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PNS Newsletter

A Quarterly Newsletter of the Pakistan Nuclear Society

Nuclear for Peace

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Scientific Advisory Board Meeting

From the desk of Editor-in-Chief

The New Year started with Omicron; the 5th wave of pandemic that led to the postponement of planned activities in this quarter except conduct of a national seminar at University of the Punjab, Lahore. Never the less, two big events were held; the first was convening of the meeting of Scientific Advisory Board (SAB). This Board comprising of well-known highly experienced scientists and engineers was formed about six years before and reconstituted last year (Page-2). The second venture was the formation of Administrative Advisory Board (AAB) which was approved by PNS Members at the Annual General Body Meeting (AGM) held on 18th December, 2021. The members of this board are from different walks of life and are renowned personalities in the respective fields; the aim is to create greater visibility of PNS in print/social media and enable its awareness amongst the strategic organizations as well as policy makers in S&T, safety & security, international relations and industrial sector (Page-3). The PNS Council is grateful to all the respectable Board Members for accepting our invitations to serve voluntarily and sparing their precious time to support PNS at the national and international fronts.

To enhance PNS membership especially to attract young blood, a new category of **'Student Members'** has been introduced. University/ professional college students in scientific and technical fields can become members for five years by paying Rs.1,100/- only. They can have all the privileges except the voting rights during PNS general elections.

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Vision

To become a resource centre for disseminating information and to promote practical applications of nuclear science, engineering and technology for sustainable socio-economic development. The principal tools to be used for this purpose would be PNS Website and PNS Newsletter.

Announcement

International conference on the Applications of Nuclear Technology for Sustainable Socio-Economic Development, 24-26 October 2022, Islamabad.
(Organized by PNS)

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Activities during the 5th quarter

Meeting of the Scientific Advisory Board

The first ever meeting of the Scientific Advisory Board of PNS was held on 8th February, 2022 at PAEC Rest House, G-8/3, Islamabad. **Engr. Parvez Butt, Dr. Abdullah Sadiq, Dr. Yusuf Zafar, Syed Yusuf Raza and Dr. Javed Hanif** physically attended the meeting while **Dr. N.M. Butt, Dr. Muhammad Jameel, Engr. Waqar Murtaza Butt and Dr. Mohammad Faheem** joined through Zoom link. Due to some communication problem, **Engr. Anwar Habib** could not join online. All PNS Council Members except Ms Shazia Fayyaz (who was preparing to leave for Vienna), were present in the meeting. Engr. Parvez Butt chaired the session. Dr. Muhammad Tahir Khaleeq, President PNS gave a presentation about PNS objectives and provided details of activities being carried out during the year 2021. He also talked about launching an improved website and timely publishing of PNS Newsletter. It was mentioned that two MOUs were signed with South Asia Strategic Studies Institute (SASSI) University and Pakistan Physical Society (PPS). He further mentioned that about 50 scientists/engineers have joined PNS as Lifetime Members during the last 6 months.

Mr. Waqar Ahmad Butt, Executive Member PNS, displayed the calendar of PNS programmes during the first half of 2022. He explained some salient features of the proposed 3-days International Conference on the Applications of Nuclear Techniques for Sustainable Socio-economic Development which is planned in October 2022. In this conference PAEC, PNRA, NCP and PAS will be contacted for collaboration. Efforts will be made to invite international speaker from CERN, IAEA, ICTP, etc.

During the discussion, fruitful suggestions were given by the Board Members: **Engr. Parvez Butt** suggested to arrange more social events like get-to-gather for PNS members and their families. He also advised to make contact with authorities like SPD to support PNS activities. **Dr. Abdullah Sadiq** highly appreciated the efforts of PNS purely on voluntary & honorary basis. He suggested to form a WhatsApp Group of SAB and PNS Council for exchange of information and discussion. He also proposed to induct young fellows from PIEAS as members of PNS. He further proposed that PNS may join hands with relevant welfare setup of PAEC in arranging socialization opportunities for superannuated employees and their families. He endorsed the need to develop linkage with SPD. Furthermore, he

suggested to compile history of PNS. **Engr. Waqar M. Butt** suggested the inclusion of track theme of Non-Electric applications of Nuclear Energy like nuclear hydrogen generation in the proposed conference. He also proposed to hold a seminar in Karachi about seawater desalination during the second half of 2022. He suggested that PNS should join hands with other S&T Groups like Pakistan Academy of Engineers who has a pro-nuclear stance. **Dr. N.M. Butt** pointed out that an important aspect of Nuclear Safety is missing in the brochure of the Conference. He also suggested that he may be replaced with relatively younger person in SAB. He further suggested strengthening of the PNS capacity to project contribution of nuclear science and adopting strategy to disseminate awareness to public through media. **Dr. M. Jameel** suggested that young blood should be motivated to become PNS members. He endorsed the suggestion of Dr. N. M. Butt and asked for his replacement in SAB with an appropriate younger person. **Dr. Yusuf Zafar** stressed upon the need to identify and groom nuclear experts with strong writing skills & capability to advocate pro-nuclear stance & narrative with a logical & lucid approach. He also proposed some leniency of policy empowering PAEC to project and markets its achievements. He also mentioned the need of enhancing the representation of nuclear experts in international bodies like IAEA etc. **Dr. Javed Hanif** suggested the need to involve more volunteers to advance the initiatives taken by the present Council. **Dr. Mohammad Faheem** proposed to include a separate session for Nuclear Medicine and Oncology and offered his full support in arrangement of national & international expert speakers. **Syed Yusuf Raza** stressed upon the need to promote nuclear power as clean and green source of electrical energy.

It was suggested that apart from holding the seminar and conferences, PNS should initiate some projects for real impact of nuclear S&T in the society. The Council informed that one such project has already been submitted to Pakistan Science Foundation about value addition in certain materials like gemstones. In this regard, ATCOP, PARAS and PAEC Foundation will be contacted. The Council also highlighted its efforts to increase membership, interaction with SPD top management, social events like Eid Milan family parties for PNS members. President PNS in his concluding remarks thanked the honorable members of SAB for their valuable suggestions and patronage PNS will make wholehearted efforts to implement the suggestions and it looks forward for the continued valued guidance & support of SAB.



Discussions during the meeting

One-day Seminar at NIAB



Inaugural session chaired by the chairman PSF

PNS and NIAB arranged a joint seminar on the Applications of Nuclear Techniques for the Development of Agriculture Sector in Pakistan on 27th December, 2021 at the Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad. The seminar was attended by more than 120 scientists, engineers, researchers, technologists as well as university students and teachers. Dr. Shahid Mahmood Baig, SI, Chairman Pakistan Science Foundation (PSF) was the Chief Guest in the inaugural session. The seminar introduction was presented by Dr. Niaz Ahmad, Executive Member PNS. The welcome address was delivered by Dr. Yusuf Saleem, DCS, NIAB on behalf of Director NIAB. The introductory remarks were given by Dr. Muhammad Tahir Khaleeq, acting President PNS. He mentioned about various initiatives and activities carried out by PNS during 2021. He thanked PSF for providing financial assistance and PAEC for logistic support to conduct this seminar. Mr. Waqar A. Butt, Executive Member PNS highlighted the future programmes of PNS and encouraged the participants especially young scientists and engineers to come forward and contribute in fruitful ventures of PNS for sustainable socio-economic development in the country.

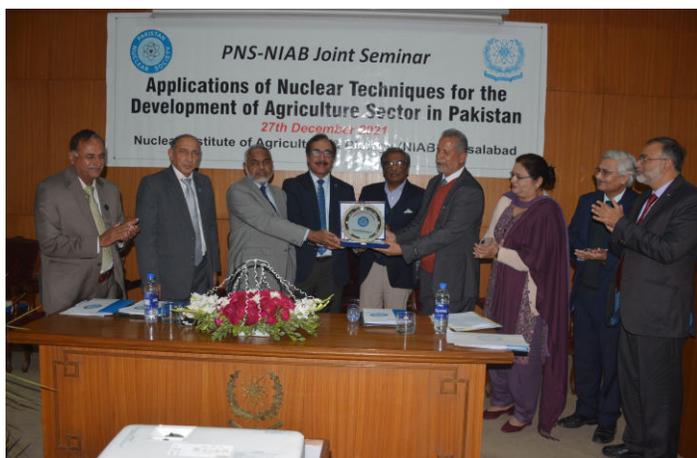
In his presidential address, the Chief Guest, Dr. Shahid Baig, Chairman PSF recalled his lifelong experience and memories of working at NIBGE. He motivated the scientists and researchers to excel in the respective fields

and play their part in national development. He elaborated various schemes under PSF for the promotion and advancement of S&T in the country and ensured all possible support from PSF in scientific initiative. He appreciated PNS for conducting various events for the peaceful uses of nuclear technology not only for awareness of the general public but also to engage senior scientists and technologists to contribute in such useful activities.

In the technical session, the first presentation was delivered by Dr. Yusuf Zafar, TI, Former Chairman, Pakistan Agriculture Research Council (PARC) on the Challenges of Food Security in Pakistan. He elaborated on various aspects related to food security at national and international levels and stressed the need of promoting agriculture that is responsible for food security.



Audience at NIAB Auditorium



President PNS presenting a memento to the Chief Guest, Dr. Shahid M. Baig

A recorded talk by Dr. Shahid Mansoor, *SI*, Director NIBGE was played. The title of his presentation was New Breeding Technologies and other technology platforms for food and nutritional security. He showed recent ways to overcome food shortage by adopting technologies for enhancing genetic gains which include breeding, hybrid seed technology, mutations, genetic engineering, genomes, etc. Prof. Dr. Muhammad Mohsin Javed, Registrar, Virtual University of Pakistan gave an interesting talk on Scientist as Entrepreneur. He explained that the qualities of a researcher in terms of his abilities for data mining, data analyses, invention, innovation or exploration, problem solving and process development. On the other hand, personal requirements of an entrepreneur are critical thinking, attention to detail, ability meeting deadlines, patience, ingenuity, creativity, strong oral written comprehension and conceptual mindset. The talk of Dr. Tariq Mahmud Shah, Director NIAB was presented by Dr. Yusuf Saleem, DCS, NIAB on the Application of Nuclear Technologies in Agriculture. He spoke about the uses of various facilities at NIAB in which different aspects of nuclear techniques were described circumscribing conventional to mutation breeding, characteristics of mutant varieties, global scenario of mutation breeding, crop varieties developed by PAEC centers through Induced Mutations. The last talk was delivered by Dr. Uzma Maqbool, DCS, Head Animal Sciences Division, NIAB on the Use of Nuclear Techniques in Food and Environment Protection Issues. In her talk, she explained the use of nuclear techniques in agriculture, livestock, insects, and the environment for assessment and improvement of processes occurring within these systems.

The seminar concluded with the vote of thanks by Dr. Muhammad Mohsin, General Secretary, PNS. He said that the PNS is grateful to PSF for generously providing funds for holding its seminars in different cities of the country. Special thanks were paid to the Chairman PSF for sparing his valuable time out of his very busy schedule and to the PAEC for providing in kind support as most of the activities are carried out at PAEC Centers. He paid rich tribute to Dr. Uzma Maqbool and her team for excellent arrangements to make the seminar a success.

National Seminar on Prospects, Exploration and Usage of Rare Earth Elements in Pakistan

Realizing the importance of rare earth elements for their application in wide variety of areas like nuclear reactor materials, optical instruments, automobile industry, communication, specific components used in computers, a one-day seminar was organized by Pakistan Nuclear Society (PNS) in collaboration with the College of Earth and Environmental Science (CEES), University of the Punjab, Lahore. These materials make the basis of some essential components in cell phones, permanent magnets, TV screens, lighter flints, electric and hybrid cars, catalytic converters in exhaust chambers of vehicles to control pollution, etc. For the awareness of public and students in particular, the participants were invited from various relevant institutions and universities. Prof. Dr. Abid Khan Sherwani, Director General University of Management and Technology, Lahore was the Chief Guest at this occasion.



Welcome to the distinguished guests

Prof. Dr. Sajid Rashid Ahmad, Principal CEES delivered welcome address. He appreciated the decision taken by PNS for choosing CEES as the venue of this important seminar and thanked PNS Council Members for travelling to Lahore for holding this event. He also proposed that a MoU should be signed for further collaboration in the areas of common interest.

Mr. Waqar Ahmad Butt, Executive Member PNS presented the seminar introduction. He recalled some historical events and notable efforts of Pakistan Atomic Energy Commission for peaceful application of nuclear techniques in agriculture, health, industry, environment, fresh water managements, and mineral resource exploration including rare earth elements for specific purposes. As there were a large number of university students in the audience, he motivated them to feel the responsibility as future leaders and play their part through research in respective areas of work. He also invited them to actively participate in the International Conference organized by PNS on the Applications of Nuclear Techniques for Sustainable Socio-economic Development in October this year.

Dr. Muhammad Tahir Khaleeq, President PNS elaborated the objectives and programmes of PNS. He mentioned about the various activities carried out by PNS for the peaceful application of nuclear science and technology. He introduced a new category of Student Membership and urged the young blood, student and faculty, to join hands through becoming members of PNS to further strengthen the scientific, technical and academic objectives of the Society.



Participants of the seminar

Prof. Abid Sherwani appreciated the timely initiative of holding this useful seminar as a joint venture of CEES and PNS. He mentioned many areas in which rare earth elements are playing pivotal role in high tech industry. The demand in the world market is increasing day by day and Pakistan must get into the supply chain as these elements are quite abundant in various regions of the country. He suggested to hold such useful seminars at different forums and try to engage the public and private sector especially the business community for commercial gains and to boost the economy.



In the technical session, Dr. Abbas Ali from Pakistan Atomic Energy Commission (PAEC) delivered the first presentation on the **Introduction to Rare Earth Elements** explaining their Geology, Exploration and Uses. Another speaker from PAEC Ms. Farwa Arshad gave a talk on the **Processing of Rare Earth Elements in the Light of their Physical Up-Gradation and Hydro-Metallurgical Studies**. Dr. Rahib Hussain from CEES talked about the **Quantification of Rare Earth and Critical Elements in Coal Wastes as an Alternative Source of energy**. Dr. Niaz Ahmad, Executive Member, PNS made a valued description of the **Global Aspects of Rare Earth Elements** and explained origin of periodic table elements in supernovae stars, their abundance, aggregation, geologic processes and most suitable locations of occurrence in the earth. All these presentation are available at PNS Website (<https://pns.org.pk>).

At the end, mementos in the form of shields were presented to the speakers. Finally, Mr. Ghulam Sarwar, Finance Secretary PNS presented the vote of thanks. He specifically thanked the Principle CEES and his team for

wonderful arrangements and nice hospitality to make this event a success. Finally, a technical visit to different laboratories in CEES was arranged for the seminar participants.



visit to CEES Labs

Outreach and Linkages

Meeting with MD ATCOP in Islamabad and Visit to PARAS, Lahore



Visit to PARAS

Dr. Muhammad Tahir Khaleeq and Mr. Waqar Ahmad Butt met Mr. Attiq Ahmad Ch. Managing Director, Al-Technique Corporation of Pakistan (ATCOP) in Blue Area Islamabad and discussed possibilities of some joint ventures in commercial sector. This meeting was a part of the initiative PNS has envisioned to take up some commercial projects for revenue generation and sustainable source of funding for the Society. One of the objectives is utilizing the expertise of PNS Members sitting at home after superannuation but wants to engage themselves and to render their expert services in technical fields of their interest. Mr. Attiq Ch. ensured all possible help and guidance in such initiatives. He referred to the high power Electron Beam (10MeV) to be installed at Pakistan Radiation Services (PARAS) Lahore which can be used for a proposed project of PNS.



The Control Room of Co-60 Source

During the trip to Lahore for PNS Seminar at the University of Punjab, a delegation of PNS Council Members, Dr. M. Tahir Khaleeq, Mr. Ghulam Sarwar, Dr. Niaz Ahmad and Mr. Waqar Ahmad Butt visited PARAS on 15th March, 2022. Mr. Abdul Qadeer Khan, Chief Financial Officer gave a detailed presentation about irradiation services provided by this useful laboratory to the public and private sectors throughout the country. It was followed by the visit to the Gamma Irradiation facility explaining the whole process. Discussions were also held about the utilization of existing facilities of gamma radiations as well as an additional facility of Electron Beam which is in the final stage of installation and will be operative very soon. PNS intends to submit a proposal for utilizing these facilities specifically for value addition in various types of gemstones from northern areas of Pakistan.

Members' Contribution

Nuclear Techniques: Combating Plastic Waste and Pollution

Ms. Saima Mir, Pr Scientist, NIA, Tando Jam has prepared following excellent article on the use of Nuclear Techniques for Combating Plastic Waste and Pollution. She has highlighted the generation of highest percentages of plastics waste in the country and stressed on the need to reduce its use, reuse and recycling by exploiting radiation techniques in order to save the human health, sea food and mitigate the environmental pollution.



**K2 mountain
8611 m**



**Plastic waste equals to 2 of
worlds highest mountains
16500**

Plastic Pollution in Pakistan:

Plastics are the requisites of the modern era. It is not just one material – technically it's a collective term for a variety of synthetic polymers. The use of plastic goods has exponentially increased over the years, since the middle of last century. Almost 70% of plastics fabricated so far are now waste, with only 9% being reprocessed. Pakistan has one of the highest percentages of mismanaged plastic in South Asia. Over 3.3 million tons of plastics are wasted in Pakistan annually. Collectively, this pile can be 2-times bigger than the world's second highest mountain; K2. There is a need not only to diminish its use, reuse, and recycle but also to reorganize with greater levels of devotion, novelty and investment.

Nuclear Solutions by IAEA

IAEA has introduced Nuclear Technology for Controlling Plastic Pollution known as 'NUTEC Plastics' with the objective to address the challenges of plastic pollution in its member states. It is founded on the IAEA based research projects focused on plastic recycling by exploiting radiation techniques and marine monitoring of micro-plastics using the isotopic tracing technology. NUTEC Plastics will amalgamate the nuclear and nuclear derived techniques and add value to resolve the global issue of plastic pollution. It brings new vistas for the solutions that the IAEA offers to manage plastic waste in better ways. To this end, specialized activities will be implemented through IAEAs established projects like Technical Cooperation Projects (TCP), Coordinated Research Projects (CRP) and other systematic activities. Nuclear and isotopic techniques are being exploited to quantify plastic particles and the associated pollutants. Radioisotopes like carbon-14 are being used to evaluate the pattern, pollutants adhere to the micro-plastics in the environment and detach from the plastics digested by the marine animals, hence can help to improve fish and sea food safety.

Conclusion:

By adopting the NUTEC Plastics strategy proposed by the IAEA, Pakistan can also resolve this massive pollution problem and not only save the human health, sea food safety, but also help mitigate the environmental pollution caused by the plastic waste at large scale.

Renowned Pakistani Scientist

Dr. Salimuzzaman Siddiqui

(19 October 1897 – 14 April 1994)

Prof. Dr. Salimuzzaman Siddiqui is regarded as the pioneer and one of the most distinguished Chemists in Pakistan. He was born in Lucknow (British India) on 19 October 1897. His father Chaudhry Muhammad Zaman and his elder brother Chaudhry Khaliquzzaman were well-known leaders of All India Muslim League and founding fathers of the Pakistan movement. After graduating from Aligarh (British India) in 1919, Dr. Siddiqui studied for over a year at University College, London and later followed research on chemistry of Codeine derivatives at Frankfurt University-Main (Germany), where he received his PhD in 1927. His first breakthrough in research came when he successfully isolated an antiarrhythmic agent from the roots of *Rauwolfia serpentina*. He named the newly discovered chemical compound as Ajmaline, after his mentor Hakim Ajmal Khan who was one of the illustrious practitioners of Unani system of medicine in South Asia. On return to British India, he worked at the Tibbia College Delhi. From 1940-44, he worked as Organic Chemist at the Board of Scientific and Industrial Chemist, Delhi. He then served as Director Chemical Laboratories, Indian Council for Scientific and Industrial Research (CSIR) from 1944-1951. In 1951, Dr. Siddiqui migrated to Pakistan on the request of the then Prime Minister of Pakistan, Mr. Liaquat Ali Khan whereby he was entrusted the assignment of establishing the Council of Scientific and Industrial Research as its Director and as Science Advisor to the Government of Pakistan. In 1956, when Pakistan Atomic Energy Commission (PAEC) was established, Prof. Siddiqui was designated as its Member Technical while he was affiliated with the Pakistan Council of Scientific and Industrial Research (PCSIR). He established the Pakistan National Science Council and was appointed as its first Chairman in 1961. He also served as President, Chemical Society of Pakistan and also President (West Regional Branch)-Pakistan Association for Advancement of Sciences.



Prof. Siddiqui was recipient of many national and international academic honours and awards including the Gold Medal of the Soviet Academy; D.Med (honorary) from the Frankfurt University; Fellowship of the German Chemical Society and Fellowship of the Royal Society; Pontifical Academician; Honorary D.Sc. from Universities of Karachi (Pakistan) and Leeds (UK); Fellow Indian Chemical Society; Member of the Court and Executive Committee, Muslim University, Aligarh; and Member of Court, Indian Institute of Science, Bangalore, Founding Fellow of the Indian Academy of Sciences; Founding Fellow of the Pakistan Academy of Sciences; as well as, President of Pan-Indian Ocean Science Association; Fellow of the Royal Society; and President of Pakistan Academy of Sciences in 1967 for a period of two years. In 1983, Dr. Siddiqui played a major role in the establishment of the Third World Academy of Sciences (TWAS) and became its Founding Fellow. After retirement from the Government Service in 1966, he founded the Hussain Ebrahim Jamal (H.E.J.) Research Institute of Chemistry at the Karachi University Campus. He also served as professor of chemistry and also as acting Vice-Chancellor at the University of Karachi in 1975-76.

