

Visit of Chairman PAEC to PARR-3 and MPF

The honorable chairman PAEC, Dr. Raja Ali Raza Anwar, H.I., S.I., PoP visited PARR-3 and MPF, PINSTECH on July 07, 2024. Dr. Masood Iqbal, Member (Science), PAEC, DG PINSTECH and Project Directors welcomed the Chairman at site. Member (Science), PAEC briefed the

Chairman about development work and timeline of ongoing activities of PARR-3 and MPF. The Chairman appreciated the speedy progression and valuable efforts of manpower working on the projects.



Chairman PAEC during the visit of PARR-3 and Moly Production Facility



Progress Review Meeting of PARR-3

A progress review meeting of PARR-3 was held on July 03, 2024. Dr. Masood Iqbal, Member (Science) chaired the activity accompanied by Mr. Khalid Bin Saghir, Member (Systems) and Mr. Kaleem Haider, Member (Engineering). Director General PINSTECH, directors, project directors and concerned officials participated in the briefing. Project Directors gave orientation to the members about their respective domain, work progress and timelines of different projects. It was informed that about 85% of civil structure of PARR-3 reactor building has been completed along with its auxiliary buildings. Some of the indigenously manufactured heavy equipments for PARR-3 like radioactive waste storage tanks, overhead crane and heat exchangers have been installed. Other procured equipments have been placed at their relevant locations at PARR-3 auxiliary buildings. After the briefing, the worthy



Member (Systems), PAEC during the visit of PARR-3 site

members visited the site and provided their valued feedback besides appreciating the progress of development work and commitment of manpower.



Member (Science), Member (Systems) & Member (Engineering), PAEC with the Project Directors during the progress review meeting

Lecture Series on Quantum Science and Technology

Dr. Rameez-ul-Islam, DCS from National Institute of Lasers and Optronics (NILOP), Islamabad delivered four lectures at PINSTECH during the months of July-August 2024. The main topic was Quantum Science and Technology.

The first talk introduced the cryptography, its historical evaluation from Caesar cipher, displacement cipher, Vernam cipher and in its current form as quantum cryptography. The principal of currently available sensors for the standardization of time was discussed along with quantum computers. Quantum Theory was explained starting from Black Body Radiation theory presented in 1900 to Quantum Electrodynamics theory presented in 1950. The lecture also discussed quantum coherence, unitary dynamics and quantum anti-realism. He explained the quantum theory with dual slit experiment, entanglement and finally the arguments of Bohr and Einstein about quantum theory. The lecture ended with the theory of Bells inequality and the winner of 2022 Nobel Prize in Physics.

The second lecture was on Scientific Thoughts and History. It covered topics such as Cause and Effect and Determinism in theory formation. The lecture started with the work of Aristotle, Francis Bacon, David Hume, Wittgenstein, Karl Popper and Einstein on the explanation of scientific thoughts. The lecture also explained Experimentation Vs Theory.

The topic of the third lecture was "Ultimate Reality: Exploration into the Unknown". The lecture explained the historical development of scientific thought from animism to Greek philosophy, modern philosophy, classical science, modern science and lastly the philosophy of quantum theory.



Dr. Qamar-ul-Haque, DG PINSTECH presenting souvenir to guest speaker Dr. Rameez-ul-Islam

The fourth lecture entitled "Quantum Theory: Meanings and Mysteries". In this lecture Dr. Rameez explained various topics including inherent indeterminacy and quantum vacuum, quantum coherence, superposition and qubit, quantum eraser, entanglement and nonlocality, Bell's inequality, Time-symmetric quantum formalism, two-state vector formalism, weak measurements and interpretations of quantum theory.

All the four lectures were of high quality. The listeners also participated through questions and discussions. On the concluding day of lecture series, Dr. Qamar-ul-Haque, DG PINSTECH presented souvenir to the guest speaker.



