khan, Abdullah A Asiri, Fazal Muhammad, Salman Khan, Samar Alqhtani, Khlood M Mehdar, Hanan Talal Halwani, Muhammad Irfan and Khalaf A Alshamrani	Computers, Materials & Continua	2022
174	Human Emotions Classification Using EEG via Audiovisual Stimuli and AI	Abdullah A Asiri, Akhtar Badshah, Fazal Muhammad, Hassan A Alshamrani, Khalil Ullah, Khalaf A Alshamrani, Samar Alqhtani, Muhammad Irfan, Hanan Talal Halawani and Khlood M Mehdar,	Computers, Materials & Continua	2022
175	Block-Wise Neural Network for Brain Tumor Identification in Magnetic Resonance Images	Abdullah A Asiri, Muhammad Aamir, Ahmad Shaf, Tariq Ali, Muhammad Zeeshan, Muhammad Irfan, Khalaf A Alshamrani, Hassan A Alshamrani, Fawaz F Alqahtani and Ali H D Alshehri	Computers, Materials & Continua	2022
176	Multi-Level Deep Generative Adversarial Networks for Brain Tumor Classification on Magnetic Resonance Images	Abdullah A Asiri, Ahmad Shaf, Tariq Ali, Muhammad Aamir, Ali Usman, Muhammad Irfan, Hassan A Alshamrani, Khlood M Mehdar, Osama M Alshehri and Samar M. Alqhtani	Intelligent Automation & Soft Computing	2022
177	Impairments Approximations in Assembled mmWave and Radio Over Fiber Network	Muhammad Irfan, Farman Ali, Fazal Muhammad, Saifur Rahman, Ammar Armghan, Yousaf Khan, Faisal Althobiani, Rehan Shafiq, Mohammed Alshareef and Mohammad E. Gommosani	Computers, Materials & Continua	2022
178	Kinetics and adsorption isotherms of amine-functionalized Magnesium ferrite produced using sol-gel method for treatment of heavy metals in wastewater	Muhammad Irfan, Fareeda Zaheer, Humaira Hussain, Muhammad Yasin Naz, Shazia Shukurullah, Stanislaw Legutko, Mater H Mahnashi, Mabkhoot A Alsaiani, Abdunour Ali Jazem Ghanim, Saifur Rahman, Omar Alshorman, Fahad Salem	Materials	2022

		Alkahtani, Muhammad K. A. Khan, Izabela Kruszelnica, Dobrochna Ginter- KramarczykHamdan Haji. Ya, Imran Shah, Usama Muhammad Niazi, Bilal Anjum Ahmed		
179	Influence of elbow angle on erosion- corrosion of 1018 steel for gas-liquid- solid three phase flow	Rehan Khan, Hamdan Haji. Ya, Imran Shah, Usama Muhammad Niazi, Bilal Anjum Ahmed, Muhammad Irfan, Adam Glowacz, Zbigniew Pilch, Frantisek Brumercik, Mohammad Azeem, Mohammad Azad Alam, Tauseef Ahmed	Materials	2022
180	Non-thermal plasma reduction of Ag+ ions into silver nanoparticles in open atmosphere under statistically optimized conditions for biological and photocatalytic applications	Noor Ul Huda Altaf, Muhammad Yasin Naz, Shazia Shukrullah, Madiha Ghamkhar, Muhammad Irfan, Saifur Rahman, Tomasz Jakubowski, Esam A Alqurashi, Adam Glowacz, Mater H Mahnashi	Materials	2022
181	Automated Speech Recognition System to Detect Babies' Feelings through Feature Analysis	Sana Yasin, Umar Draz, Tariq Ali, Kashaf Shahid, Amna Abid, Rukhsana Bibi, Muhammad Irfan, Mohammed A. Huneif, Sultan A. Almedhesh, Seham M Alqahtani, Alqahtani Abdulwahab, Mohammed Jamaan Alzahrani, Dhafer Batti Alshehri, Alshehri Ali Abdullah and Saifur Rahman	Computers, Materials & Continua	2022
182	A Novel Inherited Modeling Structure of Automatic Brain Tumor Segmentation from MRI	Abdullah A Asiri, Tariq Ali, Ahmad Shaf, Muhammad Aamir, Muhammad Shoaib, Muhammad Irfan, Hassan A Alshamrani1, Fawaz F Alqahtani and Osama M Alshehri	Computers, Materials & Continua	2022
183	Investigating the impact of Cu ²⁺ doping on morphological, structural, optical and electrical properties of CoFe ₂ O ₄ nanoparticles for use in electrical devices	Shahroz Saleem, Muhammad Irfan, Muhammad Yasin Naz, Shazia Shukrullah, Muhammad Adnan Munir, Muhammad Ayyaz, Abdullah Saeed Alwadie, Stanislaw Legutko, Jana Petrů, Saifur Rahman	Materials	2022