Prof. Siddiqui is credited with basic and applied research in the chemistry of plant constituents, Correlation of structure and activity in the ajmaline, connesine and harmine series of alkaloids pioneering the isolation of unique chemical compounds from the Neem, *Rauwolfia*, and various other flora. As the founding Director of H.E.J. Institute, he revolutionized research on the pharmacology of various domestic plants found in South Asia to extract novel chemical substances of medicinal importance. His research on *Rauwolfia serpentina* gained outstanding importance the world over in the treatment of cardiovascular diseases and mental ailments. During his scientific career, he published more than 300 research papers and developed 40 patents mainly in the field of natural product chemistry. In addition to his scientific talents, he was also a painter, a poet, and a great connoisseur of western music. His paintings were exhibited in the United States, Germany, India, and Pakistan. For his distinguished merit in the fields of science and medicine, the Government of Pakistan awarded him Tamgha-e-Pakistan, Sitara-e-Imtiaz and Hilal-e-Imtiaz and Pride of Performance. Prof. Siddiqui died on 14 April 1994 due to cardiac arrest and buried in the Karachi University Graveyard.

(Dr. Riffat M. Qureshi)

A Historical Photo

Nuclear Institute of Agriculture (NIA), Tando Jam



Visit of Field Marshal Muhammad Ayub Khan, President of Pakistan to the first Nuclear Agriculture Centre of Pakistan (1962)

Nuclear News and Views

International

Pakistan's Karachi-3 connected to National Grid

Nuclear Newswire

March 8, 2022

Unit 3 at Pakistan's Karachi nuclear power plant has been connected to the national grid, China National Nuclear Corporation (CNNC) announced on March 4, 2022 making it the second Hualong-1 reactor outside of China to have reached the last major step prior to commercial operation. The distinction of being the first belongs to Unit 3's twin, K-2, which was connected to the grid in March 2021 and entered commercial operation in May 2021. K-3 had achieved criticality on February 21 after completing hot functional testing and entering the fuel loading stage last November. The Hualong-1, also known as the HPR1000, is 1,014-MWe Chinese-designed and developed Generation -III

pressurized water reactor, incorporating design elements of CNNC's ACP1000 and China General Nuclear Power Group's ACPR1000+ with a design life of 60 years.

According to CNNC, each of the Hualong-1 units generates nearly 10 billion kilowatt-hours of electricity per year—meeting the annual electricity demands of more than 4 million Pakistani households—the equivalent of reducing standard coal consumption by 3.12 million tons, cutting carbon dioxide emissions by 8.16 million tons, or planting more than 70 million trees. CNNC said that the construction of the two units has boosted the development of Pakistan's economy and relevant industries, directly providing over 10,000 job opportunities for Pakistanis and indirectly creating a further 40,000 job opportunities through the value chain.

National

PAEC added another Cancer Treatment Hospital

Pakistan Atomic Energy Commission (PAEC) has the honor to provide treatment facilities to more than 80% of cancer patients in the country. Continuing this great service to humanity, 19th cancer hospital; Gilgit Institute of Nuclear Medicine, Oncology and Radiotherapy (GINOR) was inaugurated on January 14, 2022. Addressing the inaugural ceremony as Chief Guest via video link, Federal Minister for Planning, Development and Special Initiatives, Mr. Asad

Umar said that PAEC has been rendering commendable national service for decades through application of nuclear technology in the fields of nuclear power, agriculture, biotechnology, and industrial usage. However, the most appreciable role played by PAEC has been witnessed in health sector especially for diagnosis and treatment of Cancer through its AECHs.

Dr. Masood Iqbal, Member Science PAEC, thanked the federal minister and the government especially Planning



Unvailing ceremony of GINOR

Commission for continued patronage of the health sector projects launched by PAEC and hoped that the addition of GINOR to the existing fleet of PAEC-run cancer hospitals will prove a great blessing for the cancer patients from Gilgit Baltistan (GB). He further said that the construction of 20th Cancer hospital of PAEC will be started in Kashmir soon.

Addressing the ceremony, Mr. Khalid Khursheed Khan, Chief Minister Gilgit-Baltistan, thanked the federal

government and PAEC for establishing state of the art cancer hospital in Gilgit. He hoped that the hospital would provide great relief for the people of GB and surrounding areas because cancer incidence was on the rise in the province. The provision of diagnostic and treatment facilities by GINOR at the doorstep of people will be a blessing for them.

Recalling the old memories PNS Council (2007-2009)

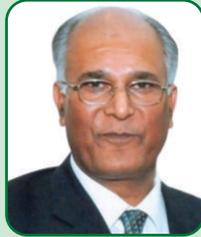


From left to right: Dr. Sohaila Rehman, Dr. Khalida Gill, late Dr. Ishfaq Ahmad (Chairman PAEC), Dr. Mustansar Jehanjir (President), Mr. Khalid Mahmood Ghazali, late Engr. Riffat Ullah Khan, Engr. Shoaib Ahmad, Dr. Muhammad Daud, Engr. Mian M. Jamil and behind the low is Mr. S.D. Orfi (ex-President)

Administrative Advisory Board (AAB)



Dr. Ansar Pervaiz
former Chairman
PAEC (Chair)



Maj. Gen. Ahmad Bilal
former Chairman
SPARCO



Nauman Wazir Khattak
Senator
2015-2021



Mr. Ahmer Bilal Soofi
Lawyer



Mr. Kamran Akhtar
DG ACDIS,
MOFA



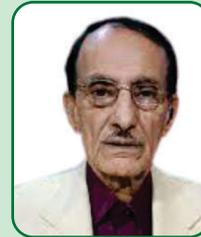
Air Commodore Khalid Banuri (Retired),
Ex-DG ACDA



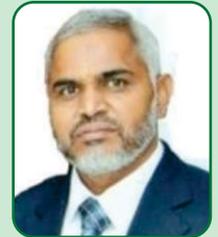
Prof. Dr. Mohammad Mujahid
Rector PAF-IAST



Prof. Dr. Zafar Nawaz Jaspal
QAU



Mr. Nusrat Mirza
Journalist



Dr. M. Tahir Khaleeq
President PNS
(Secretary)

Announcements

- ◆ International Symposium on Naturally Occurring Radioactive Material (NORM), 9-13 May, Utrecht, the Netherlands.
- ◆ Conference on Nuclear Power Plant Life Management will take place on 16-18 May, Vienna, Austria
- ◆ First International Conference on Accelerators for Research and Development, 23-27 May, Vienna, Austria.
- ◆ International Conference on Nuclear Knowledge Management and Human Resources Development, 13-16 June, Moscow, Russia.
- ◆ International Conference on the Safety and Security of Radioactive Sources will be held at IAEA headquarters, 20-24 June, Vienna, Austria.
- ◆ International Symposium on Managing Land and Water for Climate-Smart Agriculture, 25-29 July, Austria.
- ◆ International Conference on Applications of Radiation Science and Technology (ICARST-2022), Vienna, Austria.
- ◆ International Conference on Occupational Radiation Protection, 5-9 September, Geneva, Switzerland.
- ◆ International Conference on the Challenges faced by Technical and Scientific Support Organizations (TSO) in Enhancing Nuclear Safety and Security, Saint Petersburg, Russia, on 10-13 October.
- ◆ International Conference on Topical Issues in Nuclear Installation Safety: Strengthening Safety of Evolutionary and Innovative Reactor Designs, 18-21 October, Vienna, Austria.
- ◆ Fifth International Ministerial Conference on Nuclear Power in the 21st Century, 26-28 October, Washington, D.C., United States.
- ◆ International Conference on Integrated Medical Imaging in Cardiovascular Diseases (IMIC-2022) 13-16 December, Vienna, Austria.

News about PNS Members

Congratulations

Appointment of Ms Shazia Fayyaz, Executive Member PNS as Unit Head (P-5) at the IAEA

It is immense pleasure to mention that **Ms Shazia Fayyaz**, Executive Member of PNS has been appointed as Unit Head at a prestigious post in IAEA. She has assumed her duties in P-5, the highest professional position, at IAEA HQ in Vienna, Austria. Before proceeding abroad, she was serving in Pakistan Nuclear Regulatory Authority (PNRA) with the main responsibilities related to nuclear safety and security of radioactive sources, waste and transport safety. PNS council congratulates her upon this achievement which is a pride for the country.



Dr. Muhammad Mohsin, General Secretary PNS has been appointed as Director (Directorate of Human Resource Development Division), PAEC HQ, Islamabad.

Re-constitution of SAB

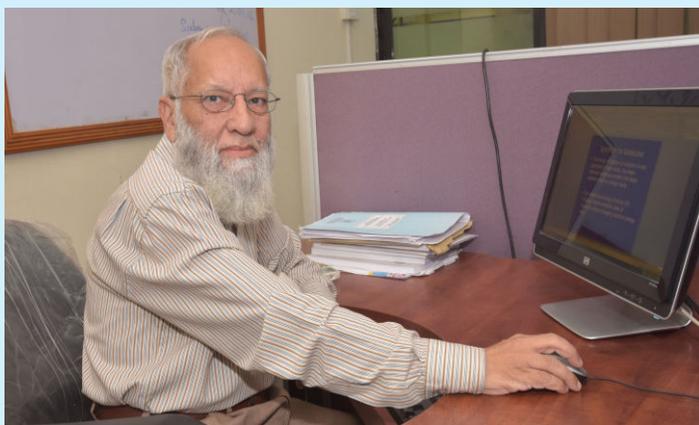


Engr. Syed Ziauddin, former Member Engineering and **Dr. Rakshanda Bilal**, Ex-DG Technical have been inducted as the Members of PNS Scientific Advisory Board (SAB).



Obituaries

Dr. M. Afzal Sheikh



Dr. Muhammad Afzal Shaikh, a very polite, humble and helping person, was born on January 1944 in Sialkot. After completing M.Sc. Physics from University of the Punjab, Lahore in 1965, he joined PAEC (PINSTECH) in June 1966 and placed in the newly formed Neutron Diffraction Group of Nuclear Physics Division. He then proceeded to Australia and completed his Ph.D in Solid State Physics from Monash University, Victoria in 1977. Upon his return to PINSTECH, he

joined Radiation Damage Group of Nuclear Physics Division and remained involved in R&D of different phenomena and properties of various materials relevant to the PAEC programme. He played major role in the establishment of laboratory for scanning electron microscopy, vacuum systems and development of indigenous X-ray diffractometer using available X-ray generator. He published more than 70 papers and reports in national and international journals. He remained Head Radiation Damage Group, Head Nuclear Physics Division and retired in January 2004 as Chief Scientist/ Associate Director General, PINSTECH. He was also a faculty member of PIEAS, Allama Iqbal Open University and Preston Institute of Nanoscience & Technology (PINSAT), Preston University, Islamabad where he remained a Visiting Professor till his death. He was regarded as a very popular, excellent, devoted and helpful teacher by PINSAT students. His special character was that he met everyone with a smiling face.

May ALLAH Kareem rest the departed soul in eternal peace and place him at a high position in Jannah.

(Dr. J.I. Akhtar)

Syed Badshah Hussain



Syed Badshah Hussain was born in Parbatipur, East Pakistan (now Bangladesh) on 11th July, 1947. After completing his early education, he studied B.E.(Electrical) from University of Rajshahi. He became the part of nuclear community in 1970, after completion of his Master's degree in Nuclear Technology from University of Islamabad (now Quaid-I-Azam University). Later on he joined PAEC as Assistant Operation Engineer at KANUPP. He became Deputy Plant Manager in 1991 and served PAEC for three

more years on this post. In 2001, when Pakistan Nuclear Regulatory Authority(PNRA) came into existence, Mr. Badshah Hussain joined PNRA on the request of the then Chairman and was posted as Director General. The aim was to seek assistance and benefits from his vast expertise and knowledge in the establishment of the new regulatory body. He became full time Member of PNRA in 2003 and retired on the same post in 2007. Later, he served the Authority for two more years as an Advisor. He significantly played his role in the infrastructure development of the organization and focused his all efforts for the facilitation of employees. During his service, he published many papers and shared his knowledge at international forums about the operations of Nuclear Power Plants. He was suffering from a fatal disease; cancer and passed away in Karachi on Saturday 25 December 2021. Mr. Badshah Hussain was simple, polite, humble, honest, kind hearted, symathetic and down to earth. He will be remembered by his colleagues in their hearts for ever. May Almighty Allah grant him the highest place in Jannah. Ameen

(Ms Maryam Shoaib)

Engr. N.K. Qazi



Engr. Nasrullah Khan Qazi, a well mannered person, was born in April 1950 in Gujrat. His parents immigrated to UK when he was in secondary school. He did Chemical Engineering from UK and served there for about a year in a British Gas Company. He Joined PAEC in March 1975 and got involved in R & D work in Materials Division (formerly Nuclear Materials Division) PINSTECH. He became a member of the team working on nuclear fuel cycle. After spending eight years in PINSTECH, he was transferred to CPC, D.G. Khan in December 1983. He

fulfilled his duties on production plants of uranium as Shift Engineer, Plant In-charge and Manager Production. In December 1994, he was transferred back to PINSTECH and elevated to Head Materials Division in June 2005, Director Technology in December 2006 and Director General PINSTECH in March 2009. He was a methodical person believing in writing and keeping of record. He retired as Chief Engineer/ DG PINSTECH in April 2010.

Engr. Nasrullah Khan Qazi, a Lifetime Member and a Fellow of PNS, became victim of COVID-19 and breathed his last on 23rd January, 2022 in PAEC hospital Islamabad.
Inna lillah hay wa inna elai hay raajeon

May ALLAH Kareem rest the departed soul in eternal peace and place him at a high position in Jannah.
Ameen!

(Engr. Ghulam Yahya Hasan)

Engr. Riaz Ahmad



Mr. Riaz Ahmed was born on 1st October 1946 in Distt Gujrat. He earned his B.Sc. Mining Engineering degree in 1969 from UET Lahore. He joined PAEC in June 1975 as Head Mining Division at MINEPP Peshawar. Before that, he served Pak Progressive Cement industry, Dandot for four months and then worked at Makarwal Collieries, PMDC for about four years. In PAEC, he worked at various projects / establishments such as MSP Karachi, Atomic Energy Mineral Centre (AEMC), Lahore, BC-1 project, DG Khan

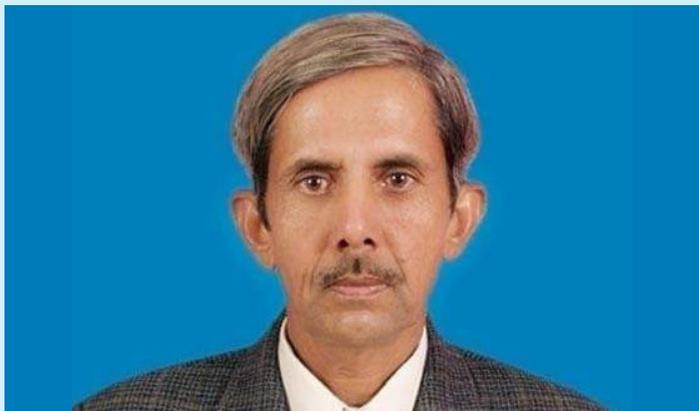
(about 9 years), again at AEMC Lahore (about 7 years) and finally posted at Mineral Development Project (MDP), Islamabad in 2001. He served as Managing Director, MDP from 2006 to 2013. As Managing Director, he wrote two important reports 'Feasibility Report on Dualization of Khojak Tunnel' in 2006 for Govt. of Baluchistan and 'Feasibility of Road Tunnel across Babusar Pass' for National Highway Authority (NHA). After retirement, he was appointed as Advisor to Chairman in 2014 and then advisor at SPD till 31st Dec. 2021.

He made tremendous contribution in development and mining of strategic mineral sector besides played a very important role in the development & construction of projects of national importance. He did excellent job to develop the human resource for PAEC at all the mining projects especially MDP. On the basis of his meticulous services, he was awarded the civil awards 'Sitara-e-Imtiaz' and then 'Hilal-e-Imtiaz'.

May ALLAH rest his soul in peace. Ameen.

(Engr. Tariq Mahmood Fatik)

Dr. Gul Sher



Dr. Gul Sher was born on 9th December 1956 in a village called Kot Lakhrana near Jhang Sadar. He completed M.Sc. Physics from the Government Taleem ul Islam College, Rabwah in 1979. In November 1981, he Joined Electronics Division of PINSTECH and carried out R&D work in the field of Nuclear Instrumentation. His main contribution was the development of a system for the protection of nuclear instruments against electrical power supply disturbances. In 1996, he was transferred to Physics Division, PINSTECH, where he joined Nuclear and High

Energy Physics Group. Apart from his routine assignments, he started research work on Nuclear Interactions and got a PhD Degree in 2009 on the "Heavy Ions Interaction Studies using Solid State Nuclear Track Detectors" from Physics Department, University of the Punjab, Lahore. During his stay at Physics Division, he earned about 40 publications in National and International reputed scientific Journals on the studies of different Nuclear and Nucleonic Interaction from Low to ultra-relativistic energies. Dr. Sher has also participated in an international research project entitled "Search for Light Magnetic Monopoles" carried out under the auspices of Bologna University, Italy. In the last couple of years of his service in PAEC, he headed Low Enriched Uranium Group at PINSTECH. He was promoted as Deputy Chief Scientist in 2010 and retired in 2016 after superannuation age of sixty years. He was very polite, humble, helping and pious person and always met everyone in a good mood. Dr. Gul Sher became victim of sudden death and breathed his last on 31st January, 2022 in Lahore and buried in Muhallah Chorhi wala, Jhang Sadar.

May ALLAH Kareem rest the departed soul in eternal peace and place him at a high position in Jannah.

(Dr. M. Ikram Shahzad)

(Mr. Hussain Gul s/o Dr. Gul Sher)

Social Events

A short hike cum picnic of PNS members and their families

A short hike for PNS members, their families, children and friends was organized on Saturday, 19th February, 2022. It was only 4km to and fro up to the first spring along Trail-5 in Margalla hills. More than 70 persons participated in this refreshing and healthy activity. The event provided a chance for the families to meet one another. Many retired and senior officers were present. They briefly introduced themselves about their life and achievements. The Secretary, Margalla Hills Society (MHS), Mr. Fazal Hussain was especially invited at this occasion who represented a very senior diplomat, honorable Roedad Khan sahib, President MHS. It is worth mentioning that Mr. Roedad Khan is regarded as the savour of Margalla Hills National Park. Refreshments were served along with special tea prepared on-spot.



The credit of this successful venture goes to Syed Zahid Hussain, Executive Member PNS who not only takes this responsibility wholeheartedly and voluntarily for PNS social events but also for all the coordination and arrangements of the well-established PINSTECH Hiking Club.



Proposed Calendar of Activities-2022

Date	Activity	Title	Coordinator(s)
8 th Feb.	Meeting	PNS Scientific Advisory Board (SAB) Meeting	PNS Council
19 th Feb.	Social event	Short hike/ picnic on Trial-5 Margalla Hills, Islamabad	Syed Zahid Hussain
16 th March	Seminar	One-day Seminar on Prospects, Exploration and Usage of Rare Earth Elements in Pakistan, CEES, PU, Lahore	Prof. Dr. Sajid Rashid Dr. Niaz Ahmad
14 th May	Social event	Eid Milan of PNS families, PAEC Rest House, G-8/3, Islamabad	PNS Council
23 rd May	Workshop	Role of Mathematics in Science & Technology, Govt. College Univ. Lahore (Joint activity with Pakistan Physical Society)	Prof. Dr. Riaz Ahmad Dr. Mazhar Hussain Mr. Ghulam Sarwar
31 st May	Seminar	Preventive Measures and Role of Various Sectors during a Nuclear Emergency, PNRA, Islamabad	Mr. Shahid Rashid Mr. M. Abbas Qamar
6 th June	Seminar	Seminar on Quality Improvement of Indigenous Products, Sialkot	Dr. Niaz Ahmad Syed Zahid Hussain
17 th June	Memorial	Tribute to Dr. I.H. Usmani, PAS, Islamabad	Mr. Waqar A. Butt
27 th June	Workshop	Importance of Human Resource Development & Capacity Building for Sustenance of National S&T Programs, HEC, Islamabad	Dr. M. Mohsin Waqar A. Butt
4 th July	Seminar	Nuclear Medicine in Cancer Management, GINOR, Gilgit	Dr. Asif Jellani Dr. Shazia Fatima
11 th July	Presentation	PNS Membership drive, PIEAS, Nilore, Islamabad	Dr. M. Tahir Khaleeq Waqar A. Butt
25 th July	Seminar	One-day Seminar on Advances in Cancer Diagnostic and Therapy, CENAR, Quetta	<i>Dr. Hafiz Khush Naseeb Ahmad</i> Dr. Shazia Fatima
8 th Aug.	Seminar	Women in Nuclear S&T, NIBGE, Faisalabad	Dr. Rakshanda Bilal
22 nd Aug.	Presentation	PNS Membership drive, CHASCENT, Chashma	Dr. M. Tahir Khaleeq Waqar A. Butt
Sept	Seminar	Updates on Nuclear Medicine and Radiotherapy, SINOR, Swat	Dr. Shoaib Shah Dr. Shazia Fatima
12 th Sept.	Seminar	Long Term Safety of Nuclear Power Plants, Karachi (Joint activity with PNRA)	Mr. Shahid Rashid Mr. M. Abbas Qamar
13 th Sept.	Seminar	Sea Water Desalination by Nuclear Techniques, Karachi	Waqar Murtaza Butt
14 th Sept.	Presentation	PNS Membership drive, KINPOE, Karachi	Dr. M. Tahir Khaleeq Waqar A. Butt
24-26 Oct.	Conference	3-days International Conference on the Applications of Nuclear Techniques for Socio-economic Development	PNS Council
Nov.	Announcement	Inviting nominations for PNS Elections 2023-24	Dr. Muhammad Mohsin
14 th Nov.	Seminar	One-day Seminar on Nuclear Techniques in Agriculture, NIA, Tando Jam	Dr. Saima Mir
15 th Nov.	Seminar	One-day Seminar on Thyroid Cancer Management, LINAR, Larkana	Director LINAR Dr. Shazia Fatima
21 st Nov.	Memorial	Tribute to Prof. Abdus Salam, NCP, Islamabad (Joint activity with PPS & NCP)	Waqar A. Butt
26 th Nov.	Social event	Short hike/ picnic/funfair on Trial-5 Margalla Hills, Islamabad	Syed Zahid Hussain
10 th Dec.	AGM	Lifetime achievement/ fellowship awards and Gala Dinner, Islamabad Hotel	PNS Council

PNS International Conference

Three-days International Conference organized by PNS on the Applications of Nuclear Techniques for Sustainable Socio-economic Development 24-26 October 2022, Islamabad

Objective

The major objective of this conference is to seek input from experts on multiple aspects in the application of nuclear techniques in agriculture, human health, environment, water resource management, value addition in materials, high-tech industry and electricity generation. Its recommendations will be sent to the relevant authorities for appropriate actions.