Dr. Rameez-ul-Islam delivering lecture at Dr. Javaid Bashir Lyceum, PINSTECH

Visit of Senior Officers Management Course (SOMC)-40 Participants to PINSTECH

A group of 56 participants of SOMC-40 from PAEC, NESCOM, KRL, SUPARCO and PNRA visited PINSTECH on July 09, 2024. This course is arranged by Pakistan Institute of Engineering and Sciences (PIEAS), Islamabad. Dr. Abdul Jabbar, Director (Coordination), Dr. Usman Khurshid, Director (Science) and Mr. M. Naeem Abbas, Director (S&S) conducted the visit. Dr. Mohammad

Wasim, Director (Technology) briefed the participants about various achievements and different R&D activities performed at PINSTECH. The participants visited PARR-1, LINAC, Isotope Production Division (IPD) labs, Exhibit Area & PINSTECH Library at Scientific Information Division. SOMC-40 participants appreciated the hosts for conducting such an informative & enlightening visit.



Group photo of SOMC-40 participants with PINSTECH Directors

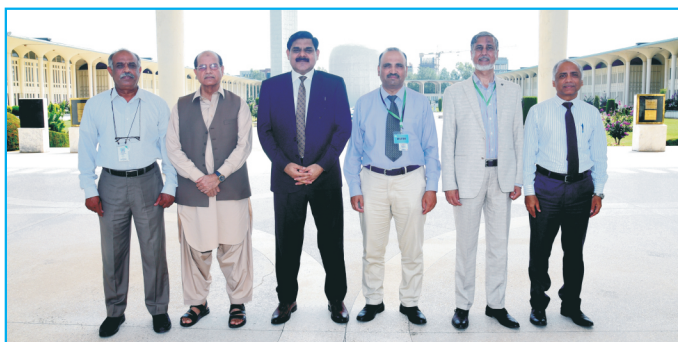
Directors from COP Branch visited PINSTECH

A delegation comprising of Brig. Ch. Nadeem Bashir (Rtd.) and Lt. Col. Raja Sajjad Haider (Rtd.) from COP Branch visited PINSTECH on July 31, 2024. PINSTECH directors welcomed the worthy guests at PINSTECH podium. Dr. Mohammad Waseem, Director (Technology) briefed the delegation about R & D activities of PINSTECH. After the

briefing, they visited Pakistan Research Reactor-1, Library and Exhibit Area at Scientific Information Division, NFRC Labs at Central Analytical Division (CAFD), Quality Control Labs and Exhibition Area at Isotope Production Division. The delegation highly appreciated the scientific & technical facilities at PINSTECH.



COP branch members during their visit at IPD Labs, PINSTECH



Group photo of COP branch members with PINSTECH Directors

Study Tour of Students form DSS Department, QAU Islamabad

A delegation comprising of 02 officers from ACDA Branch, 07 Faculty Members and 16 Students of Defense and Strategic Studies (DSS) Department, Quaid-i-Azam University, Islamabad visited PINSTECH on July 11, 2024. Dr. Abdul Jabbar, Director Coordination and Dr. Mohammad Waseem, Director Technology received the delegation at PINSTECH podium. Director (Technology) briefed the delegation about R & D activities of the

PINSTECH at MD Conference Room. During the study tour, they visited Pakistan Research Reactor-1 (PARR-1), Library and Exhibit Area at Scientific Information Division (SID), NFRC Labs at Central Analytical Division (CAFD), Quality Control Labs and Exhibition Area at Isotope Production Division. Students from QAU, Islamabad were highly impressed by the R&D facilities at PINSTECH.



Students from DSS Department, QAU Islamabad during their visit at Exhibit Area, SID, PINSTECH



Group photo of Students from DSS Department, QAU Islamabad with PINSTECH Directors

Award of Ph.D Degrees



Dr. Muhammad Iftikhar Anjum, Principal Scientist, Health Physics Division, PINSTECH has been awarded Ph.D. degree in the field of Medical Physics by Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad. He conducted his research work on "Luminescence Investigation and Radiation Dosimetry Application of Phosphor Materials". During his Ph.D studies, he has investigated the feasibility of natural material to be used in radiation dosimetry applications. He has published 04 research articles in well reputed international peer reviewed journals.



Dr. Khizar Hayat Satti, Senior Scientist, Health Physics Division, PINSTECH has been awarded Ph.D. degree in the field of Medical Physics by PIEAS, Islamabad. He conducted his research work on "Optimization of gamma spectrometry parameters for improved detection limits using Monte Carlo modeling". During his PhD studies, he has developed methods for dead layer determination in HPGe detectors, calibration of in situ gamma spectrometers, shield optimization using adjoint Monte Carlo simulations and sample optimization in gamma ray spectrometry. He has published 08 research articles in well reputed international peer reviewed journals.