184	Effect of operating parameters and energy expenditure on the biological performance of rotating biological contactor for wastewater treatment	Muhammad Irfan, Sharjeel Waqas, Javed Akbar Khan, Saifur Rahman, Izabela Kruszelnicka, Dobrochna Ginter-Kramarczyk, Stanislaw Legutko, Marek Ochowiak, Sylwia Włodarczak, Krystian Czernek	Energies	2022
185	Breast Cancer Detection in Saudi Arabian Women Using Hybrid Machine Learning on Mammographic Images	Yassir Edrees Almalki, Ahmad Shaf, Tariq Ali, Muhammad Aamir, Sharifa Khalid Alduraibi, Shoayea Mohessen Almutiri, Muhammad Irfan, Mohammad Abd Alkhalik Basha, Alaa Khalid Alduraibi, Abdulrahman Manaa Alamri, Muhammad Zeeshan Azam, Khalaf Alshamrani and Hassan A. Alshamrani	Computers, Materials & Continua	2022
186	LBP-Bilateral-Based Feature Fusion Classification for Breast Cancer Diagnosis	Yassir Edrees Almalki, Maida Khalid, Sharifa Khalid Alduraibi, Qudsia Yousaf, Maryam Zaffar, Shoayea Mohessen Almutiri, Muhammad Irfan, Mohammad Abd Alkhalik Basha, Alaa Khalid Alduraibi, Abdulrahman Manaa Alamri, Khalaf Alshamrani and Hassan A Alshamrani	Computers, Materials & Continua	2022
187	Si/SiO ₂ /Al ₂ O ₃ supported growth of CNT forest for the production of La/ZnO/CNT photocatalyst for hydrogen production	Muhammad Irfan, Shazia Shukrullah, Muhammad Yasin Naz, Irshad Ahmad, Bilal Shoukat, Stanislaw Legutko, Jana Petrů, Saifur Rahman, Mabkhoot A. Alsaiani	Materials	2022
188	Computerized Analysis of Mammogram images for Early Detection of Breast Cancer,	Yassir Edrees Almalki, Toufique Soomro, Muhammad Irfan, Sharifa Khalid Alduraibi, Ahmed Ali	Healthcare	2022
189	False Data Injection Detection for Phasor Measurement Units	Saleh Almasabi, Turki Alsuwian, Muhammad Awais, Muhammad Irfan, Mohammed Jalalah, Belqasem Aljafari, Farid Harraz	Sensors	2022
190	Microstructure and mechanical properties of modified 316L stainless steel alloy for	Sadaqat Ali, Muhammad Irfan, Usama Muhammad Niazi,		2022