Scope of the Conference

It is envisaged that the conference speakers will cover the following themes with emphasis on viable solutions:

- **Agriculture/Livestock**
- **Human health**
- **Environment and Climate**
- **Nuclear Materials**
- **Water resource**
- **Industry**
- **Safety and security**
- **Electricity generation**
- **Non-electric applications of nuclear energy**
- **Electronics and Instrumentations**
- **Satellites and Space Exploration**

Call for papers and posters

Papers and posters are invited from scientists, researchers, technologists, university students and teachers, professionals of the related fields in agriculture, health, environment, water resources, industry and electricity power generation.

The abstracts of papers should be of 100 to 200 words in Arial font of size 12, bearing the title and the names of authors, indicating corresponding author, his/her institution/ organisation and email address along with phone number submitted to the Conference Secretary before 17th August, 2022. The full text paper is required to be submitted as soon as possible for publication in the proceedings of the conference.

A Poster Competition will also be held in which cash prizes of Rs. 20,000/-, Rs. 15,000/- and Rs. 10,000/- will be given to the top three posters. Moreover, Certificate of Participation will be presented to all registered participants.

Registration for the speakers and the participants:

The participants from different institutes, organisations and universities may register by filling the participation form on the web-site: <https://pns.org.pk>

Registration Fee:

The registration fee for the participants is mentioned below:

- Foreign Participants: US\$ 100
- Local Participants: Rs. 5000/-
- PNS Members: Rs. 2500/-
- Students: Rs. 2000/-

*Payment can be made through crossed cheque in favour of Pakistan Nuclear Society
or online deposit at NBP, Margalla Branch, Islamabad, IBAN: [PK18NBPA1725004018982691](https://www.pns.org.pk)
or cash deposit with Finance Secretary PNS (Mr. Ghulam Sarwar, Ph. No. 0334 8509801)*

Financial support:

Limited funds are available to cover stay and travel of foreign as well as local speakers.



Issue 6/2022

April-June 2022

PNS Newsletter

Nuclear for Peace

A Quarterly Newsletter of the Pakistan Nuclear Society

Patron:

Dr. Muhammad Tahir Khaleeq

Editor-in-Chief:

Waqar Ahmad Butt

Editors

Dr. Riffat M. Qureshi

Dr. Muhammad Sadiq

Dr. M. Javed Akhtar



Tribute to Dr. I.H. Usmani

From the desk of Editor-in-Chief

One of the major breakthroughs in our history occurred on 28th May, 1998 when Pakistan conducted nuclear tests and became 7th atomic power in the world. This year, the day 'Youm-e-Takbeer' was celebrated with much more enthusiasm and fervor in many organizations who have contributed in this great venture. Loud slogans of *Allah ho Akbar* were raised to recall what happened at Chaghi 24 years back. PNS Council also participated in these celebrations and the President PNS recorded a video message which was made on air in social media.

The second main activity was to pay homage to our heroes who played pivotal role in the development of peaceful nuclear programme of Pakistan. Three years ago, PNS organized a memorial reference on the first death anniversary of Dr. Ishfaq Ahmad, former Chairman PAEC. Continuing that tradition, a ceremony to pay tribute to Dr. I.H. Usmani, the most popular Chairman of PAEC, was organized at Pakistan Academy of Sciences (PAS) on 17th June 2022; the date of his death. Eleven former colleagues of Dr. Usmani recalled and shared the memories of working with him.

Another good news is that PAEC has restored the recurring grant of Rs. 500,000/- per year to carry out PNS programmes in efficient and effective manner. PNS Council is grateful to PAEC Authorities for this great favour. It has enabled the Society to purchase essential items for PNS Office as well as to meet day to day expenditures.

PNS has initiated an internship scheme for university students. The first such young scholar has been inducted for website maintenance, members database updation, collection of news published in print media related to Pakistan's nuclear programme, seminars preparations, etc. Similar practice will continue for internships in S&T fields with the help of volunteer experts.

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Vision

To become a resource centre for disseminating information and to promote practical applications on peaceful uses of nuclear science, engineering and technology for sustainable socio-economic development. The principal tools to be used for this purpose would be PNS Website and PNS Newsletter.

Announcement

International conference on the Applications of Nuclear Technology for Sustainable Socio-Economic Development, 24-26 October 2022, Islamabad.

(Organized by PNS)

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Activities during the 6th Quarter

Tribute to Dr. I.H. Usmani

The pioneer of Pakistan's peaceful nuclear programme and the most prominent name in the history of PAEC is of Dr. Ishrat Hussain Usmani. To pay tribute to the visionary and dynamic personality for his ever lasting endeavours to make a strong R&D base, Pakistan Nuclear Society (PNS) organized a memorial function on the occasion of his death anniversary on 17th June at Pakistan Academy of Sciences (PAS), Islamabad. The ceremony was attended by more than 90 retired as well in-service professionals from various organizations.

Renowned scientists and engineers who worked with Dr. Usmani shared memories of those days when nuclear centres in the fields of agriculture, medicine, industry, nuclear power, manpower training and research were shaping up under a comprehensive programme chalked out by Dr. Usmani. The first nuclear medical centre in Karachi (AEMC), first nuclear agriculture in Tando Jam(NIA), first mineral centre (AEMC, Lahore), first R & D centre in Nilore(PINSTECH), first nuclear training centre (Reactor School now PIEAS) and the first nuclear power plant in Karachi(KANUPP) were established with his efforts. These milestones will be ever remembers with his name. Those who expressed their views at this occasion were, **Engr. Pervaz Butt**, NI,HI,SI, **Dr. Samar Mubarakmand**, NI,HI,SI, **Dr. Inam ur Rahman**, HI,SI, Aezaz-e-Kamal, **Engr. Muhammad Mansoor**, SI,TI, **Dr. N.M. Butt**, SI, **Dr. Syed Mujtaba Naqvi**, SI, **Dr. Aminuddin Ahmad**, TI, **Dr. Muhammad Jameel**, PoP, **Dr. Shaukat Hameed Khan**, PoP, **Dr. Noor-i-Alam Kizilbash**, PoP

and **Mr. Tayyab Muhammad Ali**, PoP. It is to mention, that all of them are Lifetime Members of PNS.



Participants of the memorial ceremony

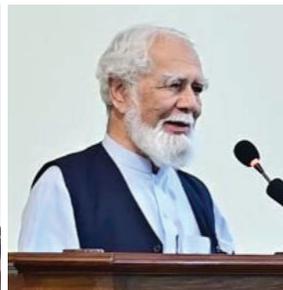
Dr. Muhammad Tahir Khaliq, President PNS welcomed the participants and thanked the speakers to join this event. He also elaborated PNS activities carried out during one and half year and future programmes. Mr. Waqar A. Butt, Executive Member PNS gave a presentation for the formal introduction of Dr. Usmani containing some historical and memorable photos. The pictures of PNS Members who passed away during 2021-22 were also displayed and Fatiha prayer was offered for all of them.



Engr. Pervaz Butt



Dr. Samar Mubarakmand



Dr. Inam ur Rahman



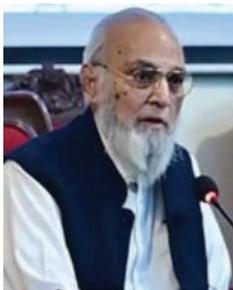
Dr. N.M. Butt



Engr. Muhammad Mansoor



Dr. Shaukat Hameed



Dr. Aminuddin Ahmad



Dr. Muhammad Jameel



Dr. S.M.H. Naqvi



Dr. N.A. Kizilbash



Mr. Tayyab M. Ali



Miss Haniya Anwar



Dr. M. Tahir Khaleeq

Waqar A. Butt

Dr. M. Mohsin

Miss Haniya Anwar, Intern at PNS Office performed the duty of Stage Secretary. The ceremony ended with Vote of Thanks by Dr. Muhammad Mohsin, General Secretary PNS. He especially mentioned PAEC, PSF and PAS for financial and logistic support to PNS for carrying out its activities. The video recording of the whole ceremony has been made available at PNS Website (pns.org.pk) and its YouTube channel.

National Symposium at GC University, Lahore

Last year, PNS signed a Memorandum of understanding (MoU) with Pakistan Physical Society (PPS) for collaboration in common areas of interest in S&T. It also includes holding of joint seminars/workshops/ conferences. Consequently, a national symposium on the “Roll of Mathematics in the Development of Science and

Technology” was held at the Physics Department of the Government College University (GCU), Lahore on 23rd May 2022. The main objective of the symposium was to disseminate knowledge about various aspects of fundamental and applied mathematics in science and technology for socio-economic development of the country. It was attended by a large number of researchers and students from various universities and academic institutions. Dr. Muhammad Aslam, former Rector PIEAS/Vice Chancellor UMT, Lahore was the Chief Guest and Dr. Asghar Zaidi, Vice Chancellor, GCU was invited as Guest of Honor. Symposium Introduction was given by Dr. Mazhar Hussain, Secretary PPS and welcome Address was presented by President PPS, Prof. Dr. Riaz Ahmad, Dean of Mathematical and Physical Sciences, GCU. Mr. Waqar Ahmad Butt elaborated PNS objectives and future activities especially the International conference on ‘Applications of Nuclear Technology for Sustainable Socio-Economic Development’ to be held in October 2022 and urged the participants to actively take part in it by presenting papers/posters.



Chief Guest, Dr. Muhammad Aslam

Guest of Honor, Dr. Asghar Hussain

In the technical session, plenary talk was delivered by **Dr. Muhammad Sajid**, Professor at the International Islamic University, Islamabad. The title of his talk was Mathematics:



Shaping Science. It was followed by an Invited Lecture by **Dr. Imran Anwar** from LUMS on Mathematics: Standing on the shoulders of giants. **Dr. Zahida Ehsan** from COMSATS, Lahore gave a talk on Beauty of Nature Through Mathematics. **Dr. Muhammad Shahbaz** from University of the Punjab spoke on The Key to Future Technologies: Mathematics and Physics for First Principles Study of Materials. **Dr. Gohar Abbas** from GCU, Lahore presented his talk on Mathematics in the development of Physics. All the presentations are available at PNS website (<https://pns.org.pk>).

Seminar on Preparedness and Response for a Nuclear or Radiological Emergency

Pakistan Nuclear Society (PNS) in collaboration with Pakistan Nuclear Regulatory Authority (PNRA) organized a seminar



Opening Session

on 'Preparedness and Response for a Nuclear or Radiological Emergency' on 31st May 2022 at Dr. Ishfaq Ahmed Auditorium, PNRA HQs, Islamabad. The objective of seminar was to sensitize

the relevant organizations regarding their roles in management of a nuclear or radiological emergency. The seminar provided an opportunity to discuss the way forward to further strengthen emergency preparedness and response (EPR) arrangements for managing nuclear and radiological emergencies at national level. The joint venture was in accordance with the mandate of the PNS how to protect general public from harmful effects of ionizing radiations. This forum provided an opportunity of discussion and understanding of essential measures to be taken by the individuals as well as the organizations in case of nuclear and radiological emergencies. The speakers were from PAEC, PNRA, NURESC, PIEAS and NDMA. More than 60 officials from strategic organizations and relevant government departments attended the seminar. Ms Rabia Shaheen from PNRA performed the responsibility of Stage Secretary.

Mr. Muhammad Rahman, Member Corporate PNRA in his welcome address highlighted the efforts of PNRA being the main custodian of nuclear and radiological emergency preparedness and response in the country. Dr. Muhammad Tahir Khaleeq, President PNS explained the working scope, initiatives and activities carried out by the Society and elaborated the importance of nuclear safety and security. He thanked PNRA for their assistance in arrangement of such an important seminar. The Chief Guest, Mr. Anwar Habib, former Chairman PNRA shared his lifelong experience and old memories of working at PNRA. He encouraged the young engineers and scientists for the research and development in their respective fields, and advised to play their active role in the progress and development of the country. He appreciated PNS for initiating such events, not just for the public awareness but also for the scientists, engineers and students involved in nuclear R&D.

Technical proceedings of the seminar consisted of five presentations and a panel discussion at the end. First presentation



The Audience

was given by Mr. Muhammad Nadeem Hussain, Head NRECC, PNRA. He discussed the relevant international conventions regarding the Emergency Preparedness and Response (EPR), the role of PNRA under PNRA Ordinance and regulatory mechanism to ensure the EPR arrangements. He also briefed about the functions and role of National Radiation Emergency Coordination Centre (NRECC); a 24/7 active emergency centre at PNRA HQs.

Brig (R) Tahir Abbasi, Director NURESC, SPD described the national Nuclear Emergency Management System (NEMS). He talked about the development of NEMS plan, establishment of NURESC and the responsibilities of different organizations and stake holders during an emergency.

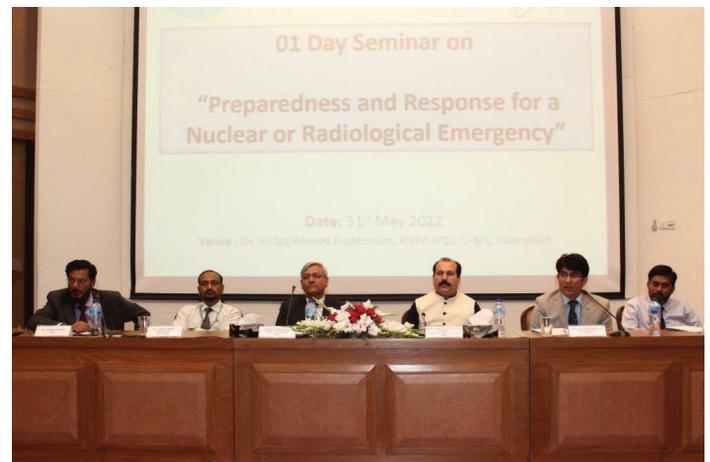
Dr. Hussain Majid, PS, DOS PAEC gave an overview of the emergency classification system and EPR arrangements at Nuclear Power Plants(NPPs) being operated by PAEC. He explained about the current status of different NPPs, classifications system, emergency planning zones around nuclear power plants and the protective measures to be implemented during emergencies in these zones.

Mr. Qaisar Nadeem, SE from PIEAS University discussed about the assessment and evaluation of emergency which helps the concerned departments and officials in decision making. According to him data from different sources like Metrological, Geophysical, GIS and other estimations from different methods helps and supports the decision making process.

Mr. Muhammad Idrees Mahsud, Member (Disaster Risk

Reduction), NDMA delivered a very important presentation. He provided an overview of the disaster management structure at national level, the key stake holders, their responsibilities and the whole disaster management system according to NDMA act. He also highlighted some unfortunate incidents occurred in the past in his presentation so that audience may get a clearer picture of real emergency handling of NDMA.

At the end, during the panel discussion (question/answer session) and concluding remarks, it was emphasized to further strengthen EPR arrangements through frequent conduct of national level emergency exercises by involving all stakeholders. This session was moderated by Mr. Abbas Qamar, former Director DOS.



Discussion Session



Participants of the Seminar

Outreach and Linkages

Signing of MoU between PNS and CEES



Signing of MoU

A Memorandum of Understanding (MoU) has been made between Pakistan Nuclear Society (PNS) and the College of Earth and Environmental Sciences (CEES), University of the Punjab, Lahore for Co-Operation and Reciprocal Membership Privileges between the two parties on 23rd May 2022. The ceremony was held at CEES Building. The agreement was signed by Prof. Dr. Sajid Rashid Bhatti, Principal CEES and Mr. Waqar Ahmad Butt, Executive Member PNS (on behalf of Dr. Muhammad Tahir Khaleeq, President PNS who couldn't join the event due to unavoidable circumstances).

CEES is an academic and research institute under the auspices of University of the Punjab whose objectives are inter alia: the advancement of education and research facilities in earth and environmental sciences for technological development in the country. While PNS is mandated to undertake academic activities for education, public awareness

and dissemination of information about modern technologies including those based on the broader discipline of applied and fundamental sciences.

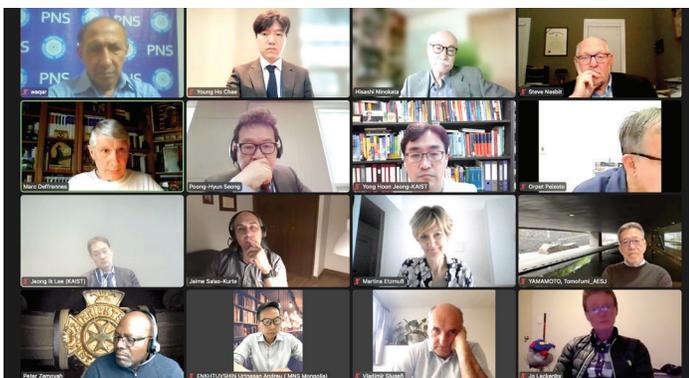
The genesis of the MoU is that PNS and CEES enter into an agreement for Mutual Co-operation as under:

- The Parties will keep each other informed of their upcoming programmes and activities and assist in reaching out to their respective membership for participation.
- Each Party will encourage its members to participate in the development of educational material, contribution of articles and delivering of lectures, if invited by the designated coordinator of the other Party.
- The Parties will provide links to each other's websites on their respective home pages.
- Both the Parties agree to extend reciprocal membership privileges to individual members to participate and submit papers to the conferences/symposia/workshops.

It is worth mentioning that this is the 5th MoU that PNS has signed with national institutions. The other four MoUs are with National Centre for Physics (NCP), Technology Times, South Asia Strategic Stability Institute (SASSI), and Pakistan Physical Society (PPS).

Meeting of INSC

The first online meeting of the International Nuclear Societies Council (INSC) during 2022 was held on May 19, 2022. The Chair, Dr. Poong Hyun Seong opened the meeting. Participants from various Members States briefly introduced themselves.



Webinar in progress

Mr. Waqar Ahmad Butt, Executive Member PNS from Pakistan attended the meeting through zoom link. After adoption of the agenda and approval of the minutes of the previous meeting (02-2021), Dr. Ozemoyah presented a Report on "A vision for the second Fifty Years of Nuclear Energy". Mr. Young Ho Chae, a PhD Student, elaborated main features of the new website. He described the proposed improvement under consideration in the website such as appearance, search function and maintainability.

Dr. Yong Hoon Jeong who has advised the new Government on the Korean Nuclear Energy Programme delivered a presentation on the 'Introduction of Korean Nuclear Energy Programme'. For INSC 13th Global Award, there are two nominees. A Committee comprising of three experts will make the decision for granting the Award at the 2nd Meeting (02-2022). In Other Business, the delegate from Pakistan, Mr. Waqar Ahmad Butt, informed about a Conference in Islamabad during October 2022 and invited participation and contribution by INSC Member Societies and INSC Delegates.

Silent Heroes

M. Hafeez Qureshi (HI,SI)

(28th January 1931 - 11th August 2007)



Mr. Muhammad Hafeez Qureshi was a nuclear scientist and a mechanical engineer known for his involvement in highly classified projects of PAEC. He played a pivotal role as Head of the divisions charged with the responsibility of development, manufacturing and testing of nuclear defense systems which enabled Pakistan to become an atomic power. For this distinction, he was highly respected by fellow scientists and engineers.

Mr. Qureshi was born in Kapurthala, Punjab in 1931. After the Partition of India in 1947, his family immigrated to Pakistan and settled in Karachi. He attained Master of Science (MSc) degree in physics from Karachi University in 1956. He earned a scholarship and got enrolled in the engineering department at the Michigan State University (MSU) in the United States and obtained a Master of Science (MS) degree in mechanical engineering with specialization in the applications of mechanics of materials.

In 1960, Mr. Qureshi returned to Pakistan and served for about 3 years at the Karachi Mechanical Laboratories (KML). In 1963, he left KML and joined the Atomic Energy Center Lahore (AECL); a key research establishment of PAEC. There he supervised the installation of a neutron generator. In 1965, he was transferred to the then newly established Pakistan Institute of Nuclear Science and Technology (PINSTECH) and worked as part of the team that supervised the operation of the Pakistan Research Reactor-I (PARR-I). In 1971, he established the famous Radiation and Isotope Applications Division (RIAD) at PINSTECH which consisted of world class laboratories for Non-Destructive Testing (NDT) of materials, Stable Isotope Hydrology and Radiotracer Applications in Industry and Hydrology. He led the pioneering work related to sediment transport in Karachi Harbor using radioactive tracers prepared at PARR-I. He carried out feasibility studies of Mangi Dam near Quetta using isotope hydrological tools and many other projects of national importance.

Soon after India's nuclear test in 1974, and realizing the extraordinary talent and unique expertise to solve complex mechanical problems, he was tasked to lead the assignments related to technical development, manufacturing and testing of components necessary for nuclear defense systems. By virtue of the extraordinary hard work, enthusiasm and dedication of Mr. Hafeez Qureshi and his team of able scientists, engineers and technicians, the Pakistani nation witnessed the successful 'cold fission test' in 1983. After his retirement, based on the technical systems developed by his team, the PAEC scientists and engineers successfully conducted six Nuclear Tests in May 1998 under the leadership of Dr. Samar Mubarakmand.