Books Added to PINSTECH Library

1. An introduction to equations of state: theory and applications by Shalom Eliezer, 1986.
2. Chemistry and technology of polyols for polyurethanes Vol.1&2 by Mihailonescu, 2016.
3. Computational fluid dynamics in industrial combustion by Charles E. BauKal (ed.), 2001.
4. Computational plasma physics: with applications to fusion and astrophysics by Toshiki Tajima, 2004.
5. Detonics of high explosives by C.H. Johansson and P.A. Persson, 1970.
6. Energetic Materials: past, present and future, 50th International annual conference by Sebastain Wurster, 2019.
7. Energetic Materials: performance, safety and system applications, 46th international annual conference of the fraunhofer ICT by Thomas S. Fischer, 2015.
8. High power electromagnetic radiators: nonlethal weapons and other applications by D.V. Giri, 2004.

Participation in Scientific Events

1. Mr. Muhammad Badar-U-Zaman, PE, IAD visited Saclay, France for Certification in Residence Time Distribution and Column Scanning Techniques from July 01 - 12, 2024

2. Dr. Jawaria Abid, PS, IAD IAEA attended meeting on Advancing the Global Monitoring of Marine Plastic Pollution from July 08 - 12, 2024 at Vienna, Austria.
3. Dr. Muhammad Nadeem, PS, NED attended IAEA Technical Meeting on Compound Nuclear Reactions and Related Areas from July 08 - 12, 2024 in Vienna Austria.
4. Mr. Muhammad Wasim, SS, and Mr. Muhammad Bilal, SS, IAD participated in IAEA Regional Training Course of Groundwater Flow Modelling from July 15-19, 2024 at Selangor, Malaysia.
5. Syed Qaisar Abbas Rizvi, PE, ED attended the Final Regional Coordination Meeting on "Strengthening Nuclear Instrumentation Capacity in the Areas of Nuclear Sciences and Applications" from July 15-19, 2024 at Bali, Indonesia
6. Mr. Khurram Shahzad, PE, PD attended IAEA Technical Meeting on Utilization Related Design Features of Research Reactor from July 29 to August 02, 2024 in Vienna, Austria
7. Mr. Saqib Rehman, SE, IAD participated in IAEA Regional Training Course on Radiotracer Technology for Diagnosing the Performance of Industrial Processes from August 05 - 09, 2024 at Jakarta, Indonesia.
8. Dr. Yasir Faiz, PS, CD, attended IAEA Regional Coordination Meeting on Improving the Utilization of Nuclear Techniques for Cultural Heritage. Characterization Consolidation and Preservation from August 19-23, 2024 at Jakarta, Indonesia.
9. Ms. Afia Noureen, PS, HPD, attended IAEA TC Workshop on Workplace Monitoring from August 26 - 30, 2024 at Kuala Lumpur, Malaysia.
10. Mr. Sheraz Akhtar, PS, HPD, participated in The Hiroshima University Phoenix Programme Summer School 2024 from August 26 to September 13, 2024 at Hiroshima, Japan.
11. Dr. Atta Muhammad, DCS, NED attended IAEA Technical Meeting on HEU / LEU Conversion, Operation and Utilization of MNSR and SLOWPAKE Research Reactors from August 28 - 30, 2024 in Vienna, Austria.

Forthcoming Scientific Events

1. Two day Workshop on Thermal Analysis
Organizer: Physics Division, PINSTECH
Schedule: September 11-12, 2024
2. Three day Workshop on Analytical Techniques
Organizer: Central Analytical Facility Division, PINSTECH
Schedule: September 24-26, 2024
3. Three day training workshop on "Application of Isotopes in Hydrology, Environment & Industry
Organizer: Isotope Application Division, PINSTECH
Schedule: October 08-10, 2024
4. Symposium on "Energy Conversion and Storage Technologies; Batteries, Solar Cells and Fuel Cells"
Organizer: Chemistry Division, PINSTECH
Schedule: October 22-24, 2024