	biomedical applications using Powder Metallurgy	Ahmad Majdi Abdul Rani, Ahmad Rashedi, Saifur Rahman, Muhammad Kamal Asif Khan, Mabkhoot A Alsaiari, Stanislaw Legutko, Jana Petrů, Antonin Trefil	Materials	
191	A Comparison of Machine Learning Methods for the Diagnosis of Motor Faults using Automated Spectral Feature Extraction Technique	Muhammad Irfan, Abdullah Saeed Alwadie, Faisal AlThobiani, Khurram Shehzad Quraishi, Mohammed Jalalah, Ali Abbass, Saifur Rahman, Muhammad Kamal Asif Khan, Samar Alqhtan	Journal of Nondestructive Evaluation	2022
192	Design and Development of Low-Cost EEG Headset for Paralyzed Patients	Riaz Muhammad I, Ahmed Ali, M. Abid Anwar, Toufique Ahmed Soomro, Omar AlShorman, Adel Alshahrani, Mahmoud Masadeh, Ghulam Md Ashraf, Naif H. Ali, Muhammad Irfan and Athanasios Alexiou I	Intelligent Automation & Soft Computing	2022
193	A Novel Hybrid Machine Learning Approach for Classification of Brain Tumor Images	Abdullah A Asiri, Amna Iqbal, Javed Ferzund, Tariq Ali, Muhammad Aamir, Khalaf A Alshamrani, Hassan A Alshamrani, Fawaz F Alqahtani, Muhammad Irfan and Ali H DAlshehri	Computers, Materials & Continua	2022
194	Condition monitoring of water pump bearings using ensemble classifier	Muhammad Irfan , Faisal Althobiani, Abdullah Saeed Alwadie, Maryam Zaffar, Ali Abbass, Adam Glowacz, Saleh Mohammed Ghonaim, Hesham Abdushkour, Saifur Rahman, Omar Alshorman, Mohammad Kamal Asif Khan, Samar Alqhtani and Fahad Salem Alkahtani	Advances in Mechanical Engineering	2022
195	Response Surface Methodology and Artificial Neural Network Modelling of Membrane Rotating Biological Contactors for Wastewater Treatment	Muhammad Irfan, Sharjeel Waqas, Ushtar Arshad, Javed Akbar Khan, Stanislaw Legutko, Izabela Kruszelnicka, Dobrochna Ginter-Kramarczyk, Saifur Rahman, Anna Skrzypczak	Materials	2022
196	Experimental and Numerical investigation of effect of Static and Fatigue Loading on	Muhammad Azeem, Muhammad Irfan, Manzar Masud, Gulfam Ul	Materials	2022

Department of Electrical Engineering

	Behavior of Different Double Strap Adhesive Joints configurations in Fiber Metal Laminates	Rehman, Haider Ali, Muhammad Umair Ali, Amad Zafar, Usama Muhammad Niazi, Saifur Rahman, Stanislaw Legutko, Jana Petrů, Jiří Kratochvíl		
197	Bio-convective Darcy-Forchheimer oscillating thermal flow of Eyring-Powell nanofluid subject to exponential heat source/sink and modified Cattaneo-Christov model applications	Sami Ullah Khan, Muhammad Irfan, M. Ijaz Khan, A. Abbasi, Saif Ur Rahman, Usama Muhammad Niazi, Shahid Farooq	Journal of the Indian Chemical Society	2022
198	Finite Element Analysis of Silver Nanorods, Spheres, Ellipsoids and Core-shell Structures for Hyperthermia Treatment of Cancer	Muhammad Usama Daud, Ghulam Abbas, Muhammad Afzaal, Muhammad Yasin Naz, Nazma Goher Fatima, Abdul Ghuffar, Muhammad Irfan, Mater H. Mahnashi, Stanislaw Legutko, Jana Petrů, Jiří KRATOCHVÍL	Materials	2022
199	Gold Nanorods for Doxorubicin Delivery: Numerical Analysis of Electric Field Enhancement, Optical Properties and Drug Loading/Releasing Efficiency	Muhammad Qamar, Ghulam Abbas, Muhammad Afzaal, Muhammad Yasin Naz, Abdul Ghuffar, Muhammad Irfan, Stanislaw Legutko, Jerzy Józwick, Magdalena Zawada-Michalowska, Abdunour Ali Jazem Ghanim, Saifur Rahman, Usama Muhammad Niazi, Mohammed Jalalah, Fahad Salem Alkahtani, Mohammad K. A. Khan, Ewelina Kosicka	Materials	2022
200	A Novel-based Swin Transfer Based Diagnosis of COVID-19 Patients	Yassir Edrees Almalki, Maryam Zaffar, Muhammad Irfan, Mohammad Ali Abbas, Maida Khalid, KS Quraishi, Tariq Ali, Fahad Alshehri, Sharifa Khalid Alduraibi, Abdullah A Asiri, Mohammad Abd Alkhalik Basha, Alaa Alduraibi, M. K. Saeed and Saifur Rahman	Intelligent Automation & Soft Computing	2022
201	Energy Theft Identification Using Adaboost Ensembler in the Smart Grids	Muhammad Irfan, Nasir Ayub, Faisal Althobiani, Zain Ali, Muhammad Idrees, Saeed Ullah, Saifur Rahman, Abdullah Saeed Alwadie, Saleh Mohammed Ghonaim, Hesham Abdushkour,	Computers, Materials & Continua	2022