Mr. Muhammad Hafeez Qureshi died on 11th August 2007 and was buried in Wah Cantonment. He has left behind a rich harvest of sweet memories and marvelous achievements for inspiration of all those who know him and for the generation to come. The nation will remember him for his selfless day and night efforts for technical developments in the nuclear defense systems as a member of the team that steered to make this country the 7th Nuclear State in the World and the 1st among the Muslim Ummah. In recognition of his invaluable services to Pakistan in the field of Nuclear Science and Technology, the President of Islamic Republic of Pakistan conferred upon him the prestigious Civil Awards including Sitara-e-Imtiaz (1992) and Hilal-e-Imtiaz (2002).

May Allah rest his soul in eternal peace in the heavens (*Aameen*).

(Dr. Riffat M. Qureshi)

A Historical Photo

The tunnel in Kirana Hills where the Cold Test was conducted in October, 1983



Mr. Munir Ahmad Khan (Chairman PAEC), Mr. Ghulam Ishaq Khan (Finance Minister),
Gen. K. M. Arif (Vice-Chief of Army Staff), Dr. Ishfaq Ahmad (Member Technical, PAEC)

Nuclear News and Views International

Linear Fusion Reactor *Thunder Said Energy* March 28, 2022

Taking a different approach, Helion is developing a linear fusion reactor, which has entirely re-thought the technology like the 'Tesla of nuclear fusion'. It could have costs of 1-6c/kWh, be deployed at 50-200MWe modular scale and overcome many challenges of tokamaks. Progress so far includes 100M°C and a \$2.2bn fund-raise. This note sets out its 'top ten' features:

1. **Costs.** The reactor will be 1,000x smaller and 500x cheaper than a conventional fusion reactor, with eventual costs seen at 1-6c/kWh. This would indeed be a world-changer for zero carbon electricity.

2. **Linear Reactor.** This is not a tokamak or inertial confinement machine. It is a simple, linear design, where pulsed magnetic fields accelerate plasma into a burn-chamber at 1M mph and colliding plasma particles fuse. The fusion causes the plasma to expand. Energy is then captured from the expanding plasma. It is like fuel in a diesel engine.

3. **Direct electricity generation.** Most power generators work by producing heat. The heat turns water into high-pressure steam, which then drives a turbine. Within the turbine, electricity is generated as a moving magnetic field induces a current in stator coils of the turbine. However, a linear reactor can exploit Faraday's law directly. Plasma particles are electro-magnetically charged. So as they expand, they will also induce a current.

4. **Reactor size.** The average nuclear fission plant today is around 1GW. Very large fusion plants are gearing up to be similar in size. However, Helion's linear reactor is seen on

the order of 50MW. This is something on the magnitude that can be deployed by individual power consumers, or more ambitiously, on mobile applications, such as in commercial shipping vessels or aviation.

5. **Fewer neutrons.** The target fuel is Helium-3. This is interesting because fusing 2 x Helium-3 nuclei yields a Helium-3 nucleus plus two hydrogen nuclei. There are no net neutron emissions and no radioactivity issues.
6. **Beta.** Getting a fusion reactor to work energy-efficiency requires maximizing 'beta'. Beta is the ratio of plasma field energy to confining magnetic field energy. During compression, different field coils with successively smaller radius are activated in sequence to compress and accelerate the plasmids into a radially converging magnetic field. Helion is targeting a beta close to 100%, while tokamaks typically achieve closer to 5%.
7. **Capital.** In November-2021, Helion raised a \$2.2bn Series-E funding round. This is the largest private fusion fund raise on record. It is structured as a \$500M up-front investment, with an additional \$1.7bn tied to performance milestones.
8. **Progress so far.** In 2021, Helion became the first private fusion company to heat fusion plasma to 100M°C. It has sustained plasma for 1ms. It has confined them with magnetic fields over 10 Teslas. Its Trenta prototype has run nearly every day for 16-months and completed over 10,000 high-power pulses.
9. **Roadmap to commerciality?** Helion is aiming to develop a 7th prototype reactor which will produce a net electricity gain, hopefully by 2024. It is expected that fully commercial reactors could be 'ready' by around 2029-30.
10. **Technical Risk.** De-risk technologies are usually looked by reviewing their patents. This is not possible for Helion, because only a small number of its patents are found in the public patent databases. Developing a commercial fusion reactor still has enormous challenges.

<https://thundersaidenergy.com/2022/03/28/helion-linear-fusion-breakthrough/>

Final Resting Place

Science, Vol. 375, Issue 6583
 24 Feb 2022
 doi: 10.1126/science.ada1574

Finland is set to open the world's first permanent repository for high-level nuclear waste. About 100 nuclear waste disposal tunnels

are being dug 430 meters underground at Onkalo, Olkiluoto; an island in Finland's west coast. After 30 to 40 copper casks buried in the tunnel floor, the holes will be plugged with bentonite; a water-absorbing clay. Each tunnel will be backfilled with more bentonite and sealed with concrete. The casks will then begin their long vigil. They must remain undisturbed for 100,000 years, even as the warming climate of coming centuries. Spent uranium fuel rods will be sealed within thousands of tall, corrosion-resistant copper canisters.



Although, nuclear power is declining in many nations, Finland has embraced the carbon-free energy source, lobbying the European Union to label it as sustainable. Two of the country's four reactors are on Olkiluoto. After a new Olkiluoto reactor is connected to the grid later this year, nuclear power will account for more than 40% of Finland's electricity. The emissions-free electricity comes with a downside: hot and highly radioactive spent uranium fuel rods. Finland had about 2300 tons of waste in 2019, and about 263,000 tons of spent fuel sits in interim storage facilities worldwide.

Many experts view permanent deep repositories like Onkalo as the best solution, but getting community buy-in is often a deal breaker. Finland, however, has run into remarkably few problems with Onkalo, which the government approved as a site in 2000. It helped that the residents of Eurajoki, the town closest to Onkalo and the nearby reactors, were comfortable with nuclear power.

But experts say the success of Onkalo also reflects unique cultural and political conditions in Finland: high trust in institutions, community engagement, a lack of state-level power centers, and a balance of power between industry and stakeholders.

National News

Pakistan's Karachi-3 completes acceptance test

Nuclear Engineering International

21 April 2022

On 18th April 2022, unit-3 of Pakistan's Karachi Nuclear Power Plant (K-3), a 1100 MWe Chinese supplied HPR1000 (Hualong-1) pressurized water reactor (PWR), completed acceptance tests, marking the start of its commercial operation, according to China National Nuclear Corporation (CNNC). The ceremony was attended by CNNC President Gu Jun and the Pakistan Atomic Energy Commission (PAEC) Chairman Dr. Raja Ali Raza Anwar. K-3 is the fourth Hualong-1 reactor to begin operation and the second outside China. Its construction began in May 2016 and hot functional testing was completed ahead of schedule in November 2021. The unit achieved first criticality in February, connected to the grid on 4th March and reached 100% capacity on 31st March 2022. CNNC said that K-2 and K-3 will supply some 20 billion kWh of clean electricity a year, meeting the annual demand of the local population of two million people and cutting carbon dioxide emissions by more than 16 million tons. It is to mention that the first NPP of Pakistan (KANUPP), a 137MWe Canadian pressurized heavy water reactor was shut down in 2021 after 50 years of safe operation. Pakistan also has four NPPs (PWRs) of 300+ MWe at Chashma supplied by CNNC. In 2017, CNNC also signed a cooperation agreement with the PAEC for another Hualong-1 as a fifth unit at Chashma.

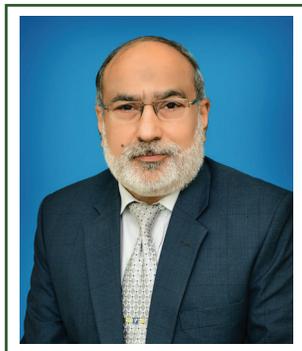
Recalling the old memories

PNS Council taking oath (1994-95)



From left to right: Dr. M. Zafarullah, Engr. Arshad Mahmood, Dr. M. Ashraf Ch., Dr. N. M. Butt, Dr. Abdullah Sadiq, Engr. Azfar Baig, Dr. Javed Aslam, Dr. Shamim Ahmad Ch. (President) and late Dr. Ishfaq Ahmad

News about PNS Members Congratulations



*PNS Council congratulates **Dr. Raja Ali Raza Anwar** for the assumption of charge as **Chairman Pakistan Atomic Energy Commission (PAEC)***

Obituaries

Javed Akhtar



Mr. Javed Akhtar retired as DCS from PINSTECH in 2009 after 30 years of practical experience. He belonged to Sahiwal and obtained his early education from his home town. Then he went to Lahore and did graduation from Superior Science College. He obtained M.Sc. in Chemistry from Govt. College, Lahore. Instantly after that he joined Directorate of Nuclear Fuel & Material at PAEC HQ in October, 1978. Later, he was transferred to PINSTECH and worked in the Materials Division. His research areas have been inorganic materials refining, nano, micro and macro stabilized ceramic powder preparation and analysis, surface modification studies, characterization of clay, soil, metallic and non-metallic compounds using X-Ray diffraction techniques, preparation and refining of silicon from rice husk and production of UO₂ powder for KANUPP. He played a pivotal role in the establishment of sol-gel lab and preparation of various metal oxides. Besides his involvement in project work, he had 42 publications in the form of international and national papers and reports. He was regarded as a hardworking and honest person. After a long illness, he breathed his last on 22nd April 2022. May Allah Kareem rest the departed soul in eternal peace in Jannat ul Firdous (Ameen).

Mr. Salman Javed
(Son)

M. Rashid Chaudhary

Mr. Muhammad Rashid Chaudhary, DCS(R) was a graduate of the Punjab University. He joined PAEC in 1979 as Geologist and remained posted at Atomic Energy Minerals Center (AEMC) Lahore till 2004. While posted at Lahore he performed duties in prospecting, exploration and documentation division of the Center and carried out many successful assignments of nuclear minerals prospecting in various parts of the country. His persistent hard working ended up with the discovery of a number of potential sites, some of which at latter stage were turned out to be productive for the commission. He also performed duties in documentation division where a lot of past geological & geochemical data of all regimes both in terms of prospecting & exploration were gathered, properly stacked and analyzed. He also added skills based recommendations wherever found necessary for future working. In AEMC, he worked in the capacity of team member, group leader and head of field camps. In 2005, he was transferred to REO-Karachi and was posted as Manager Exploration. He was perfectly committed, technically well versed, humble, spirituality very firm and down to earth personality. Prayers are for his elevated level in Jannah.



Mr. Asif Sheikh
(Colleague)

Engr. Masood Latif Qureshi



Mr. Masood Latif Qureshi retired from PAEC as Chief Scientific Officer in 2005. He earned a Master's degree in Physics from Karachi University and attended courses in Electronic Engineering at Loughborough University UK. During his service in PAEC, he made solid contribution towards the national cause. He was ranked among the top 5 experimental physicists of the country and his work was highly appreciated by Prof. Abdus Salam. An inventor with over 45 years of research experience in UK and Pakistan, he had a multidisciplinary expertise in a number of engineering fields primarily electronic control systems, instrumentation, communications, automotive, aerospace, mechanical and manufacturing engineering. After retirement, along with his daughter, Dr. Sarah Qureshi, he co-founded Aero Engine Craft Pvt. Ltd. and served as its Chief Technology Officer. His recent work in the company was focused on the development and manufacture of eco-friendly jet engines in Pakistan for the global aviation industry. He co-invented the contrail-free aero-engine and a supersonic

jet engine with three international patents granted for his inventions. Some of his other inventions include Urdu script typewriter, a piston engine, a diesel engine, moving wing aircraft, rudderless wing, tilt-axis wind turbine, tilt suspension for cars and a narrow body vehicle. He worked with a unique combination of art, design and engineering and had over 50 inventions in the aerospace, automotive, communications and digital electronics domain. He was a talented artist and avidly painted landscapes in watercolor. He was also a keen explorer who had travelled extensively around Africa, Europe and Asia. He breathed his last on 7th June, 2022. Inna li Allahe wa inna elaihe rajeoon. May all his efforts, dedication and sacrifices for this country be rewarded multifold in the hereafter Ameen.

Dr. Sarah Qureshi
(Daughter)

Social Events

Eid Milan of PNS members and their families

PNS wants its members to be like a family or at least a community having cordial relation among themselves. To make this dream true, an Eid Milan party was arranged at PAEC Rest House on 14th May 2022 in which about 100 persons along with their children gathered to greet by saying EID MUBARAK to one another. In spite of scorching hot summer with temperature over 40 degrees, many senior retired officials graced the occasion. Some of them got extremely delighted to meet their colleagues after long times. They enjoyed hi-tea with Eid specialty



of Sheer Khurma. The credit of this delightful function goes to Syed Zahid Hussain, Executive Member PNS, who put lot of efforts in making all arrangements along with the staff of PAEC Rest House.



Message from the President PNS on Youm-e-Takbeer

Announcements

- International Symposium on Managing Land and Water for Climate-Smart Agriculture, 25-29 July 2022, Austria.
- International Conference on Applications of Radiation Science and Technology (ICARST-2022), 22-26 August 2022, Vienna, Austria.
- International Conference on Occupational Radiation Protection, 5-9 September 2022, Geneva, Switzerland.
- International Conference on the Challenges faced by Technical and Scientific Support Organizations (TSO) in Enhancing Nuclear Safety and Security, 10-13 October 2022, Saint Petersburg, Russia.
- International Conference on Topical Issues in Nuclear Installation Safety: Strengthening Safety of Evolutionary and Innovative Reactor Designs, 18-21 October 2022, Vienna, Austria.
- International Conference on the Applications of Nuclear Techniques for Sustainable Socio-economic Development, 24-26 October 2022, Islamabad, Pakistan.
- 5th International Ministerial Conference on Nuclear Power in the 21st Century, 26-28 October 2022, Washington, D.C., United States.
- International Conference on Integrated Medical Imaging in Cardiovascular Diseases (IMIC-2022) 13-16 December 2022, Vienna, Austria.

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

السلام علیکم

میں ڈاکٹر محمد طاہر خلیق پریزیڈنٹ پاکستان نیوکلیئر سوسائٹی، پاکستان نیوکلیئر سوسائٹی کی جانب سے تمام اہل وطن کو یوم تکبیر پر مبارکباد پیش کرتا ہوں۔ آپ جانتے ہیں کہ آج ہی کے دن مورخہ 28 مئی 1998 کو پاکستان پانچ ایٹمی دھماکے کر کے عالم اسلام کی پہلی اور دنیا کی ساتویں ایٹمی طاقت بن گیا اور اللہ کے فضل و کرم سے وطن عزیز کا دفاع ناقابل تسخیر ہو گیا۔ الحمد للہ۔

اس یادگار موقع پر ہم ان تمام سائنسٹس، انجینئرز، ٹیکنیشنز، سپورٹنگ اسٹاف اور وہ تمام ادارے اور افراد جو کہ اس عظیم کارنامے کو سرانجام دینے میں شامل رہے ان کی خدمات کا اعتراف کرتے ہیں اور ان کو مبارکباد پیش کرتے ہیں۔ ہماری دلی دعا ہے کہ اللہ تعالیٰ پاکستان کو دن دگنی رات چوگنی ترقی عطا فرمائے اور سائنس اور ٹیکنالوجی کے میدان میں کامیابیوں اور کامرانیوں کا سفر سدا جاری رہے۔ آمین۔

پاکستان زندہ باد۔



Proposed Calendar of Activities

July-December, 2022

Date	Activity	Title	Coordinator(s)
5th July	Meeting	The first meeting of PNS Administrative Advisory Board	Dr. M. Tahir Khaleeq Mr. Waqar A. Butt
25th July	Seminar	Nuclear Medicine in Cancer Management, GINOR, Gilgit	Dr. Asif Jellani Dr. Shazia Fatima
1st Aug.	Seminar	Women in Nuclear Science & Technology; Sharing personal experiences, NIBGE, Faisalabad	Dr. Rakshanda Bilal Dr. Uzma Maqbool Dr. Samina Iqbal
15th Aug	Seminar	One-day Seminar on Advances in Cancer Diagnostic and Therapy, CENAR, Quetta	Dr. Hafiz Khush Naseeb Ahmad Dr. Shazia Fatima
22nd Aug	Workshop	Importance of Human Resource Development & Capacity Building for Sustenance of National S&T Programs, HEC/PIEAS, Islamabad	Dr. M. Mohsin Waqar A. Butt
29th Aug.	Seminar	Updates on Nuclear Medicine and Radiotherapy, SINOR, Swat	Dr. Shoaib Shah Dr. Shazia Fatima
12th Sept.	Seminar	Long Term Safety of Nuclear Power Plants, Karachi (Joint activity with PNRA)	Mr. Shahid Rashid Mr. M. Abbas Qamar
13th Sept.	Seminar	Sea Water Desalination by Nuclear Techniques, Karachi	Waqar Murtaza Butt
14th Sept.	Seminar	Advances in Medical Imaging, AEMC, Karachi	Dr. Shazia Fatima
24-26 Oct.	Conference	International Conference on the Applications of Nuclear Techniques for Sustainable Socio-economic Development	PNS Council
Nov.	Announcement	Inviting nominations for PNS Elections 2023-24	Dr. Muhammd Mohsin
14th Nov.	Seminar	One-day Seminar on Nuclear Techniques in Agriculture, NIA, Tando Jam	Dr. Saima Mir
15th Nov.	Seminar	Seminar on Thyroid Cancer Management, LINAR, Larkana	Director LINAR
21st Nov.	Memorial	Tribute to Prof. Abdus Salam, NCP, Islamabad (Joint activity with PPS & NCP)	Waqar A. Butt
26th Nov.	Recreational	Short hike/ picnic/ funfair on Trial-5 Margalla Hills, Islamabad	Syed Zahid Hussain
10th Dec.	Meeting/Social Event	AGM/ Lifetime achievement/ fellowship awards and Gala Dinner, Islamabad Hotel	PNS Council
28th Dec.	Elections	PNS Council Elections, 2023-24, PAEC Rest House, G-8/3, Islamabad	Election Committee

Benefits of PNS Membership

1. Growing professional circle by strengthening connections with peers in relevant fields
2. Counseling/guidance to young scientists/engineers in their professional careers
3. Help to science/engineering graduates in pursuits of higher studies
4. Free access to nuclear related webinars, online courses and discussions to share views
5. Enhance knowledge of current issues, challenges and opportunities in nuclear S&T
6. Group visits at various S&T organizations/universities
7. Free e-copy of quarterly PNS Newsletter
8. Login facility at PNS website with a secure password
9. A Certificate and a Membership Card with a photo
10. 50% reduction in PNS conferences fee
11. 20-30% fee reduction in conferences arranged by other organizations
12. 25% discount in fee on courses offered by Pakistan Institute of Management (PIM)
13. 50% reduction in Annual Dinner/Eid Milan and other parties
14. Social programmes like family picnic/hikes, trip to Northern areas, etc.
15. Registration/Lifetime Membership Fee is only Rs. 2,100/-.
16. Membership Fee for students is Rs. 1,100/- for five years
17. Benefits is in Complete
18. Membership forms are available at: <https://pns.org.pk>
Form and Fee can be deposited online in PNS Bank Account at NBP, Margalla Br. Islamabad,
IBAN: PK18NBPA1725004018982691

Souvenirs of for sale

Prices for PNS Members:

1. Wall clock (12inches) = Rs.500
2. Cup = Rs.300
3. Key chain(metal) = Rs.120
4. Key chain (plastic) = Rs.50
5. Ball pen (metal) = Rs. 70
6. Ball pen (plastic) = Rs. 40

Prices for non-members:

1. Wall clock(12inches) = Rs.600
2. Cup = Rs.400
3. Key chain(metal) = Rs.130
4. Key chain(plastic) = Rs.60
5. Ball pen (metal) = Rs. 100
6. Ball pen (plastic) = Rs. 60



Three-days International Conference organized by PNS on the
Applications of Nuclear Techniques for Sustainable Socio-economic Development
24-26 October 2022, Islamabad

Objective

The major objective of this conference is to seek input from experts on multiple aspects in the application of nuclear techniques in agriculture, human health, environment, water resource management, value addition in materials, high-tech industry and electricity generation. Its recommendations will be sent to the relevant authorities for appropriate actions.

Scope of the Conference

It is envisaged that the conference speakers will cover the following themes with emphasis on viable solutions:

- *Agriculture/Livestock*
- *Human health*
- *Environment and Climate*
- *Nuclear Materials*
- *Water resource*
- *Industry*
- *Safety and security*
- *Electricity generation*
- *Non-electric applications of nuclear energy*
- *Electronics and Instrumentations*
- *Satellites and Space Exploration*

Call for papers and posters

Papers and posters are invited from scientists, researchers, technologists, university students and teachers, professionals of the related fields:

The abstracts of papers should be of 100 to 200 words in Arial font of size 12, bearing the title and the names of authors, indicating corresponding author, his/her institution/ organization and email address along with phone number submitted to the Conference Secretary before 17th August, 2022. The full text paper is required to be submitted as soon as possible for publication in the proceedings of the conference.

A Poster Competition will also be held in which cash prizes of Rs. 20,000/-, Rs. 15,000/- and Rs. 10,000/- will be given to the top three posters. Moreover, Certificate of Participation will be presented to all registered participants.

Registration for the speakers and the participants:

The participants from different institutes, organizations and universities may register by filling the participation form on the web-site: <https://pns.org.pk>

Registration Fee:

The registration fee for the participants is mentioned below:

- Foreign Participants: US\$ 100
- Local Participants: Rs. 5000/-
- PNS Members: Rs. 2500/-
- Students: Rs. 2000/-

Payment can be made through crossed cheque in favor of Pakistan Nuclear Society or online deposit at NBP, Margalla Branch, Islamabad, IBAN: PK18NBPA1725004018982691 or cash deposit with Finance Secretary PNS (Mr. Ghulam Sarwar, Ph. No. 0334 8509801)

Financial support:

Limited funds are available to cover stay and travel of foreign as well as local speakers.



