

Ms. Nilem Khaliq, a PhD scholar from the Department of Physics and Applied Mathematics, defended her research work at Teleconferencing Hall. She completed her graduation from Gomal University D.I.Khan. She obtained her MSc and MPhil degree from Quaid-i-Azam University, Islamabad majoring in Physics. In 2014, she joined Pakistan Institute of Engineering and Applied Sciences to pursue her PhD degree. Her research work is based on the "Synthesis of Titanium Oxide Hybrid Nanostructures and Their Electrical and Sensing Properties". Her research is based on the investigation of the biosensing and photocatalytic aspects of the TiO₂ nanotubes (TNTs) based hybrid nanostructures. The purpose of synthesizing hybrid nanostructures was to achieve a highly sensitive biosensor and improved photocatalytic efficiency. Ms. Nilem has published 6 articles in international journals that includes ACS Applied Materials and Interfaces and Sensors and Actuators B Chemical with an impact factor of 28.5.

Mr. Asad Mehmood, a PhD scholar from the Department of Physics and Applied Mathematics, defended his research work at Teleconferencing Hall. He received his MSc Degree in Physics from Quaid-e-Azam University, Islamabad, Pakistan. He did his MPhil in Physics from PIEAS, Islamabad. His PhD thesis title was "Precession measurement using cavity optomechanics". The study focused on the detection of weak classical force using dissipatively coupled OM system. In first step, the effects of laser phase noise associated with the cavity drive on the detection of a weak force on a free test mass were studied and then extended by introducing a parametric amplifier in system and driving it with a noisy pump. In the final step, an optical detection technique based on dissipative OM coupling for detection of weak magnetic field was presented. The analysis suggested measurement of magnetic field upto sub-nano-Tesla level at room temperature while working in bad-cavity regime. Mr. Asad has published several research papers indexed journals with an impact factor of 10.96.



Saeed Omar has joined Department of Chemical Engineering as a faculty member. He completed his Masters' in Chemistry at PIEAS in 2020. Earlier, in 2018, he did his graduation in Physical Chemistry from University of Sahiwal. His work includes development of physico-chemical techniques and processes to design anti-cancer drugs and energy saving efficient devices. Omar is well-versed in Quantum Mechanics to use it as a tool for exploring spectroscopic analysis of atomic world.

Muhammad Jibrán has joined Department of Chemical Engineering as a faculty member. Jibrán was awarded fellowship in MS in Mineral Resource Engineering at PIEAS and completed his Master's degree in 2020. Earlier, he did his BS in Geology from University of Peshawar in 2018 and secured second position with an average of 83%. He visited to different geological fields including Salt Range, Nizampur Basin, Ambela Granitic Complex, Attock Cherat Range, Samana Range, Besham, Hazara and Kohistan as a part of his research project. His research interests include economic geology, sedimentology, and sequence stratigraphy.



Editorial Board: Mr. Umar Faiz | Dr. Atta Ullah |
Dr. Muhammad Tariq Siddique | Dr. Mujtaba ul Hasan
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Email: khirad@pieas.edu.pk
Address: Pakistan Institute of Engineering and Applied Sciences, PIEAS, Nilore, Islamabad.



International Conference on Computational Mechanics (ICCM 2021)

Conferences bring researchers from different geographical locations to exchange ideas. Conferences also provide an opportunity to establish new contacts and renew old ones. Department of Chemical Engineering is expanding its research vision by regularly conducting conferences and symposia. In this regard, department of chemical engineering (DChE) and the Center of Mathematical Studies (CMS) organized an international virtual conference on computational mechanics at PIEAS on 9-10 March, 2021. The purpose of this conference was to update the Pakistani researchers about the computational work going-on around the globe. A total of nine resource person from Canada, South Korea, China,

Japan, and Saudi Arabia presented their research work. Total 55 participants attended the conference virtually and physically, where the attendees included researchers, field experts, and professionals from all over Pakistan. Students also participated in the conference with great enthusiasm. Opening remarks about the conference were given by Dr. Shahid Qamar, Director (CMS) in which he emphasized the importance of computational work. The conference concluded with the distribution of certificates among the participants. As the Chief Guest, Dr. Nasir Majid Mirza (Rector PIEAS) highlighted the contributions of PIEAS in field of computational science and engineering.