		Fahad Salem Alkahtani, Samar Alqhtani and Piotr Gas		
202	Week Ahead Electricity Power and Price Forecasting using Improved DenseNet-121 Method	Muhammad Irfan, Nasir Ayub, Faisal Althobiani, Zain Ali, Muhammad Idrees, Saeed Ullah, Saifur Rahman, Abdullah Saeed Alwadie, Saleh Mohammed Ghonaim, Hesham Abdushkour, Fahad Salem Alkahtani, Samar Alqhtani,	Computers, Materials & Continua	2022
203	Impact of Image Enhancement Module for Analysis of Mammogram Images for Diagnostics of Breast Cancer	Yassir Edrees Almalki, Toufique Ahmed Soomro, Muhammad Irfan, Sharifa Khalid Alduraibi, Ahmed Ali	Sensors	2022
204	Machine Learning and Internet of Things Enabled Monitoring of Post-Surgery Patients: A Pilot Study	Saeed Ali Alsareii, Mohsin Raza, Abdulrahman Manaa Alamri, Mansour Yousef AlAsmari, Muhammad Irfan, Umar Khan, Muhammad Awais	Sensors	2022
205	Brain Tumor/Mass Classification Framework Using Magnetic Resonance Imaging-Based Isolated and Developed Transfer Deep Learning Model	Muhannad Faleh Alanazi, Muhammad Umair Ali, Shaik Javeed Hussain, Amad Zafar, Mohammed Mohatram, Muhammad Irfan, Raed AlRuwaili, Mubarak Alruwaili, Naif H. Ali, Anas Mohammad Albarrak	Sensors	2022
206	Influential study of novel microorganism and nanoparticles during heat and mass transport in Homann flow of visco-elastic materials	Muhannad Latif Ahmad, Muhammad Irfan, Saleem Javed, M. Ijaz Khan, M. Riaz Khan, Usama Muhammad Niazi, Ali O. Alqarni, Essam Roshdy El-Zahar	International Communications in Heat and Mass Transfer	2022
207	Assessment of PERSIANN-CCS, PERSIANN-CDR, SM2RAIN-ASCAT, and CHIRPS-2.0 Rainfall Products over a Semi-Arid Subtropical Climatic Region	Muhammad Naveed Anjum, Muhammad Irfan, Muhammad Waseem, Megersa Kebede Leta, Usama Muhammad Niazi, Saifur Rahman, Abdulnoor Ghanem, Muhammad Ahsan Mukhtar, Muhammad Umar Nadeem	Water	2022
208	Analyzing Distributed Vibrating Sensing Technologies in Optical Meshes	Saifur Rahman, Farman Ali, Fazal Muhammad, Muhammad Irfan, Adam Glowacz, Mohammed Shahed Akond, Salim Nasar Faraj Mursal, Amjid Ali	Micromachines	2022

Department of Electrical Engineering

قسم الهندسة الكهربائية

209	Testing of optical, dielectric and photocatalytic properties of Ce ³⁺ doped cobalt–cadmium nanocomposite for high-frequency devices and wastewater treatment	M.Irfan, Ayyaz, M.Y.Naz, S.Shukrullah, M.M.Munir, K.Kamran, S.Rahman, M.Jalalah, M.K.A.Khan, M.Alsaiari, U.M.Niazi	Ceramics International	2022
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Table 3. Analysis of Journal Publications

Total Faculty Members	Ph.D faculty members	Total Journal Papers	Papers/ Ph.D faculty member	Remarks
18	16	209	209/16 = 13	The annual target to publish a minimum 15 journal papers has been achieved.

The EE faculty members have also attended international conferences in 2022. The details are listed in Table 4.

Table 4. Conference Publication (2022)