Issue 7/2022

July-September, 2022

PNS Newsletter

Nuclear for Peace

A Quarterly Newsletter of the Pakistan Nuclear Society

Patron:

Dr. Muhammad Tahir Khaleeq

Editor-in-Chief:

Waqar Ahmad Butt

Editors

Dr. Riffat M. Qureshi

Dr. Muhammad Sadiq

Dr. M. Javed Akhtar

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PNS Public Awareness in 'Such Baat' at Such TV

From the Desk of the Editor-in-Chief

The importance of holding seminars, symposia, workshops and conferences cannot be denied for awareness, understanding and updating knowledge in the areas of interest. These are the processes for transformation of knowledge from one generation to the other. Accordingly, the emphasis of PNS has been on organizing more seminars at different locations. However, the Council is of the view that we must do more for the socio-economic development of the nation. Thus, PNS has initiated a process of linkages with the industry and the organizations endeavouring for enhancing the industrial base in the country. It is a matter of immense honor that there are highly experienced scientists, engineers and technologists in the list of PNS Membership having 30-40 years of practical experience in diverse fields. Most of them are sitting at home after retirement while many of them want to render their services in relevant fields. Resultantly, a list of such professionals is being prepared for utilizing and monetizing their expertise. A nomination form is available at PNS Website and willing members are urged to apply.

Two more initiatives have been taken by PNS. First Women in Nuclear (WiN) forum is being rejuvenated after a successful seminar held at NIBGE. The linkages with WiN Global will be established for joint ventures. Second is the formation of a student forum for motivating youth to join hands with PNS and organize academic and social activities at different colleges and universities.

During the meeting of Administrative Advisory Board, the members suggested that PNS should have appearance and visibility in print as well as electronic media. Consequently, an interview of PNS President along with an Executive Member was arranged at Such TV Studios in Karachi. It is intended to arrange similar programmes of experts to speak on peaceful uses of nuclear technology for socio-economic development in the country.

Vision

To become a resource centre for disseminating information and to promote practical applications on peaceful uses of nuclear science, engineering and technology for sustainable socio-economic development. The principal tools to be used for this purpose would be PNS Website and PNS Newsletter.

Announcement

International conference on the Applications of Nuclear Technology for Sustainable Socio-Economic Development,
24-26 October 2022, Islamabad.
(Organized by PNS)

Contact us

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Activities during the 7th Quarter

AAB Meeting

The first meeting of the Administrative Advisory Board (AAB) of PNS was held on 5th July 2022 at PNS Secretariat, Islamabad. The meeting was attended by Dr. Ansar Parvez, Advisor NCA/Former Chairman PAEC, Senator Nauman Wazir Khattak, Chairman Frontier Foundry Pvt Ltd (FF Steels), Major General (R) Ahmed Bilal, Advisor NCA/Former Chairman SUPARCO, Mr. Ahmer Bilal Soofi, Lawyer, Former Caretaker Federal Minister, Air Commodore Khalid Banuri (Retired)/Former DG ACDA, Mr. Kamran Akhtar, DG ACDIS, Ministry of Foreign Affairs and Prof. Dr. Zafar Nawaz Jaspal, School of Politics & International Relations, Quaid-i-Azam University. PNS Council Members and Syed Paras Ali, Editor Technology-Times magazine attended the meeting as observers. The meeting was chaired by Dr. Ansar Parvez.

PNS President, Dr. Muhammad Tahir Khaleeq formally welcomed the distinguished guests and gave a presentation on the objectives and activities of PNS. He also showed the list of seminars conducted by the present Council in different cities on various topics related to peaceful uses of nuclear technology in the areas of agriculture, human health, energy, industry, environment, water resources etc. He explained that the purpose of Administrative Advisory Board (AAB) is to enhance the scope of scientists and engineers working in universities, industry, media, lawyers' community, strategic organizations and foreign affairs for visibility of PNS in these sectors.



Dr. Ansar Parvez, as Chair of the Board, welcomed the board members and showed satisfaction that PNS has taken well experienced and well known personalities on the Board. He stressed the need to increase communication not only with scientific organizations, but also with other public and private sectors. He appreciated that PNS

has started outreach process in different organizations to enhance its activities. He advised to create connectivity with the people from industry to make a platform for interaction and discussion. He suggested to concentrate on a few ideas and selecting a few areas to start commercial projects. He said that the website of PNS should be made more attractive. At present, there are more than 90% members from PAEC. PNS should try to increase membership from universities and other institutions with the target of 1/3 of these members from outside. He declared that the meeting was quite productive.

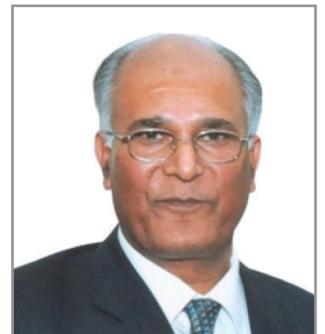
Senator Nauman Wazir Khattak

emphasized the use of nuclear techniques for industry and advised to start projects to earn money. He suggested making a company with the help of some trade organizations like Engineering Development Board (EDB), for which he can arrange a meeting with EDB officials. PNS should identify some areas of collaboration with them. He informed about his links with Washington State University regarding the establishment of a laboratory in Pakistan for Dengue mosquito control. It can be done at the Nuclear Centre for Food & Agriculture (NIFA), in Peshawar. PNS will contact NIFA officials for collaboration. He also proposed that PNS may take up the idea of artificial rain, already tested in KPK area, for popularization on their website. He mentioned that WAPDA retired officers have founded a society which arranges consultancy even for WAPDA and other electric power generating companies. He suggested that PNS should follow a similar model for its retired officials. PNS may have the authority to certify certain products and services like welding as there is a big welding Institute in Islamabad under PAEC. Another idea was to make moveable/portable nuclear power plants of a few MW capacity. He proposed that the seminars and conferences are useful only if they have some solid outcome and proper output with tangible results.



Gen. Ahmad Bilal

stressed upon promoting nuclear science in schools and colleges to encourage students to become nuclear scientists. He said that whenever we talk about nuclear, people instantly think of the PAEC. After spending 30 to 40 years in PAEC without any interaction with the industry, it is extremely difficult for them to get absorbed in industry as they are not accustomed to that. Therefore, in mid career, the organisation should establish linkage within the industry so that they may get some experience before retirement. PNS can arrange consultancy as experts. And whatever they earn from this consultancy, they may give 50% to PNS for funds generation. He emphasized upon the role of mathematics as it is the base of many fields. PNS should make some programme to foster it and make the policymakers to take it seriously and realize to start mathematics as a basic subject in our institution. He supported that the seminars are good to know what is happening currently. It creates a culture of research and advancement in particular areas. He also seconds the opinion of the others that the website should be made more attractive for younger generation to opt careers in nuclear science & Technology.





Mr. Ahmer Bilal Sufi said that PNS membership consists of highly qualified and experienced scientists and engineers and they must have patents at their credit. These patents must be monetized and their expertise must be paid for. If they are given assignment, they deliver remarkably and can greatly contribute in relevant fields. Therefore, scientists and

engineers must grow their values as the doctors and the lawyers have value in the market in the oldage. They may also connect with the people who have ideas and also connect with other organizations and industry. He suggested that a comprehensive list of scientists and their expertise in specific industry should be made by PNS. There are 36 trade organizations and about 40 Chambers of Commerce in the country. PNS should establish links with them by signing MoUs. He finally offered a meeting of the Board in his office for more consolidated discussion.



Air Commodore Khalid Banuri emphasized to make PNS website and promotional videos more attractive. He advised PNS Council to get known by effectively introducing itself and visible presence as an independent body right now, PNS is considered as a subsidiary of PAEC. PNS must disengage yourself from PAEC but with a visible connectivity. The

role is different when one is in service and when retired and act as volunteer members in PNS. Moreover, some funding source should be found. Independent fundraising should be done and PNS must not be modest. Popular lectures or videos of public interest may be prepared and may also hire some young people for this purpose. Conceive some ideas and start a pilot project using technicians. All reports of seminars and other activities should be at PNS website as well as at YouTube channel. PNS may also prepare a roster of experts as proposed by other members which will definitely help in many cases.



Mr. Kamran Akhtar clarified that MoFA deals with political aspects of nuclear science, therefore, his main emphasis is on that aspect. He showed a book printed by MoFA on Sustainable Development in Peaceful Applications of Nuclear Technology, which was prepared with the help of PAEC and sent to all foreign missions of Pakistan. He mentioned that PNS should

play a role in science popularization like CERN videos, and also do advocacy in subjects where government or PAEC cannot do due to restrictions. PNS being an independent entity can take the job of advocacy. PNS should try to attract children towards science by making interesting short videos at their website. He also said that science journalism is another important field in which PNS can play a role. PNS may also take up some products like seed selling with the help of NIAB and NIBGE because the seed has a lot of demand in world market. Mapping with other organizations and expert services is very important. So, a list of experts in specific fields of science and technology should be maintained because sometimes IAEA demands for experts and we can send those names if we already have a list with us. Similarly, a detailed list of items for export should be maintained in consultation with PAEC. Small attractive projects can also be started. For popularization on local level, modest initiatives like a kit for newborns can be prepared with a small scissor, gloves, cotton buds etc, sterilized with radiation that can also act for popularization of beneficial uses of nuclear technology.

Dr Zafar Iqbal Jaspal supported the idea of visibility of PNS in print and electronic media by organizing various programmes and also participating in the relevant programmes organized by other institutions. Realizing the scarcity of funds with the society he proposed that annual membership fee may be imposed as in many other societies. He proposed that PNS should start some projects with institutes like NIAB to develop new varieties of moisture resistant wheat which is becoming very popular among farmers.



The Editor of Technology Times, Syed Paras Ali who attended the meeting as an observer gave the stunning information that their website has more than 300,000 visitors daily. It is due to the fact that their website is update after every two hours and very attractive items are posted on it about innovative ideas and latest news on science and technology. He stressed that social media appearance of PNS should be increased. PNS may also follow a Chinese model in which scientists/technologists and government linkages are established for long term national development programmes.

The meeting concluded with the note that all suggestions and proposals by the Board will be seriously taken up by the PNS Council and proper steps will be taken for their implementation with the help and support of AAB Members.

PNS Public Awareness Programme



Mr. Nusrat Mirza presenting his book to PNS Council

As per guidance and advice from AAB Members, PNS has started the process of public awareness by visibility in print and Electronic media. Consequently, a television programme was telecast on Such TV at 10:00pm on Sunday 18th September 2022 in Such Baat with Nusrat Mirza. It was in the form of an interview which was recorded in SUCH Studios, Karachi. In that programme, Dr. M. Tahir Khaleeq, President PNS and Mr. Waqar Ahmad Butt, Executive Member PNS were interviewed by the programme host Mr. Nusrat Mirza for one hour duration. Broad areas of nuclear science and technology and the endeavors of PNS for the promotion of peaceful applications in the areas of nuclear power, health, agriculture and industry were covered which can be viewed at PNS Website as well as the channel:

<https://www.youtube.com/watch?v=5QrBKG0GxAU>

One-day Seminar at GINOR

A nuclear medical hospital named as **Gilgit Institute of Nuclear Medicine, Oncology and Radiotherapy (GINOR)** has recently been setup by Pakistan Atomic Energy Commission (PAEC) in Gilgit. It is the 19th nuclear medical centre of PAEC for diagnostic and treatment of various types of cancers. This state of the art hospital is to cater for the needs of Gilgit-Baltistan (GB) region where no such facility exists and the patients from far off areas have to travel to other cities like Abbottabad, Peshawar or Islamabad. Since the people of that region are not aware of this newly created facility, therefore PNS organized a one-day seminar on the Role of Nuclear Medicine in Thyroid Cancer Management on 25th July, 2022 at GINOR with the cooperation of Pakistan Science Foundation (PSF) and Pakistan Atomic Energy Commission (PAEC). The focus was on the thyroid cancer which is a common disease in that region. The main purpose was to make the public as well as policy makers understand the enormous potential of the applications of nuclear techniques for the benefit of humanity.



Dr. M. Tahir Khaleeq giving the Presidential address

After recitation from the Holy Quran, Dr. Asif Jielani, Director GINOR gave the welcome address. He thanked PNS Council Members for travelling to such a long distance and organizing this beneficial seminar. Introduction of the seminar was presented

by Mr. Waqar Ahmad Butt, Executive Members PNS in which he recalled some historical events starting from the 2nd world war to the formation of International Atomic Energy Agency (IAEA) that led to the peaceful uses of nuclear technology. He also mentioned about a high level IAEA mission 'Programme of Action on Cancer Therapy (PACT)' that came to Pakistan for integrated efforts to combat that fatal disease. Dr. Muhammad Tahir Khaleeq, President PNS elaborated PNS objectives, programmes and activities. He urged the participants to become members of PNS and contribute in its academic S&T activities. He also mentioned about the future events especially an International Conference on the applications of nuclear techniques for socio-economic development which will be organized by PNS from 24-26 October 2022 in Islamabad. The Guest of Honor, Dr. Shah Farman, the first Physician of GB, gave the presidential address. He appreciated the initiative taken by PNS for the awareness of not only general public but also medical doctors and physicians. He also mentioned about his untiring efforts to set up medical facilities in GB.

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In the technical session, Dr. Asif Jielani gave a very useful and detailed presentation on the **Evaluation of thyroid nodule - new insights**. Dr. Muhammad Imran, Sr. Consultant Surgeon, RHQ Hospital Gilgit delivered an illuminating lecture on Thyroid Cancer Surgery-updates. Dr. Kazim Raza, Clinical Oncologist GINOR talked about New Horizons for DTC management. Dr. Asif Rafique Consultant Nuclear Physician, NORI Hospital in Islamabad joined through Zoom link and talked about Molecular profiling of Thyroid Cancer - practical approach. Similarly, Dr. Muhammad Adnan Saeed, Consultant Nuclear Physician NORI also joined via zoom and gave a very informative and colorful talk on Radioactive iodine treatment - Less is more? All the presentations are available at PNS Website.



Participants of the Seminar

One-day Seminar on Women in Nuclear Science & Technology

In Pakistan, a handful of women are working professionally in various fields of nuclear science and technology. This includes



Participants of the seminar

medicine and health care, agriculture and biotechnology, energy and radiation applications, regulatory bodies, industry and R&D organizations. Many of them have made notable contributions in respective fields of their expertise but little is known about their achievements. Due to nature of their job as well as the social setup in our society, they have a little interaction among themselves.

Therefore, Pakistan Nuclear Society (PNS) has planned to provide them a forum for exchange of information, mutual discussions as well as to urge and generate interest among young ladies to adopt careers in nuclear sciences, technology and engineering. This in accordance with the mandate of PNS for awareness and understanding of general public about the benefits of nuclear S&T for socio-economic development; thereby enhancing the quality of life in the country. Accordingly, a joint seminar was held at the National Institute of Bio-technology and Genetic Engineering (NIBGE), Faisalabad on 1st August, 2022 with the cooperation of Pakistan Science Foundation (PSF) and Pakistan Atomic Energy Commission (PAEC). Through this seminar, lifelong knowledge of experienced scientists, engineers and medical doctors, involved in the applications of nuclear techniques in agriculture, industry, medicine, environment, hydrology, safety & security, etc. in different national and international organizations disseminated and updated state-of-the-art information. It is expected that it will be beneficial especially for the young scientists and engineers in respective fields. The motivation and guidance will contribute in the development of their research careers.

Prof. Dr. Rubina Farooq, T.I, Vice Chancellor, Govt. College Women University, Faisalabad was the Chief Guest in the opening ceremony of the seminar. About 130 scientists,



Participants with the Chief Guest Prof. Dr. Rubina Farooq

researchers, doctors, teachers and students from different organizations and academic institutions participated. After recitation from the Holy Quran, Director NIBGE, Dr. Shahid Mansoor, S.I, Chief Scientist gave the welcome address. He thanked the speakers and PNS Council Members for travelling to Faisalabad and organizing this unique activity. Seminar introduction was presented by Dr. Uzma Maqbool, DCS, Head ASD, NIAB Faisalabad. Dr. Muhammad Tahir Khaleeq, President PNS elaborated PNS objectives, programmes and activities. He urged the participants to become members of PNS and contribute in its academic S&T activities. He thanked Director NIBGE and appreciated the efforts of Dr. Uzma Maqbool and Dr. Samina Iqbal for all the arrangements of the seminar. Mr. Waqar Ahmad Butt, Executive Member PNS recalled the contribution of women in S&T especially mentioning the dedicated efforts of Madam Curie, her husband and daughter. He also mentioned about the active participation of young ladies from NIBGE, selected on merit, to participate in the prestigious meetings of Nobel Laureates in Lindau, Germany. He made an announcement about 'International Conference on the Applications of Nuclear Techniques for Socio-economic Development' which will be organized by PNS from 24-26 October 2022 in Islamabad and encouraged the participants to take part in it by presenting research papers and posters. The Chief Guest, Dr. Rubina Farooq, a dynamic and learned academician expressed her views about various initiatives taken at the Women University Faisalabad. It is commendable that the university has flourished in a short span of time under her leadership. She appreciated the initiative taken by PNS and NIBGE for holding this seminar and supported the continuations of such activities.

In the academic session which was exclusively for ladies, Dr. Saeeda Asghar, Former DG NM&O/ Advisor to the chairman PAEC, very nicely elaborated "A Journey from WIN Global to WIN Pakistan". Dr. Rakhshanda Bilal, Former DG (Technical), PAEC HQrs/ DDG BRC, DESTO Karachi presented a detailed account of "Isotopic Techniques in Life Science Research". Ms. Abida Khatoon, Former Director PNRA and Safety Specialist at IAEA (Vienna) recalled her memories and gave an overview of the "Women in Nuclear all around the World". Dr. Saira Butt, Head, Isotope Application Division (IAD), PINSTECH expressed her experience in the "Applications of Nuclear Techniques in Hydrology, Environment & Industry". The presentation of Ms. Nazneen Kausar, DCE, Head Electronics Division (ED) PINSTECH was on "The role of Nuclear Instruments in our life". Dr. Faiza Zareen, a Cupping Therapist/ Vice President Labbaik cancer care gave a fruitful talk on "Hijama: The Sunnah Treatment". The seminar ended with a very useful question/ answer session. Finally, Dr. Samina Iqbal who was one of the main organizers of the seminar presented the vote of thanks.

Seminar on the Long Term Safety of Nuclear Power Plants

Pakistan Nuclear Society (PNS) in collaboration with PAEC and

PNRA organized a seminar on long term safety of Nuclear Power Plants on September 12, 2022 at K-2 Karachi. The seminar was held at the Auditorium of Karachi Institute of Power Engineering (KINPOE), Karachi. The objective of the seminar was to disseminate knowledge about the safe operation of nuclear power plants. The speakers were from PNRA, KNPGS and PNS. More than 60 officials from PNRA, KNPGS, Industries and various Universities of Karachi participated in the seminar. Mr. Jamshed Azeem Hashmi, former Chairman PNRA was the Chief Guest and



The General Manager, KNPGS receiving the Chief Guest

Engr. Javed Aqleem was invited as Guest of Honor.

The welcome address was given by Engr. Mohsin Fayyaz, General Manager, KNPGS. In his address, he praised the conduct of this seminar and promised to extend full support of the management for such activities in future. He conveyed his thanks to the Chief Guest and the Guest of Honor for gracing this occasion. Dr. Muhammad Tahir Khaleeq, President PNS, in his address, explained the scope, mandate and activities of the PNS council. He also highlighted the formation and purposes of an Administrative Advisory Board and a Scientific Advisory Board of PNS. Mr. Hashmi appreciated the efforts of PNS for conducting such activities, particularly the participation of industries and universities in this seminar. He emphasized on the importance of such activities and urged to conduct such more activities in Karachi.

Technical session of the seminar consisted of five presentations and a panel discussion at the end. The first presentation was given by Mr. Dost Muhammad, Principal Engineer, PNRA. In his talk, he discussed Ageing Management, In-Service Inspection (ISI) and Long Term Operation of Nuclear Power Plants from a regulatory point of view. Mr. Bilal Shahid, Principal Engineer, PNRA in his presentation explained the deterministic safety analysis and probabilistic safety analysis and application of these approaches towards long term safety of nuclear power plants. Syed Imran Shah, Director (C&O), KNPGS explained the importance of various activities being run at nuclear power plants and their importance in the long term safety of NPPs. He also provided a brief description of different programs in place at KNPGS. Mr. Muhammad Sufyan Khan, Principal Engineer, PNRA described the role of PNRA in K-1 operation beyond design life. He presented various national and international requirements and



He lauded KNPGS Management for excellent arrangement and extending their full support for conduct of this successful seminar. He also thanked to the Chief Guest and the Guest of Honor who participated in this activity. He encouraged young scientists and engineers to become members of PNS.

Symposium on Medical Physics

A symposium on medical physics was held at the Karachi



Institute of Radiotherapy and Nuclear Medicine (KIRAN), on 14th September 2022. It was well attended by physicists, technologists, medical doctors, teachers and university students especially from Karachi University where Medical Physics is being taught as a subject. Dr. Shazia gave the welcome address and Dr. Tahir Khaleeq elaborated the activities, initiative and future programmes of PNS. Hafiz Muhammad Zubair, Director Regional Nuclear Safety Directorate, PNRA Karachi was invited as the Chief Guest. He lauded PNS for holding such a fruitful activity in Karachi and thanked the Members of PNS Council for participation in this unique activity. The technical session started after tea break in which five speakers gave very informative talks on various aspects related to the theme of the symposium. The first lecture was by Mr. Sohail Aksar on Radiation Protection in Nuclear Medicine. Then Mr. Asdar ul Haq spoke on QA practices in Radiotherapy. Mr. Muzaffar Hussain's talk was on the Recent Advances in Treatment Planning. Dr. Asif Masood's talk was

practices in this regard. Mr. Muhammad Abbas Qamar, Chief Scientist (R), Former Director DOS, presented the management safety culture strategies for long term safety of nuclear power plants. He described safety culture development tips and role of management in developing and sustaining safety culture at NPPs.