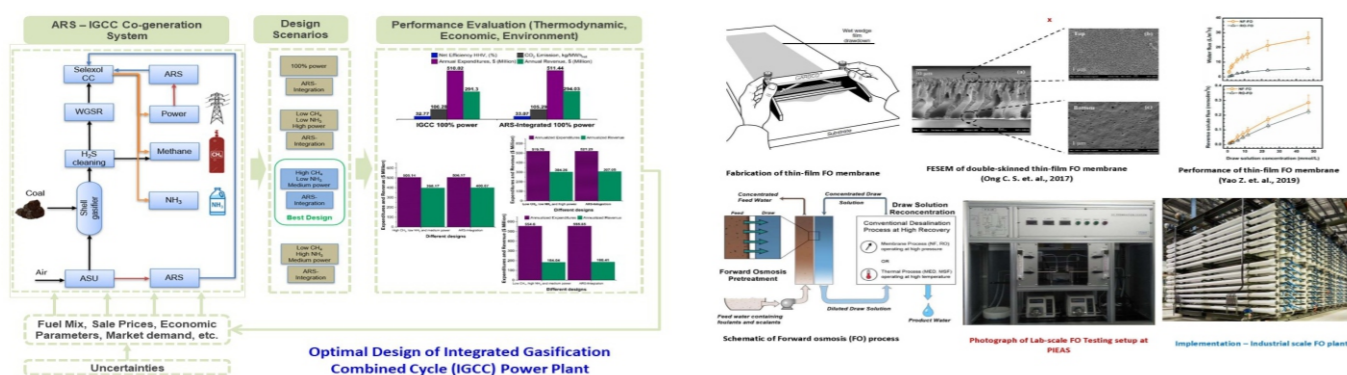
Optimal Design of Integrated Gasification Combined Cycle (IGCC) Power Plant

This NRP project is being done at the Department of Chemical Engineering under the supervision of Dr. Muhammad Zaman (Principal Investigator) and Dr. Atta Ullah (co-Principal Investigator) under HEC funding of PKR Rs. 4.04 million PKR. The project aims at the optimal design of the integrated gasification combined cycle (IGCC) power plant. The local low-quality coal requires special type of equipment and process design modifications for efficient performance and emission control. While the overall system optimization with energy integration is beneficial to improve the co-generation flexibility, fuel flexibility and the overall efficiency. The project also includes the assessment of the effect of various uncertain parameters such as environmental, economic and performance factors to facilitate the investment decisions.



An Experimental and Computational Study of Graphene Oxide Based Forward Osmosis Membranes for Water Treatment

This NRP project is being done at the Department of Chemical Engineering under the supervision of Dr. Muhammad Zaman (Principal Investigator) and Dr. Asif Mahmood (co-Principal Investigator) under HEC funding of PKR Rs. 9.02 million PKR. The main emphasis of the project is to develop the cost-effective graphene oxide (GO) based thin film nanocomposite membranes with improved performance in forward osmosis (FO) process for clean water production. The experimental and computational study includes the optimization of various parameters such as hydrodynamic, operating and membrane structural parameters to enhance the efficiency of FO membrane process.



Installation of 1 MW Solar Power Generation

PIEAS has initiated work on 1 megawatt of solar power generation capacity on its campus as part of its initiative to gradually shift to renewable energy. Solar panels are being installed in the parking lots to take advantage of the open spaces needed for parking, while at the same time providing shade to the cars parked below. It shall cut down electricity costs and shall contribute to university's conscious efforts to combat climate change and reduce carbon footprint.



Renovation of Classrooms at Campus

Library and Academic Services Division (LASD) has embarked upon the renovation and modernization of classrooms at Campus to meet the standards of an emerging information age. The project includes revamping the interior, replacement of furnishing items and provision of enabling technologies in the classroom.



Strengthening of Urdu Section 'ZEEST' at PIEAS Central Library



Zeest is a section on the ground floor of Library that has been purpose-built section for Urdu literature. The section houses an assorted collection of more than 5000 title from accomplished classical and contemporary Urdu poets and prose writers.

Addition of two Open-Air Gymnasium in Hostels

Regular physical activity is essential to health and longevity. A diverse outdoor recreation system contributes to health-care by providing a high quality of life for students. To promote sporting facilities at Campus, Residential Services Division (RSD) recently added two open-air gymnasiums, one each in female and male hostel. These open air gymnasiums consist of abdominal boards of seven different kinds, horizontal bar, sliding beam, step and step along with the climbing stands. Outdoor exercise is also rated as being more restorative compared to indoors since natural environments reduce emotional and physiological stress.