No.	Article Title	Authors	Conference Title	Place and Date
1.	Motor Bearings Fault Classification using CatBoost Classifier	Muhammad Irfan ¹ , Alwadie. A1, Muhammad Awais ² , Saifur Rahman ¹ , Abdulkarem Hussein Mohammed Al Mawgani ¹ , Nordin Saad ³ , Muhammad Aman Sheikh ⁴	20th International Conference on Renewable Energies and Power Quality (ICREPQ'22) Vigo 27th -29th July 2022	Spain 2022
2.	Reliability Investigation of Long Photovoltaic String Generators under Electrical Fault Scenarios	Belqasem Aljafari	2022 International Conference on Electrical and Computing Technologies and Applications (ICECTA)	UAE 2022
3.	Impact of Horizontal Cloud Passage in the Performance of String Based Solar PV Power Plant	Priya Ranjan, Sudhakar Thanikanti, Belqasem Aljafari, Renu Sharma, Pritam Bhowmik, Siva Madeti	2022 2nd Odisha International Conference on Electrical Power Engineering, Communication and Computing Technology (ODICON)	India 2022
4.	Power Generation Improvement in Partially Shaded Series-Parallel PV Arrays through Junction Wires	Sudhakar Thanikanti, Khaja Izharuddin, Belqasem Aljafari, Rupendra Pachauri, Karthik Balasubramanian	2022 IEEE India Council International Subsections Conference (INDISCON)	India 2022

Research Citations:

The research citations of each faculty member for the year 2022 are shown in Table 5. In 2022, research papers of EE faculty member were cited **2706 times**. The citations data has been collected from the google scholar profiles.

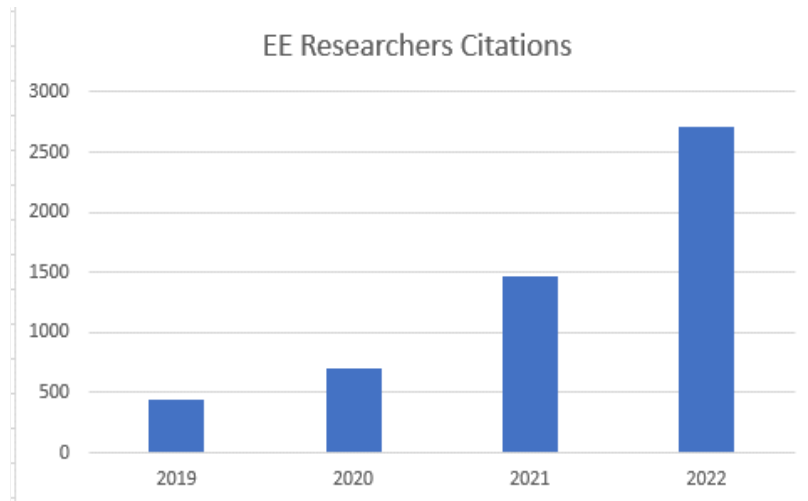


Table 5. Research Citations

Sr. No	Faculty Member Name	Total Citations in 2019	Total Citations in 2020	Total Citations in 2021	Total Citations in 2022	Google Scholar Profile Link
1	Dr. Saleh AlMasabi	25	33	52	29	https://scholar.google.com/citations?hl=en&user=Y-KKKNgAAAAJ&view_op=list_works&alert_preview_top_rm=2&sortby=pubdate
2	Dr. Mohamed Saeed	43	89	294	722	https://scholar.google.com/citations?user=PJdo3zIAAAAJ&hl=ar
3	Dr. Muhammad Irfan	93	120	412	885	https://scholar.google.com/citations?user=3Ovr9eQAAAAJ&hl=en
4	Dr. Ahmad Alzaharani	96	132	162		https://scholar.google.com/citations?hl=en&user=LRPIIHcAAAAJ&view_op=list_works&sortby=pubdate
5	Dr. Belqasem Aliafari	8	13	26	110	https://scholar.google.com/citations?hl=en&user=JWrjzogAAAAJ&view_op=list_works&gmla=AJsN-F7fkveoyPXyl4usxyD0uOLBI543whNLdAngqUdO_5UNNdNaAVLa-nNn27c_vnZV-nkPpdmaKkOWi41a-
6	Dr. Hassan Algadi	120	177	291	560	https://scholar.google.com/citations?hl=en&user=7AYbQP8AAAAJ&view_op=list_works&sortby=pubdate
7	Dr. Abdulkarem Hussein	4	14	29	104	https://scholar.google.com/citations?user=5GjnJeAAAAJ&hl=ar
8	Dr. Adam Reda Alhawari	37	93	97		

Department of Electrical Engineering

9	Dr. Saifur Rahman	5	24	108	295	
10	Dr. Seif Shebel	2	3	0	1	https://scholar.google.com/citations?user=S3kqtNIAAAAJ&hl=ar#d=gsc_md_hist
Total Citations		435	698	1472	2706	

Research Grants:

The EE faculty members are keen to apply for research grants. The main source of research grants is the Deanship of Scientific Research (DSR), Najran University KSA. The DSR provides the opportunity to every Ph.D faculty member to get research grants in every year. Furthermore, the Ministry of Education KSA and King Abdulaziz City for Science & Technology (KACST) also open research grants occasionally. The research grants secured by EE faculty members in year 2022 are given in Table 6. The target of research grants in 05 year research plan of EE department has been to get minimum 05 grants every year. Table 6 indicates that the yearly target to secure minimum 05 research grants has been achieved.