At the end, a panel discussion (question/answer session) was held. This session was moderated by Mr. M. Abbas Qamar. Finally, the vote of thanks was presented by Mr. Waqar Ahmad Butt, Executive Member PNS Council. He conveyed his thanks to PAEC especially Member Power for providing financial as well as logistic support that enabled PNS Council Members traveling to such a long distance for participating in the useful activity.



The Chief Guest with participants from KNPGS

on Patient Specific Questions for VMAT/IMRT. And the last presentation was by Mr. Mishkat Ali Jafari from PNRA on the Progress and Activities of Pakistan Organization of Medical Physicists (POMP). These presentations are available at PNS website.

Mr. Asdar ul Haq gave the closing remarks and vote of thanks. Finally, Mr. Waqar A. Butt, Executive Member PNS gave a

motivational speech specifically for the young generation to play effective role to build the nation and join hands with PNS in its academic and S&T Programmes. He also urges them to take part in PNS International Conference in October this year by presenting papers or posters and can also join from Karachi via zoom link.



Participants with guests

Outreach and Linkages

Meeting with the Chairman PAEC



PNS Council with Dr. Raja Ali Raza Anwar, Chairman PAEC

A very productive meeting of PNS Council was held with the newly appointed Chairman of Pakistan Atomic Energy Commission (PAEC), Dr. Raja Ali Raza Anwar at his office in PAEC HQ, Islamabad. Dr. Muhammad Tahir Khaleeq, President PNS briefed about the programmes and activities of PNS and thanked PAEC for patronage of the society with financial and logistic support. He also talked about the forthcoming International Conference which will be organized by PNS during October 2022 in Islamabad. The Chairman appreciated the efforts of the present Council for efficiently organizing so many events at various places and on various topics. He especially mentioned about the quality of PNS Newsletter. He ensured all possible help for PNS programmes.

Meeting with the President PAE

A delegation of PNS comprising of Dr. Muhammad Tahir Khaleeq, Mr. Waqar Ahmad Butt, Dr. Niaz Ahmad, Mr. Ghulam Sarwar and Mr. Muhammad Abbas Qamar visited the Pakistan Academy of Engineering (PAE) during their visit to Karachi with regards to holding two seminars at the Nuclear Power Plant (K-2) and the Nuclear Medical Hospital (KIRAN). A very useful and productive meeting was held with the President PAE, Dr. Ing. Jameel Ahmad Khan. He was accompanied by Dr. Nasim A. Khan, Executive Secretary PAE. Dr. Tahir gave an introduction of PNS and elaborated its activities emphasising on the linkages being established with the industry and academia. He informed that PNS has highly experienced scientists and engineers as its Members who can render their expert services in various S&T fields and their services should be utilized. Dr. Jameel highlighted the activities and initiatives of PAE. He informed that he has contacts with industry where the expertise of the relevant scientists and engineers can be utilized. He ensured all possible help in this regards. He also urged PNS to take up some hi-tech projects and indicated that funds can be managed. Dr. Nasim mentioned that some industrilists are interested to install small nuclear reactors like SMRs. Feasibility should be worked out for such initiatives by PNS.

Privileges for PNS Member

1. Growing professional circle by strengthening connections with peers in relevant fields
2. Counseling/guidance to young scientists/engineers in their professional careers
3. Help to science/engineering graduates in pursuits of higher studies
4. Free access to nuclear related webinars, online courses and discussions to share views
5. Enhance knowledge of current issues, challenges and opportunities in nuclear S&T
6. Group visits at various S&T organizations/universities
7. Free e-copy of quarterly PNS Newsletter
8. Login facility at PNS website with a secure password
9. A Certificate and a Membership Card with a photo
10. Special discounts at various outlets, hotels, restaurants, shops, etc.
11. 50% reduction in PNS conferences fee
12. 20-30% fee reduction in conferences arranged by other organizations
13. 25% discount in fee on courses offered by Pakistan Institute of Management (PIM)
14. 50% reduction in Annual Dinner/Eid Milan and other parties
15. Social programmes like family picnic/hikes, trip to Northern areas, etc.
16. Registration/Lifetime Membership Fee is only Rs. 2,100/-.
17. Membership Fee for students is Rs. 1,100/- for five years

Silent Heroes



Dr. G. D. Alam
(1937-2000)

Dr. Ghulam Dastagir Alam Qasmi; popularly known as G. D Alam was a well-known experimental atomic and nuclear physicist who played a vital role in the national defence as well as other projects. He is famous for his key role in achieving enrichment in Pakistan at Engineering Research Laboratories (ERL), later called KRL. Research Lab. In April 1976, Dr. Alam and his team comprising of electrical and mechanical engineering successfully separated U235 and U238 isotopes; a land mark in the history of Pakistan. That was one of the major steps which made Pakistan the first muslim and the seventh Nuclear Power in the world.

Dr. Alam belonged to Tallagang in Ditt. Attock (then called Campbellpur). He got his early education from there till F.Sc from Govt. college Campbellpur. Then he went to Lahore for further studies and obtained B.Sc. and M.Sc. from Government College Lahore. There he benefited from renowned scientists like Prof. Abdus Salam and Dr. Rafi M. Chaudhry. After completing M.Sc. he served as a former renowned lecturer in physics at the Murray college Sialkot, Govt. college Chakwal and Gordon College Rawalpindi. During that time Pakistan Atomic Energy Commission (PAEC) was shaping up and the Chairman PAEC, Dr. I.H. Usmani was picking up talented scientists and engineers. Resultantly, Dr. Alam got an appointment in PAEC. In 1962, he went to University College London for higher studies and after completion of PhD in 1966 he joined Pakistan Institute of Nuclear Science and Technology (PINSTECH), Nilore, Islamabad. At the Nuclear Physics Division of PINTECH, he worked on fission physics at the 5MW swimming pool type research reactor. He also spent one year at Oak Ridge National Laboratory. There he worked on separation of U235 from other uranium isotopes. This may be one of the reasons that he joined ERL in 1972 and started work on uranium enrichment by gas centrifuge methods.

In 1981, with the involvement of government Dr. Alam was transferred back to PAEC and posted as Head Computer Division in PINSTECH. There he expanded computer facilities to other Divisions and extended help to run nuclear equipment through computer control. Leading a team of dedicated scientists, engineers and technicians, he successfully completed the renovation of 5MW reactor to 10MW and added computer control panel in the system. Later, he was appointed as the Head of a (Pvt) Ltd technical company named M/S Altechnique Corporation being run by PAEC Board of Governors under chairman PAEC. The main functions of that company included sterilization of medical products through gamma radiations and a soil testing laboratory particularly for nuclear power plants. He retired as Executive Director of the corporation.

Dr. Alam had a versatile and lively personality. He often created laughter with appropriate jokes suited to the occasion. The former Chairman PAEC, Mr. Munir Ahmad Khan, once called him “the problem solving brain of the PAEC”.

A Historical Photo



Contract Signing Ceremony of C-1; the first Nuclear Power Plant from China at Chashma

Nuclear News and Views

International

Floating nuclear power plants

Nuclear Newswire

July 30, 2022

In recent years, the rate of building new nuclear power plants has slowed internationally except in some rapidly developing countries. In Western countries that have considerable experience with nuclear power, completion of new projects on time and on budget has become more difficult. Shipyard-fabricated plants may offer a new direction for meeting international needs and responding to requirements for better cost control and safety. In this article we offer an overview of the floating nuclear power plant concept, including experience with it to date and its key engineering and strategic features, along with related uncertainties and needed conditions for future projects to be successful.

Floating nuclear plants have been used since the 1960s, when the U.S. Army operated the Sturgis, a barge with a ship-mounted 10-MWe plant, which provided electricity in the Panama Canal zone for about a decade. After then, no floating nuclear power plants were built or even proposed until the past decade, when the Russian nuclear monopoly Rosatom built the barge-mounted Akademik Lomonosov plant, which in 2020 began operation providing electricity and heat at Pevek, a remote mining site on the north coast of Siberia. The Akademik Lomonosov uses technology that is derivative of submarine propulsion technology—which first had been adapted for use in Russian nuclear-powered icebreakers. The barge was built in a shipyard in St. Petersburg and then towed partway without fuel to its operational site.

In the intervening years, several other initiatives have been launched. The concept of an offshore floating nuclear power plant (OFNP) was advanced at Massachusetts Institute of Technology but not to the point of fruition; also, offerings from Chinese and South Korean sources for barge or ship-mounted nuclear units have been announced, but none has yet been taken to deployment. The efforts in Asia have all been led by government-owned enterprises favorable feature for high-financial-risk nuclear innovation. All proposals except the MIT project have emphasized low power capacities in the tens of MWe and have been targeted for deployment to islands or remote sites. However, the strengths of the floating plant concept apply equally to larger reactors.

More details at: <https://www.ans.org/news/article-4061/floating-nuclear-power-plants/>

National

Pakistan Bags three awards for nuclear advancement contribution

The Nation

September 29, 2022

Pakistan has received three Regional Cooperation Agreement (RCA) awards in Vienna, Austria, both for the institutional category and the individual category. Regional Cooperative Agreement (RCA) of the International Atomic Energy Agency (IAEA) recognized achievements of Pakistan Atomic Energy Commission (PAEC) on its 50th Anniversary. A ministerial level meeting was organized by IAEA to celebrate the 50th anniversary of RCA. During this event, various awards were conferred to recognize contributions to the RCA program.

In the institute category, Pakistan Institute of Nuclear Science and Technology (PINSTECH) was recognized for its contributions in various areas of applications of nuclear science and technology including Isotope Hydrology, Water Resources Management, Industry and Air /Marine Pollution. In the individual category, two Pakistani scientists were conferred RCA Project Awards. Dr. Azam Tasneem, Chief Scientist (R), PINSTECH, was recognized for his work as Lead Country Coordinator in the areas of Isotope Hydrology and Water Resource Management. Dr Irfan Ullah, DCS, Institute of Nuclear Medicine & Oncology (IN-MOL) was awarded for his contribution in the areas of cancer diagnosis and treatment (theranostics).

The RCA is a formal inter-governmental agreement which serves as a framework for the Asia Pacific Region to intensify collaboration through programmes and projects focused on the specific shared needs of its 22 member countries in the field of nuclear science and technology.

Members' Contribution

Value addition in Gemstones by Nuclear Techniques

Waqar A. Butt

Executive Member PNS

History reveals that different types of gemstones were regarded as a status symbol. Beauty of gems has always been an object of attraction for human. Kings and queens used to wear gems embedded in gold for their grandeur. The royal families have a hobby to collect attractive gems like diamonds, ruby, sapphire, emerald, tourmaline, aquamarine, kunzite, topaz etc. Various types of such precious and semi-precious stones are found in different areas of Pakistan mainly in the metamorphic rocks of mountainous regions in the North. Some of these gemstones have inherent worth in their natural form. While some others can be made valuable by various processes.

Topaz, a semi-precious stone, is quite abundant in different parts of KPK and Gilgit-Baltistan region. These stones can be made precious by adding colors using treatments like thermal heating, electron beam exposure and gamma radiations. Such treatments give brown, golden or light blue colors which are of low commercial value and the induced colors are temporary that fade away with time. Neutrons are the particles that can produce dark blue color in topaz which is permanent. At present, for such treated stones, the world market is in the hands of blue topaz; typically named as Swiss blue and London blue. About 30-40 times value can be enhanced by this method. Such deep colors can be produced by neutron irradiations from strong neutron sources like nuclear reactors. This type of work can be carried out at Pakistan Research Reactor (PARR-1) of PINSTECH which has the desired neutron flux.

The material is exposed to neutrons at a convenient position outside the reactor core. Generally, a high quality color enhancement in topaz occurs at a neutron fluence of 10^{17} n/cm² that can be achieved in 12-20 hours of reactor operation. The gemstones irradiated in this process can be handled after 3-4 months but to release in the market may take two years because the dose level must be less than 2nCi/g (74Bq/g) according to international regulations set by International Air Transportation Agency (IATA).

The colors of the gemstones are checked visually. If the desired color is achieved, then the stones are kept inside the reactor pool or in the hot cell till the activity decays down to permissible limits. In a PARR-1 operation at full power of 10MW, 15-20 kg can be produced weekly. Not much effort and additional reactor time is needed in carrying out this type of work as it will be a sideline activity. The reactor operates regularly for the production of radioisotopes which are supplied



Shy blue, Swiss blue and London blue topaz

to more than 40 nuclear medicine hospitals in the country. It is pertinent to mention that Government of Pakistan is quite eager to promote gemstones business. Previously, Gemstone Corporation was looking after this business which was then transformed into 'Pakistan Gems and Jewelry Development Company. Their authorities are very much willing for collaboration in this area because this project can be a great worth for commercialization of treated gemstones. Therefore, a handsome amount of revenue can be generated for the country by using this technology.



Inside a topaz mine in Shengus; midway on Gilgit-Skardu road

Recalling the old memories



Dr. M. Ayub Mir (passed away recently), Dr. Hameed Ahmad Khan, DG PINSTECH, late Dr. Ishfaq Ahmad, Chairman PAEC, late Mr. Munir Ahmad Khan, ex-Chairman PAEC, Dr. Samar Mubarakmand, Member Technical, Mr. Khalid Mahmood Ghazali, General Secretary PNS and Dr. Javed Hanif, President PNS.

News about PNS Members



PNS Council **thanks** Ms Shazia Fayyaz, Unit Head, NS Department of IAEA (PNS Council Member) for the generous financial contribution from her personal account to keep on continuing PNS Activities efficiently and effectively.

PNS Council **welcome** Prof. Dr. Robina Farooq, Vice Chancellor, GC Women University Faisalabad as the Member of PNS Administrative Advisory Board



Congratulations

PNS Member honored with Civil Awards on 14th August 2022

- | | |
|--|---------------------------|
| 1. Dr. Raja Ali Raza Anwar, Chairman | PAEC Hilal-i-Imtiaz |
| 2. Dr. Abdul Ghani Akram, Member Technical | PAEC Sitara-i-Imtiaz |
| 3. Mr. Ghafoor Ahmad | PAEC Sitara-i-Imtiaz |
| 4. Mr. Muhammad Rahman, Member Executive | PNRA Pride of Performance |
| 5. Mr. Zulfiqar Ahmad Khan, Secretary | PAEC Pride of Performance |
| 6. Dr. Mahboob Ali Sail, Director NIA | PAEC Pride of Performance |
| 7. Mr. Abdul Majid Khan | PAEC Pride of Performance |
| 8. Mr. Muhammad Azam Khan | PAEC Pride of Performance |
| 9. Mr. Muhammad Saadullah | PAEC Tamgha-i-Imtiaz |

IAEA/RCA Awards

- Congratulations to the premier and the most prestigious nuclear centre, PINSTECH for winning IAEA/RCA award for its contribution in isotope hydrology, water resource management and air/marine pollution.
- Congratulations to Dr. M. Azam Tasneem, CS(R), IAD, PINSTECH and Dr. Irfan Ullah, DCS, INMOL (both Lifetime Member of PNS) for winning individual category awards.

Congratulation

- The Council congratulates Dr. Shazia Fatima, Executive Member PNS for her appointment as Director Karachi Institute of Radiotherapy and Nuclear Medicine (KIRAN)
- She has been elected as the President, Pakistan Society of Nuclear Medicine (PSNM)

Coordination

- An Interim Committee comprising of the following members has been formed under the umbrella of PNS for strengthening Women in Nuclear (WiN) activities in Pakistan.
 - i. Dr. Rakshanda Bilal, former DG Technical, PAEC
 - ii. Dr. Ismat Fatima, Former Director Research, PAEC
 - iii. Dr. Samreen Shahzadi, PS, PINSTECH
 - iv. Ms Huma Qamar, PSO, PNRA
 - v. Dr. Ayesha Ammar, SMO, NORI
- This Committee will chalk out future programmes and activities to be carried out within the country and abroad especially some joint ventures with WiN Global; an international organization for the women involved in nuclear science and technology.
- Dr. Syed Fakhar Alam who recently completed Ph.D has been nominated by the PNS Council as ‘Student Coordinator’ for liaison with youngsters mainly science and engineering graduates. PNS will arrange some activities at different colleges and universities.
 - Mr. Ghunaib Malik has been inducted as Internee for PNS Members Data updating, Seminar Certificates, Nuclear News search, PNS Int. Conference registration/ abstracts book preparation, logistic support etc.

Obituaries

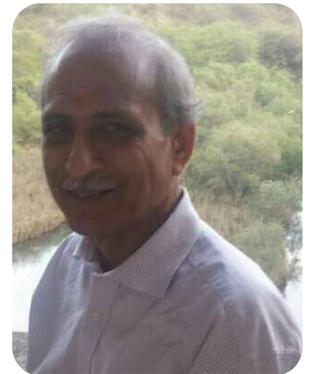
Dr. Muhammad Ayub Mir

Dr. Muhammad Ayub Mir was born in 1943 in Jhelum. The family immigrated to the State of Bahrain where he received his early Education. Upon completion of his secondary school, he was sent to Pakistan to study at the prestigious Government College Lahore. After graduating from there, he got enrolled at the newly formed University of Islamabad (now Quid e Azam University) and did M.Sc. in Physics and then M. Phil in Theoretical Physics under the supervision of Prof. Dr. Riazuddin. Thereafter, he sailed to Bahrain to see his family and there he was offered to lead a research institute with an attractive promise of Bahraini nationality. He rejected that offer and joined PAEC as OST (Officer on Special Training) on 1st October 1968. Soon after, he got the opportunity to study at the Imperial College London and received a Master’s degree in Nuclear Engineering followed by a PhD in Nuclear Safety.

Upon his return, he joined Reactor Physics Group with Dr. M.N. the leadership of Qazi in PINSTECH. But when Directorate of Nuclear Power (DNP) was established at PAEC HQ under the leadership of Bashiruddin Mahmood, he was transferred to that new set up as Head of Reactor Physics Division and later on posted at DNSRP as Head of the Nuclear Safety Division. When Pakistan Nuclear Regulatory Authority (PNRA) was established in 2001, he served as the Acting Chairman of PNRA in the absence of Dr. Jamshed Hashmi. However, he preferred to stay with PAEC where he was posted as Director Research. He retired from this position at the age of sixty.

Dr. Ayub had a multifaceted personality and a man of very many talents. He was amongst the early Members of PNS and elected Vice President of the PNS Council for the tenure 1997-99. He was a good orator and a writer. He remained connected to literary pursuits throughout his life including articles writing in newspapers on Pakistan’s nuclear deterrent. He had a good command on five languages; Urdu/ Arabic/ English /Turkish/ Punjabi. After retirement, Dr. Ayub Mir established Engineering Company with his younger son, Saad Aub that took up some very important project of national interest. He led a happy and contented life, served his nation with pride and passed away on 21st August 2022.

May Allah be please with him and grant him Janat ul Firdos. Ameen



(Mr. S.D. Orfi, friend)
(Mr. Saad Ayub Mir, son)

Social Events

Youm-e-Azadi Message

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

السلام علیکم،

میں ڈاکٹر محمد طاہر خلیق پریزیڈینٹ PNS، پاکستان نیوکلیر سوسائٹی کی جانب سے تمام اہل وطن کو اس یوم آزادی پر مبارک باد پیش کرتا ہوں۔ آج کے دن پاکستان آزاد ہو کر ایک نئی مملکت کے طور پر معرض وجود میں آیا۔ الحمد للہ۔

پاکستان نے 75 سالوں میں سائنس اور ٹیکنولوجی کے میدان میں ترقی کی بیش بہا منازل طے کیں اور ایک ایسی طاقت کے طور پر اپنے دفاع کو ناقابل تسخیر بنایا۔ اسی طرح پاکستان نیوکلیر سوسائٹی بھی وطن عزیز کی سائنسی ترقی میں اپنا بھرپور کردار ادا کر رہی ہے۔

اس موقع پر ہم پاکستان کے تمام اداروں کو خراج تحسین پیش کرتے ہیں۔ ہماری دعا ہے کہ اللہ تعالیٰ ہمارے ملک کو دن دگنی اور رات چوگنی ترقی عطا فرمائے اور سائنس و ٹیکنولوجی کے میدان میں مزید کامیابیاں عطا فرمائے۔ آمین

پاکستان زندہ باد



PNS Council celebrating Independence Day at PNS Office

PNS families Trip to Kaghan Valley

As promised with PNS families, a 3-days trip was conducted in the scenic lush green valley of Kaghan from 23-25 September 2022. The first night stay was at Paras near Balakot in a newly built 'Ahsania Hotel' at the bank of river Kunhar. The hotel administration agreed to offer discount for PNS Members which will continue both in and off season. The next day a jeep was hired for Sharan forest which took about one and a half hour to reach there. Although the jeep track was miserable; very jumpy and dangerous, yet the green resort was heart alluring. In the afternoon, the group went to Naran and had a dinner at the Moon restaurant that is famous for its cleanliness and nice food. The next morning another jeep was hired for a trip to lake Saif ul Malook. It took only half an hour to reach there. Jeep track was quite rough but the whole area was full of attractive scenery. The lake has its own beauty and grandeur. The trip ended with a midway lunch of delicious fresh trout fish roasted at the spot. All the arrangements of trip were made by Syed Zahid Hussain, Executive Member PNS.



PNS families at the Lake Saif ul Malook

Linkages for preveliges to PNS Members

With to personal efforts and links of PNS Council especially Dr. Muhammad Tahir Khaleeq, many hotels, resturants, shops etc. have offered special discounts for PNS Members. Some of these are listed below and the details are available at PNS Website.

1. Rumba Cafe and Rumba Meat Factory, Bharia Town/F6 Markaz, Islamabad
2. Bar BQ Tonight, Blue Area, Islamabad
3. Jahangir Restaurant, Blue Area, Islamabad
4. Fit-diction Gym, F-8 & Body Fit Gym, G-11, Islamabad
5. Memories Resort, Kalam, Swat
6. Mulberry Hotel, Hunza
7. Indus Lodges, River View Rd, Sonikot, Gilgit
8. Park Hotel, Airport Road, Kashiro, Gilgit
9. Baltistan Continental Hotel & Continental Family Guest House, Skardu
10. Ahsania Hotel & Restaurant, Paras, Kaghan Road
11. Atalian Shoes, Bank Road Saddar Rawalpindi

Calendar of Activities October-December, 2022

Date	Activity	Title	Coordinator(s)
5 th July	Meeting	The first meeting of PNS Administrative Advisory Board	Dr. M. Tahir Khaleeq Mr. Waqar A. Butt
25 th July	Seminar	Nuclear Medicine in Cancer Management, GINOR, Gilgit	Dr. Asif Jellani
1 st Aug	Seminar	Women in Nuclear Science & Technology; Sharing personal experiences, NIBGE, Faisalabad	Dr. Rakshanda Bilal Dr. Uzma Maqbool Dr. Samina Iqbal
12 th Sept	Seminar	Long Term Safety of Nuclear Power Plants, K2/ K3, Karachi (Joint activity with PNRA)	Syed Imran Shah Mr. Shahid Rashid Mr. M. Abbas Qamar
14 th Sept	Seminar	Advances in Medical Imaging, KIRAN, Karachi	Dr. Shazia Fatima
24-26 Oct.	Conference	International Conference on the Applications of Nuclear Techniques for Sustainable Socio-economic Development	PNS Council
4 th Nov	Announcement	Inviting nominations for PNS Elections 2023-24	Dr. Muhammad Mohsin
14 th Nov	Seminar	One-day Seminar on Nuclear Techniques in Agriculture, NIA, Tando Jam	Dr. Saima Mir
15 th Nov	Seminar	Seminar on Thyroid Cancer Management, LINAR, Larkana	Director LINAR
21 st Nov	Memorial	Tribute to Prof. Abdus Salam, NCP, Islamabad (Joint activity with PPS & NCP)	Waqar A. Butt
26 th Nov	Recreational	Short hike/ picnic/ funfair on Trial-7, Margalla Hills, Islamabad	Syed Zahid Hussain
10 th Dec	Meeting/Social Event	AGM/ Lifetime achievement awards and Gala Dinner, Islamabad Hotel	PNS Council
28 th Dec	Elections	PNS Council Elections, 2023-24, PAEC Rest House, G-8/3, Islamabad	Election Committee



PNS Newsletter

Nuclear for Peace

A Quarterly Newsletter of the Pakistan Nuclear Society

Patron:

Dr. Muhammad Tahir Khaleeq

Editor-in-Chief:

Waqar Ahmad Butt

Editors

Dr. Riffat M. Qureshi
Dr. Muhammad Sadiq
Dr. M. Javed Akhtar

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Lifetime Achievement Awards

PNS Council 2023-24



Mr. Muhammad Tahir Khaleeq
President



Mr. Waqar Ahmad Butt
Vice President



Dr. Mohammad Mohsin
General Secretary



Mr. Ghulam Sarwar
Finance Secretary



Mr. Muhammad Abbas Qamar
Executive Member



Dr. Javed Iqbal Saggu
Executive Member



Ms. Nazia Kashif
Executive Member



Syed Zahid Hussain
Executive Member



Ms. Huma Qamar
Executive Member

From the desk of Editor-in-Chief

The elected Council of the Pakistan Nuclear Society for 2023-24 is extremely grateful to PNS Members for the confidence bestowed upon the Council members especially the unopposed candidature of the President, Vice President, General Secretary and Finance Secretary. The elections were held on 22nd December 2022 for five Executive Members. The Council comprises of a blend of 5 in-service and 4 retired personnel. All of them are committed to put their wholehearted efforts with utmost zeal to further enhance the programmes of the Society. A calendar of activities for 2023 is being prepared and tentative schedule for the first half of the year is placed at the last page of this newsletter. PNS Members are requested to propose activities for the 2nd half keeping in view the mandate of PNS especially for the socio-economic development of the country in real terms. The feedback to improve the quality and contents of the Newsletter is highly appreciated.

Vision

To become a resource centre for disseminating information and to promote practical applications on peaceful uses of nuclear science, engineering and technology for sustainable socio-economic development. The principal tools to be used for this purpose would be PNS Website and PNS Newsletter.

Announcement

Tribute to
Mr. Munir Ahmad Khan
former Chairman PAEC
April 27, 2023

Contact us

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International Conference on the Applications of Nuclear Techniques for Sustainable Socio-economic Development 24-26 October 2022, Islamabad, Pakistan

Summary Report



Pakistan Nuclear Society (PNS) organized a 3-day international conference on the Applications of Nuclear Techniques for Sustainable Socio-economic Development from 24-26 October 2022 in Islamabad. The main purpose of the conference was to promote peaceful use of nuclear technologies in agriculture, human health, environment, water resource management, materials, high-tech industry and electricity generation. The inaugural session was held on 24 October, 2022 in Islamabad Hotel which was attended by over 150 intellectuals from different backgrounds including national and international scientists/engineers, people from academia and government officials. Senator Mushahid Hussain Syed was the Chief Guest on this occasion.

Mr. Waqar Ahmad Butt, Conference Secretary delivered the welcome address. He lauded that it was the first time in 32 years that an international conference was arranged by PNS. Seven foreign and more than 40 national speakers presented their R&D work. In his introductory remarks, Dr. Muhammad Tahir Khaleeq, President of the Society introduced PNS and elaborated about its numerous programmes. He informed that PNS has organized 12 one-day seminars in different cities of Pakistan. Linkages have been established with certain organizations, universities and industry. He also mentioned about the formation of two high level bodies; A Scientific Advisory Board and an Administrative Advisory Board for guidance, support and visibility of PNS. Moreover, the Women in Nuclear (WiN) forum has been reactivated and a Student Forum has been formed under the auspices of PNS. He thanked PAEC and PSF for the logistic and financial support for holding this conference.

The Society continued its tradition of honoring its members who have rendered untiring services to the nation in the form of lifetime achievement awards. This year two awards were given to **Mr. Muhammad Naem**, *N.I, H.I, S.I*, former Chairman PAEC and to **Mr. Ghulam Nabi**, *N.I, H.I, S.I, PoP*, former Member Technical PAEC. Dr. Mohammad Mohsin, General Secretary PNS read out the citation of these awards. Dr. Samreen Shahzadi, Principal Scientist, PINSTECH took up the responsibility as the Stage Secretary.



The Chief Guest, Senator Mushahid Hussain Syed, in his inaugural speech, appreciated the initiative taken by PNS for holding the conference on a subject of vital importance that will eventually be beneficial for millions of people in Pakistan and globally. He pointed out that nuclear technology can be an extremely constructive and a very destructive tool. He also mentioned several areas where Pakistan is using nuclear technology to improve the livelihood of people and support different sectors of industry with great emphasis on the energy, agriculture, hi-tech industry and medicine. He appraised Pakistani scientists and engineers as unsung heroes who devotedly and selflessly made Pakistan a Nuclear Power. However, he reassured Pakistan's commitment to the peaceful use of nuclear technology and its stringent stance of non-proliferation.



After the inaugural ceremony, there was a special Thematic Session in which four talks on the applications of Nuclear Techniques in different fields were presented by the following senior PNS members:

- **Nuclear Power** by *Engr. Pervaz Butt*, Former Chairman PAEC
- **Energy and Environment** by *Dr. Ansar Parvez*, Former Chairman PAEC
- **Industrial Applications** by *Syed Zia Uddin*, Former Member Engineering, PAEC
- **Human Health** by *Dr. Ahmad Qureshi*, Director General Nuclear Medicine and Oncology, PAEC



There were seven technical sessions in which 46 talks were delivered as listed below:

1. Nuclear Safety and Security

- The importance of Nuclear Safety framework, nuclear security, non-proliferation and educational programmes in developing countries by **Dr. Raja Abdul Aziz Raja Adnan** from Malaysia, former Director Nuclear Security IAEA.
- The importance of regulatory bodies in nuclear industry by **Mr. M. Anwar Habib**, former Chairman PNRA.
- International mechanisms and tools to ensure adequate preparedness and response to radiological emergencies by **Ms. Khadija Bendam** from Morocco, Expert of Nuclear Security IAEA.
- The different technical aspects of Fukushima Daiichi accidents and as a result, enhanced safety features implementation of Pakistan's operating power plants by **Mr. Muhammad Ayub**, Former DG/Technical Advisor to Chairman PNRA.
- The Advanced techniques to safely manage radioactive waste/Spent fuel by **Ms. Nora Zakria** from IAEA, Vienna on zoom link.

2. Application of Nuclear Techniques in Agriculture and Livestock

- The challenges and issues in Agriculture and the role of Nuclear technologies by **Dr. M. Zaman**, Soil Scientist from IAEA
- Use of Radiation and Phytotoxins in Disease Resistance of Crops by **Dr. S. Sarwar Alam**, former Director NIAB



- Climate shift and role of high value mutant varieties of oilseeds crops developed at NIAB by **Dr. Mahmood-ul-Hassan**
- Sustaining livelihoods through application of nuclear related techniques for better livestock production by **Dr. Muhammad Usman Mazhar** from NIAB
- Investigating the effect of gamma irradiation in the production of pest free commodities for trade promotion in Pakistan and elsewhere by **Dr. Inamullah Khan** from NIFA
- Organic wastes management: An efficient approach for enhancing food security and environmental protection by **Dr. Samreen Shehzadi** from PINSTECH
- Nanomaterials as antimicrobials and fungicides for the control of plant diseases under the changing climate scenarios by **Dr. Sumaira Yousaf** from NIAB

3. Nuclear Power

- Power Reactors and energy in the world: Past, Present and Projections by **Ms. Marta Gospodarczyk** from IAEA
- Nuclear Power and the Renewable Energy Transition by **Dr. Shaukat Hameed Khan**, former Rector GIKI/Coordinator General COMSATS
- Planning and Development of Indigenous Nuclear Power Plants (INPPs) by **Mr. Khawaja Zahid Shakeel**, former DG (D&T), PAEC
- Climate Change - Net Zero Emission & Power Production by **Dr. Syed Javaid Khurshid**
- Role of in-service inspections in the Nuclear Power Plants by **Mr. Mahmood Khan** from NCNDT
- Socio-Economic Benefits of Emerging Micro-Modular Reactors (MMRs) by **Ms. Irsa Rasheed** from PAEC

4. Nuclear Technology in Industry

- Radiation Technology at the service of humanity by **Dr. Shamshad Ahmad**
- Neutron Activation Analysis and its applications by **Dr. Naila Siddique** from PINSTECH
- Socio-Economic Development of Pakistan with Nuclear Technology by **Dr. Khuram Shahzad** from PINSTECH
- Bioleaching of uranium ores by autotrophic and heterotrophic microorganisms by **Dr. Tariq M. Bhatti**
- Comparison of Co-60 and Cs-137 Radiation Sources for Mutagenesis in Chickpea and identification of Biochemical Markers by **Mr. Amjad Hameed** from NIAB

5. Application of Nuclear Technology in Materials

- Value Addition to Gemstones by Nuclear Techniques by **Mr. Waqar A. Butt** from PNS
- Beneficiation of Rare Earth Elements and Zircon Minerals from the Dubeydib Monazite Sand, Jordan by **Dr. Osama A. Twaiq** from Jordan
- X-ray Absorption and Optical Spectroscopy: Electronic Structure and Luminescence Mechanism of Rare Earths by **Dr. Latif Ullah Khan**, SESAME, Jordan
- Synergic Technology Development of Rare Earth Elements and their Separation from Crabonate Ores by **Mr. M. Irfan Malik** from PAEC

6. Water Resource Management

- Water Quality and Distribution Network Management Using RS & GIS Techniques by **Dr. Toqeer Ahmed** from CCRD/COMSATS
- Physico-Chemical properties of various types of wastewater used as source of irrigation by **Dr. Amna Javed** from PINSTECH
- Ecological Effect of Spent Ion Exchange Resins from Nuclear Power Plants by **Dr. M. Aamir Hafeez** from PAEC

7. Cross Disciplinary Areas

- Technology Transfer through Intellectual Property Licensing: A New Model for Academia-Industry Linkage in Pakistan by **Dr. Saheeb Ahmed Kayani** from NUST

- Removal of radioactive molecular Iodine by using Ag-Cu-Ni-TEDA doped active Carbon from air by **Dr. Talhat Yaqoob** from Hazara University
- PNRA Regulatory Framework for Existing Exposure Situation and associated challenges by **Ms. Sheeren Zeshan** from PNRA
- The Need for Image Guidance in Radiation Therapy by **Mr. Muhammad Asghar Gadhi** from BINO

Speakers of the Technical Sessions



Special Sessions

1. WiN Pakistan

Women in Nuclear (WiN) programme has been rejuvenated by PNS and a special session was arranged during the conference which was attended by a large number of women working in different institutions related to nuclear S&T. Miss Naseem Bhatti, former Director Computer Training Centre (CTC)/ ICCS was the Chief Guest in that Session. The Session was chaired by Dr. Ismat Fatima, former Director Higher Studies and Research/PAEC and Dr. Samreen Shahzadi acted as the Stage Secretary. Ms. Khadija Bendam, President WiN Morocco, as the guest speaker via zoom link, elaborated the activities of WiN Global. Ms Farhat Waqar,



former General Secretary PNS also expressed her views in the light of her association with PNS and WiN Pakistan. Experts from PAEC and PNRA who shared their experience regarding application and benefits of using nuclear techniques include Ms. Rahila Hammad, DG PNRA, Ms. Nazneen Kousar, Head Electronics Div. PINSTECH, Dr. Naila Siddique Head Chemistry Div. PINSTECH, Dr. Sumaira Javaid, LINAC Project, PINSTECH and Dr. Ayesha Ammar, Dept. Nuclear Medicine, NORI Hospital.

2. Student Session

In the other special session students from renowned universities in Islamabad/Rawalpindi were invited. They presented their research/ project work in the form of short talks as listed below.

- Health Problems due to Industrialization and Urbanization by Ms. Rania Imran, Shifa Tameer-e-Millat University
- Artificial Intelligence in access to Clean Water by Mr. Mohammad bin Mohsin, UET, Taxila
- Plant-Microbe Interactions for Phytoremediation of Multi-Metal Contaminated Soil with two Brassica Cultivars and Bacterial Strains by Ms. Noor Sehar, QAU



- Comparative Study of Soil Textures to Assess the Effect of Bacterial Augmentation and Organic Amendments on Degradation of Chlorpyrifos in Soil by Ms. Hooria Ikram Raja, QAU
- Ion beam activation of natCu, natTi, natNi and measurement of product formation cross sections at low energy (<10 MeV) by Ms. Mahwish Anwer, AIOU

Closing Session

Federal Minister for Energy, Engr. Khurram Dastgir Khan was the Chief Guest in the closing session. The conference summary was presented by the Conference Secretary, Mr. Waqar A. Butt and the vote of thanks by the President PNS, Dr. M. Tahir Khaleeq. Appreciating the holding of a conference on a subject of vital importance by Pakistan Nuclear Society, the Chief Guest said that such ventures are need of the time. He further said that our nuclear institutes are playing their pivotal role in research and development using state of the art nuclear techniques. He emphasized that Pakistan as a nation is a very peaceful country and we believe in regional and global peace. We want peaceful living with our neighbors. Unfortunately, national security of



Pakistan was compromised when India tested a nuclear device in 1974. Pakistan has already suffered a tragedy of defragmentation in 1971. The deep fears of national security, forced Pakistan to produce a nuclear device to maintain nuclear deterrence in the region. Our security of nuclear arsenals is fool proof and vigilant. Acquisition of Civil nuclear technology is our basic need and we will continue our journey on the peaceful nuclear path for socio-economic development of the country to keep abreast and at par with the other independent nations. Our government fully supports the development of nuclear technology for national building and uplifting the living standard of our people.

Outcome:

The following suggestions and recommendations were put forward by the participants for the attenuation and implementations by the relevant organizations.

- Indigenization and innovation in the nuclear power sector is highly recommended as a clean energy as NPPs generate zero carbon emission.
- MMRs of power capacity up to 100 MWe need to be designed and built in Pakistan.
- SMRs should be built as short-term plan in remote areas of the country with no transmission lines.
- Large nuclear power plants with power capacity 1100-1400 MWe should be the part of long-term plan.
- Climate change is the main issue, our world is facing currently. Pakistan needs to limit greenhouse gasses by adopting the best energy production methods.

- Nuclear energy utilization in crops and livestock to enhance food security is the need of time.
- Value addition of gemstone using nuclear techniques can be a milestone in earning foreign exchange.
- Rare Earth Elements should be explored for nuclear as well as for fertilizer industry.
- Plasma Gasification technology should be considered for municipal solid waste.

PNS will consider these recommendations seriously and will take these up to the highest possible national authorities with the support of its Scientific and Administrative Advisory Boards.



Organizing Committee



Reception Committee



One hour programme about the Conference on **Such TV** in **Such Baat** with Nusrat Mirza

Tribute to Prof. Dr. Abdus Salam

Pakistan Nuclear Society (PNS) organized a Memorial Reference to pay tribute to Prof. Dr. Abdus Salam at his death anniversary. The ceremony was held on 21st November, 2022 at the National Centre for Physics (NCP), Islamabad. The main objective was to highlight the achievements and contributions made by the most prominent and the first Nobel Prize winner of Pakistan for the development of science & technology in the country as well as abroad. Senior scientists, academicians and engineers, especially those who worked with him were invited to share their views during the half day discourse. More than 150 participants from various organizations, institutions and universities participated.



After recitation from the Holy Quran, President PNS, Dr. Muhammad Tahir Khaleeq gave the opening remarks. Mr. Waqar Ahmad Butt, Executive Member PNS Presented formal introduction of Prof. Abdus Salam along with some memorable photos. A video message from the Director International Centre for Theoretical Physics (ICTP), Trieste, Italy was played that highlighted the contributions of Prof. Salam to build and run ICTP. It was followed by speeches of eminent scientists and engineers like Dr. Tariq Mustafa, *S.I.*, former Federal Secretary Ministry of Science & Technology, Mr. Salim Mehmud, PoP, the founding Chairman of SUPARCO, Engr. Pervaz Butt, *N.I, H.I, S.I.*, former Charmin PAEC/ Secretary MoST, Mr. Muhammad Naem, *N.I, H.I, S.I.*, former Charmin PAEC, Dr. N.M. Butt, *S.I.*, Chairman Preston Institute of Nano-science and Technology, Dr. Shaukat Hameed Khan, PoP former Rector GIKI/ Coordinator General COMSTECH, Dr. M. Aslam Baig, *H.I,S.I.*, PoP, Distinguished National Professor, Dr. Asghari Maqsood, PoP, Professor at the Air University and Dr. Syed Javaid Khursid, former President PNS. Two well-known scientists, Dr. Abdullah Sadiq, *S.I.*, former Rector GIKI and Dr. Ahmad Ali, Professor at DESY, Hamburg, Germany, joined through zoom link.



Prof. Salam made major contributions in quantum field theory at the Imperial College London. His notable achievements include the Grand Unified Theory, work on super-symmetry and most importantly, Electroweak Unification Theory, for which he was awarded the Nobel Prize in 1979. He used his share of the Nobel Prize entirely for the benefit of physicists from developing countries and did not spend a penny of it on himself or his family. In 1964, Prof. Salam founded the International Centre for Theoretical Physics (ICTP), Trieste, Italy and served as its director until 1993. Furthermore, he spent the whole money he received from the Atoms for Peace Award on setting up a fund for young Pakistani physicists to visit ICTP. In 1997, the scientists at ICTP commemorated him and renamed the centre as the 'Abdus Salam International Centre for Theoretical Physics'.

Prof. Salam remained the Chief Scientific Advisor to the President of Pakistan from 1960 to 1974 and played an influential role in developing country's science infrastructure. Salam proposed the idea of establishing an annual college to promote scientific activities in the country that led to the establishment of the International Nathiagali Summer College on Physics and Contemporary Needs (INSC) in 1976. He was the founding director of the Space and Upper Atmosphere Research Commission (SUPARCO) and also established Theoretical Physics Group (TPG) in PAEC which formed the ground breaking work that led Pakistan to become a Nuclear Power. He was a strong supporter of peaceful uses of nuclear technology and his services for the nation will be ever remembered.