Table 6. Research Grants in Year 2022

No.	Grant Title (Project Title)	Project PI	Grant Awarded By	Grant Amount	Grant Acceptance (Released) Date	Grant Duration
1.	Artificial Intelligence and the Internet of Things for Smart Systems	Dr. Muhammad Irfan	Deanship of Scientific Research, Najran University Saudi Arabia	100,000 SAR	Feb 2022	01 Year
2.	Advanced technologies for photovoltaic wastewater treatment and energy production	Dr. Muhammad Irfan	Deanship of Scientific Research, Najran University Saudi Arabia	45,000 SAR	Feb 2022	01 Year
3.	Modern technologies for sustainable systems and smart cities	Dr. Muhammad Irfan	Deanship of Scientific Research, Najran University Saudi Arabia	45,000 SAR	Feb 2022	01 Year
4.	Communication technologies for smart cities using optical sensors	Dr. Saifur Rahman	Deanship of Scientific Research, Najran University Saudi Arabia,	45,000 SAR	Feb 2022	01 Year
5.	Gastrointestinal Diseases Detection by Endoscopic Images using Deep Learning models	Dr. Saifur Rahman	Deanship of Scientific Research, Najran University Saudi Arabia,	45,000 SAR	Feb 2022	01 Year
6.	Bandwidth Aware Traffic in Optical Transmission System.	Dr. Saifur Rahman	Deanship of Scientific Research, Najran University Saudi Arabia,	100,000 SAR	Feb 2022	01 Year

Community Service:

The Research & Community Service Committee is committed to the promotion of faculty participation in community service activities through the organization of various workshops and seminars. Each year, the committee encourages faculty members to participate in delivering workshops and scientific seminars for faculty members and students of EE department. Table 7 shows community service activities arranged by EE faculty members in 2022.

Table 7. Community Service Activities in Year 2022


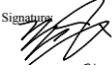

No.	Title seminars/workshops organized	Name of Presenter	Date
1	Modern Technologies for Smart Cities (Webinar)	Dr. Muhammad Irfan	24 March 2022
2	Hands on Workshop on LabVIEW based Data Acquisition	Dr. Muhammad Irfan	23 May 2022
3	Machine Learning with MATLAB	Dr. Seif Shebl	2022
4	Visit to the Saudi Electricity Company	Dr. Seif Shebl	2022
5	Introductory Meeting for International Students	Dr. Seif Shebl	2022
6	A symposium on an ambitious journey for postgraduate students at Najran University and social community of City of Najran	Dr. Turki Alsuwian	2022
7	Introduction to wind energy conversion system	Dr. Ahmad Alzahrani	2022
8	Introduction to MATLAB	Dr. Ahmad Alzahrani	2022

Research Awards and Achievements:

EE Department has received number 1 position in the Najran University for publishing highest number of research papers in web of science for the year 2021 and 2022.

Concluding Remarks:

- The 05 years research plan of EE department targets to publish minimum 15 journal papers. This target has been achieved and research performance is excellent.
- The 05 years research plan of EE department targets to get minimum 05 research grants in every year. This target has been achieved and the research performance is satisfactory.
- The 05 years research plan of EE department targets to organize minimum 10 technical workshops/seminars/trainings in EE department. This target has not been achieved and it is recommended to encourage all faculty members to organize a minimum of one workshop/seminar/training in each academic year.
- It is recommended that all faculty members reply to the emails sent for data collection related to research and community service.

Report Prepared By:	Dr. Muhammad Irfan		
	Signature:  Date: 20 Feb 2023		
Reviewed By:	Dr. Ahmad Alzahrani	Dr. Belqasem Aljafari	Dr. Hasan Alqadi
	Signature:  Date: 21 Feb 2023	Signature:  Date: 21 Feb 2023	Signature: Date: 21 Feb 2023