Second Meeting of the Scientific Advisory Board (SAB)

The 2nd Meeting of the Scientific Advisory Board (SAB) of PNS was held on 15th November 2022 at PAEC Rest House, Islamabad. It was physically attended by the Board Members, Engr. Pervaz Butt, Mr. M. Anwar Habib, Engr. Yusuf Raza and Dr. Javed Hanif whereas Dr. Abdullah Sadiq, Engr. Waqar Murtaza Butt and Dr. N.M. Butt joined through zoom link. PNS

Council Members and an invited guest, Engr. Kh. Zahid Shakeel attended the meeting as observers. President PNS gave the briefing on the follow up of suggestions given by the Board Members during the 1st SAB Meeting. All the suggestions were taken up and the outcome is as follows:

- Three new members, Mr. Muhammad Naeem, former Chairman PAEC, Engr. Zia Uddin, former Member(Engineering), PAEC and Dr. Rakshanda Bilal, former DG (Technical) have been inducted in SAB.
- A WhatsApp Group PNS-SAB has been created for exchange of related info.
- An Industrial Support Programme has been initiated with the help of Engineering Development Board (EDB). Their authorities have agreed to form a Local Expert Pool with the help of PNS to provide technical help to industries. Links are being established with the Chamber of Commerce, Islamabad for public- private partnership.
- PNS delegation visited SES and had a meeting with DG SES and Sr. Director. Also met MD ATCOP and visited Pakistan Radiation Services (PARAS), Lahore.
- A project on Value Addition in Gemstones with Nuclear Techniques has been submitted to PSF.
- A meeting was arranged with the President, Pakistan Academy of Engineers (PAE) in Karachi with the coordination of Engr. Waqar Murtaza Butt. Some joint ventures will be carried out in future.
- Meetings were held with DG ESA and NCA-R&D Board for support in SPD. A follow up letter was written to DG ACDA for financial assistance.
- Thanks to Mr. Nusrat Mirza, three TV Programmes were made on air at Such TV.
- Five videos prepared by Mr. Waqar Ahmad Butt have been uploaded on YouTube Channel of PNS.
- Tribute to Prof. Abdul Salam was held on his death anniversary; November 21, 2022 at NCP.
- Associate Membership has been launched for students with one year free and subsequently half membership fee.
- A special session for student was arranged during the international conference in which the students from different universities presented their research/project work.
- A proposal for hiring young scholars to write articles in the print media to promote beneficial uses of nuclear technology has been submitted to ACDA.
- An internee has been inducted for PNS Database management at no cost to PNS.
- An *Eid Milan* party, short hikes cum picnic, a recreational trip to Northern area for the family members of PNS were arranged.
- Discounts on various hotels, restaurants, shops etc has also been obtained for PNS members.

The Members of the Board appreciated the actions taken on their suggestions and expressed their satisfaction on the outcome. Some more suggestions were given that include organizing seminars on the applications of nano-technology in different fields (Dr. N. M. Butt), NPPs without vendor support (Engr. Waqar M. Butt) and design of SMRs/MMRs (Kh. Zahid Shakeel). Engr. Pervaz Butt proposed to build NPPS similar to KANUPP in different cities to cover the length and breadth of the country. Popular lectures on peaceful uses of nuclear technology should be arranged at colleges/universities (Syed Yusuf Raza). Nuclear Standards have always been a problem in our nuclear industry. Help of IAEA is sought in this regards but we must develop our own standards.

PNS should take initiative in this regards (Engr. Anwar Habib). Dr. Abdullah Sadiq stressed upon writing the history of PAEC by hiring someone for this purpose. Dr. Javed Hanif suggested restarting the process of PNS Fellowship which is withheld since long. Since the trip to Karachi for holding two seminars there was fully sponsored by PAEC with the efforts of Engr. Waqar Murtaza Butt, he suggested that for the future activities the concerned Member may be asked for similar facility due to limited funds in PNS Account. Finally, Dr. Tahir Khaleeq again thanks SAB Members for their support and guidance and ensured to act upon all the suggestions.



Annual General-body Meeting

The Annual General-body Meeting (AGM) of PNS was held on 22nd December 2022 at PAEC Rest House, G-8/3, Islamabad. Dr. M. Tahir Khaleeq, President PNS gave the welcome address and introductory remarks. He mentioned about the various initiatives taken by PNS Council during 2021-22. These included outreach to different sectors including strategic organizations, ministry of industries, business community, universities, print & electronic media, lawyers' community etc. He lauded the formation of Administrative Advisory Board (AAB), Experts pool of retired scientists and engineers for consultancy in industry through Engineering Development Board (EDB), Youth in Nuclear (YiN) of serving scientists and engineers below the age of 35, Associate membership for students and creating chapters in various universities (PIEAS, QAU, NUST, COMSATS, GCU-Lahore and NED-Karachi). He also mentioned about the re-activation of Scientific Advisory Board (SAB), Women in Nuclear (WiN) and Focal Persons in various centres. He announced one-year free membership for students and put forward the proposal of honorary membership for foreign scientists and engineers. All these initiatives are in accordance with the constitution of PNS. He suggested revising the By-laws and Rules of Procedures of PNS as some amendments have already been done by previous Councils but did not appear in the Constitution Booklet. He further stated that the process of selection of PNS Fellows would be revived and a transparent procedure would be prepared with the assistance of SAB. Similar procedure will be adopted for PNS Lifetime Achievement awards.



Dr. Mohammad Mohsin, General Secretary PNS presented the Annual Progress Report and gave an overview of all activities including 11 seminars/symposiums in different cities (Peshawar, Gujranwala, Lahore, Gilgit, Faisalabad and Karachi), 3 webinars and an international conference of three days in Islamabad. He thanked PAEC, PSF and SPD for generous financial assistance and logistic support to accomplish PNS targets. He specifically mentioned the outreach linkages with academia, industry and R&D organizations that have created greater visibility through social media usage and coverage on TV channels. Timely publishing and distribution of PNS Newsletter has also played a significant role in projecting PNS activities.

Mr. Ghulam Sarwar, Finance Secretary presented the summary of inflow and expenditure of the Society. He informed that in January 2021, the balance in PNS Bank Account maintained at NBP Margalla Br. Islamabad was Rs. 2.5M. During the past two years, Rs.6.1M was received from PAEC, PSF and SPD. The expenditures were incurred mainly on holding seminars at various places. The major expenditure was on the International conference in Islamabad Hotel that amounts to Rs.2.4M including air travel and stay of three foreign speakers. Other spending was on setting up of a separate room for PNS President, a PC, LED TV, a Photocopier, a digital camera and essential furniture. He stated that an amount of Rs.1.7M was in the pipeline and four new cases of financial grant from PSF have already been submitted to conduct seminars during the first half of 2023. The closing balance on 22-12-2022 in PNS Bank account was about Rs. 3M.



These deliberations were followed by a questions/answer session in which the Members raised some points of concern, passed useful comments and put forward fruitful suggestions to streamline and further enhance the activities. A light debate was held on amendments in the Rules of Procedures and By-laws of the Society which was properly addressed and ensured that nothing will be against the Constitution. Any change will be done with consent of PNS Members. For that digital media may be used to obtain the opinion of the majority.



Meeting of PNS Focal Persons



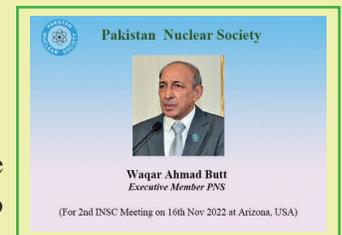
Last year, Focal Persons (FPs) were appointed with the consent of relevant Head of Establishment in different centres of PAEC, PNRA, NCP and GCU, Lahore to coordinate and hold various programmes as well as to enhance PNS Membership, but meeting of the focal persons could not be held. Taking advantage of the AGM and PNS elections, FPs were invited to discuss the future activities at different places. FPs of Women in Nuclear (WiN) and Student Coordinators were also present during the meeting held on 22nd Dec. 2022 in the Conference room of the Rest House. President PNS explained the importance and usefulness of FPs for enhancing linkage and coordination. He encouraged them to proactively take part in PNS programmes not only to organize scientific programmes but also arrange social events for the families of PNS Members in the respective Centre. PNS can provide financial support as done in cases of annual dinner, hike/picnic, *Eid Milan* etc.

Outreach and Linkages Participation in INSC Workshop

The 2nd meeting of the International Nuclear Societies Council (INSC) was held at **Phoenix, Arizona, USA from November 15-16, 2022**. The meeting was opened by Prof. Poong Seong, Chair INSC and the welcome address was given by the host Dr. Steven Arndt, President American Nuclear Society (ANS). The participants from different regions/ Member societies briefly introduced themselves. INSC 13th Global Award was presented to Dr. William Donald Magwood for his outstanding contributions as per mandate of INSC. A report was presented on 'A vision for the second Fifty Years of Nuclear Energy' by Dr. Ozemoyah, 1st Vice Chair INSC. Then a position paper on 'Nuclear for Sustainability and SMRs' was presented. The meeting was followed by INSC Workshop on November 16, 2022 in which five presentations were made by;

1. **Orpet Peixoto** from Latin America
2. **Hisashi Ninokata** from Asia/Pacific
3. **Luc Van den Durpel** from Europe
4. **Peter Ozemoyah** from North America
5. **Waqar Ahmad Butt** from Pakistan (online) for At-Large

All the presentations are available at <http://insc.host1.ans.org/category/insc-workshop/>. It was the first time that a formal presentation was made by PNS in this global forum. This presentation with audio has been uploaded at PNS website/YouTube channel.



Public Awareness Programme

Two programmes on Such TV were arranged with the curtsy of Mr. Nusrat Mirza, Member PNS Administrator Advisory Board. The first one was in the context of three awards for Pakistan by the Regional Cooperative Agreement (RCA) on its 50th Anniversary. The institutional award was bestowed upon PINSTECH; the premier R&D Centre of PAEC. And two individual awards for two scientists on their outstanding contribution to RCA programme; Dr. Muhammad Azam Tasneem, Chief Scientist ® from PINSTECH in Isotope Hydrology and Dr. Irfan Ullah Khan, Deputy Chief Scientist from INMOL in Nuclear Medicine. The briefs of these awards were published in the 7th issue of PNS Newsletter of July-Sept. 2022.



The other programme on Such TV was about the International Conference of PNS held from 24-26 October 2022 at Islamabad. Dr. M. Tahir Khaleeq, Dr. M. Mohsin and Mr. Waqar A. Butt participated in one-hour programme '*Such Baat*' with Nusrat Mirza.

The recordings of these programmes have been uploaded at PNS Website as well as the YouTube channel of PNS.

Poster Competition on the Effects of Climate Change on Pakistan

PNS has signed MoU with Technology Times for activities of mutual interest to promote S&T culture in the country, specially to motivate young generation. Accordingly, in the process of celebrating 75th Independence Day of Pakistan, the first online poster competition for Pakistani Students on 'The effect of Climate Change on Pakistan' was organized by Scholars Talk in collaboration with Technology Times, Pakistan Nuclear Society (PNS) and the Inter-University Consortium for the Promotion of Social Sciences, Arts and Humanities (IUCPSS). A total of five awards were distributed to the best poster presenters. The awards were jointly sponsored by the PNS and IUCPSS. PNS contributed Rs. 25,000/- for the prizes to competition winners.

Renowned National Scientists and Engineers



Mr. Munir A. Khan
N.I, H.I

Mr. Munir Ahmad Khan was a brilliant Nuclear Engineer ranked among those eminent scientists who played a lead role in establishing and developing Pakistan's nuclear capability for defense as well as peaceful purposes. The major milestone in the history of Pakistan for conducting the first cold test was performed when he was Chairman PAEC. He formed the basis of fuel cycle development from mining of uranium to fuel fabrication for Karachi Nuclear Power Plant (KANUPP). Another main achievement was to establish close linkages with Chinese companies that paved the way of acquiring nuclear power plants at Chashma.

Mr. Khan was born on 20th May, 1926 in Kasur, Pakistan. He received his early education at the Government Central Model School, Lahore and then B.Sc in Physics and Mathematics from Government College Lahore. Later he got B.Sc Electrical Engineering degree from Punjab University's Engineering College, Lahore in 1949. He went to USA under Fulbright scholarship and Rotary International Fellowship and obtained MS degree in Electrical Engineering from North Carolina State University in 1952. From 1953 to 1956, he carried out his post-graduate research work at the Illinois Institute of Technology (IIT). He specialized in the field of reactor physics and nuclear engineering. In 1957, Khan served as a Resident Research Associate in the Nuclear Engineering Division at the Argonne National Laboratory where he was trained as a nuclear reactor physicist and worked on design modifications of the Chicago Pile-5 reactor before working for a brief period of time at American Machine and Foundry as a consultant until 1958.

In 1958, Mr. Khan joined the International Atomic Energy Agency (IAEA) as staff member in Professional Grade P-5, and served in the Division of Nuclear Power and Reactors. He was the first Asian from any developing country to be appointed at this senior position in the IAEA. During his services at IAEA, he organized important international scientific & technical conferences on topics such as Heavy Water Reactors, Advanced Gas Cooled Reactors, Plutonium Utilization, Performance of Nuclear Power Plants, Problems and Prospects of Introducing Nuclear Power in Developing Countries, Small and Medium Power Reactors and Coordination of Programs for Research in Theoretical Estimation of Uranium Depletion and Plutonium Build-up in Power Reactors in the United States, Soviet Union, United Kingdom, France and Canada. He was often known as "Reactor Khan" among his peers at the Nuclear Power Division.

In 1972, Mr. Munir Ahmad Khan was appointed Chairman PAEC by Mr. Zulfikar Ali Bhutto, the then Prime Minister of Pakistan. Soon after taking the charge he envisaged a challenging national programme for establishment of nuclear power plants and allied nuclear research facilities in the country. Following India's nuclear test in 1974, PAEC started indigenous development of nuclear fuel cycle and related infrastructure. He also initiated work on nuclear fuel fabrication when Canada cut off supplies of fuel and spare parts for KANUPP. PAEC developed its own fuel within two years and successfully performed fuel loading in 1980. During his regime, a number of medical and agricultural centers were established in the country.

Mr. Munir Ahmad Khan remained Chairman of PAEC for 19 years and retired with the status of Minister of State in 1991. He used his position to help establish the International Centre for Theoretical Physics in Italy. He was also elected Chairman Board of Governor of IAEA. He played an instrumental role in establishing the International Nathiagali Summer College on Physics and Contemporary Needs in 1976 on Prof. Salam's advice. In recognition of his outstanding services to the nation, he was decorated with "Hilal-e-Imtiaz" by the Government of Pakistan in 1989 and then the highest civil award "Nishan-e-Imtiaz" in 2012. He breathed his last on April 22, 1999 in Vienna, Austria at the age of 72 years.

A Historical Photo



Visit of the President General Muhammad Zia ul Haq to NIAB- Dr. Mujtaba Naqvi is giving the briefing. Dr. Ishfaq Ahmad is also in the picture.

Nuclear News and Views

International

Utility Explores Converting Coal Plants into Nuclear Power

E&E News

October 28, 2022

The large utility PacifiCorp is studying the viability of turning five fossil-fuel plants into nuclear-energy-and-storage facilities. A Bill Gates-backed developer and one of the largest utilities in the Western United States announced that they were launching a study to determine if up to five coal plants could be equipped with advanced nuclear reactors. The move further cemented the relationship between Terra Power, a nuclear developer, and PacifiCorp, a six-state utility headquartered in Portland, Ore. The pair agreed last year to build a 345-megawatt Sodium nuclear reactor at the site of a retiring coal plant in western Wyoming. The deal signals the emergence of a new energy transition strategy in the West, where PacifiCorp has had to balance the climate goals of its customers in Washington and Oregon with the wishes of its Wyoming consumers, who want to keep the company's coal plants open in their state. Nuclear power brings with it the prospect of jobs and zero-carbon electricity, potentially meeting the climate goals of political leaders and ratepayers in Washington and Oregon.

Nuclear also has the potential to provide two things that renewables cannot: power that can be dispatched at any time and an abundance of jobs. Wind and solar facilities often employ only a handful of people once they're fully constructed. Terra Power estimates its facility will require a workforce of 250 people. Terra Power's technology is unique in that the plant functions as a power generator and a battery. The molten salt used to cool the plant can be stored in giant tanks and then released, creating heat that can turn a turbine. That enables the facility to ramp up power to 500 megawatts for several hours, helping offset decreases in wind and solar output.

Micro molten salt reactor can fit on a truck, power 1k homes

The Register - Science

October 5, 2022

As the US Department of Energy (DoE) continues to look for ways to improve molten salt nuclear reactors (MSRs), a team from Brigham Young University in Utah has designed one it says can fit safely in the bed of a 40-foot truck. The molten salt micro-nuclear reactor, which - once approved - will be built by Professor Matthew Memmott and his team, has a chamber that measures just four by seven feet (1.2 x 2.1 meters), has no risk of a meltdown, and can produce enough energy to power 1,000 homes, the university said. Prof Memmott separately told *The Register* the reactor's output should be around 10MWe.

Unlike traditional light-water reactors, which typically store uranium fuel in solid rods that have to be kept cool with liquid water to avoid a meltdown, MSRs instead dissolve fissile material into a molten salt that also acts as the reactor's primary coolant. Treating the fuel and primary coolant as one, and not relying on keeping water coolant flowing and below boiling point, is seen as one safety advantage, among others, for MSRs. In a typical MSR, the primary fuel salt, with its high melting point of 550°C, moves through the reactor and transfers its heat to non-radioactive secondary coolant salt, which can pass on its heat to other things, such as traditional steam-turbine-driven electricity generators. According to this university, the waste generated by an MSR reactor would allow companies to extract Molybdenum-99, an expensive element used in medical imaging; Cobalt-60, gold, platinum, neodymium, and other elements that could be sold for other applications.

Nuclear fusion energy breakthrough: "One of the most impressive scientific feats of the 21st century"

CBS NEWS

December 13, 2022

The U.S. Department of Energy announced a monumental milestone in nuclear fusion research: a "net energy gain" was achieved for the first time in history by scientists from the Lawrence Livermore National Laboratory in California. "Simply put, this is one of the most impressive scientific feats of the 21st century," Jennifer Granholm, U.S. Energy Secretary, said at a press conference, adding that researchers have been working on this for decades. The hope is that it could be used to develop a clean source of power that would discontinue reliance on fossil fuels. Nuclear fusion technology has been around since the creation of the hydrogen bomb, but using that technology to harness energy has required decades of research. "They took 200 laser beams, some of the most powerful on the planet Earth, converged that energy down to a pellet, a pellet the size of a BB," said Dr. Michio Kaku, a professor of theoretical physics at the City College of New York. "And just remember, fusion power has no nuclear waste to speak of, no meltdowns to worry about." Scientists believe fusion plants would be much safer than today's nuclear fission plants - if the process can be mastered. That's the goal of a multinational, multibillion-dollar project called the International Thermonuclear Experimental Reactor, or ITER, which is under construction in southern France. "This is a landmark achievement for the researchers and staff at the National Ignition Facility who have dedicated their careers to seeing fusion ignition become a reality, and this milestone will undoubtedly spark even more discovery," Granholm said, adding that the breakthrough "will go down in the history books."

<https://www.cbsnews.com.cdn.ampproject.org/c/s/www.cbsnews.com/amp/news/nuclear-fusion-energy-breakthrough-announcement/announcement/>

National

NISAS Designated as IAEA Collaborating Centre for Nuclear Security



Mr. Faizan Mansoor, Chairman PNRA at the ceremony in Vienna.
Ambassador Aftab Ahmad Khokher in the center.

The National Institute of Safety and Security (NISAS), an ISO 9001:2015 certified training institute of Pakistan Nuclear Regulatory Authority (PNRA), has been designated as an IAEA collaborating centre for Nuclear Security Education, Training and Technical Support. An IAEA Collaborating Centre is an IAEA Member State institution, department or laboratory, which focuses on research, development and training to support the IAEA's programmatic activities by implementing an agreed work plan. An agreement between IAEA and PNRA to this effect which is valid till 2026, makes NISAS the IAEA's 10th collaborating centre in the field of nuclear security. Since its inauguration in 2014, NISAS has hosted and organized more than 30 national, regional and international training courses in collaboration with the IAEA.

“Nuclear security education and training in the Asia and the Pacific region will be further strengthened and supported by the designation of NISAS as an IAEA collaborating centre,” said Lydie Evrard, IAEA Deputy Director General and Head of the Department of Nuclear Safety and Security, at the signing ceremony held in Vienna.

Harnessing Nuclear Technology is a priority for Pakistan

November 11, 2022

Ambassador Aamir Khan

As a founding member of the IAEA, Pakistan’s ardent supports the IAEA role in promoting the peaceful uses of nuclear technology in accordance with its motto “Atom for Peace and Development”, said Ambassador Aamir Khan, Deputy Permanent Representative of Pakistan to the UN while delivering National Statement in the Plenary of the 77th Session of the General Assembly of the United Nations. He appreciated IAEA’s annual report for 2021 and the efforts put in by the Agency and Director General Rafael Mariano Grossi to enhance the goal of advancing peaceful application of energy for sustainable development and building resilient economies. “We view nuclear energy as a reliable, consistent and carbon free source of electricity generation” he said, mentioning Pakistan’s efforts to expand nuclear power generation and to increase its share in the national energy mix driven by the fact that Pakistan is not only an energy deficient country, but also one of the most vulnerable countries to the impact of climate change.

“In Pakistan, we are taking steps to limit our green-house gas (GHG) emissions. Pakistan’s National energy mix is consistently re-evaluated. With the coming on line of the sixth operating nuclear reactor, the actual contribution of nuclear in the energy mix has increased to about 15%. Karachi Nuclear Power Plant K-3, this year has increased our nuclear power generation capacity to 3,530 MW. Pakistan has been one of the leading partners of IAEA’s Technical Cooperation programme for a number of years” he added.

“The IAEA’s role as the world’s focal point in promoting peaceful uses of nuclear energy assumes greater significance in view of diverse challenges of environment and proliferation. The Agency can make a significant contribution in meeting the needs and challenges of the 21st century by ensuring equitable access to nuclear materials, technology and equipment for peaceful purposes”, he further said.

Considering nuclear safety and security as a National responsibility, he further mentioned that, “Pakistan has developed a comprehensive nuclear safety and security regime, which is regularly reviewed and updated in the light of the IAEA guidance documents and international best practices”.

News about PNS Members

Congratulations



Prof. Dr. Javed Iqbal Saggi, Professor at the Physics Department of QAU has been awarded Abdus Salam Gold Medal (2022) for Young Scientist by the Pakistan Academy of Sciences.



Dr. Zafar Hashmi, Assistant Professor at COMSATS has been awarded Abdus Salam Gold Medal (2022) in Earth and Environmental Sciences by the Pakistan Academy of Sciences.

Coordination

Women in Nuclear (WiN)

An Interim Committee comprising of the following members has been formed under the umbrella of PNS for strengthening Women in Nuclear (WiN) activities in Pakistan.

1. Dr. Rakshanda Bilal, former DG Technical, PAEC
2. Dr. Samreen Shahzadi, PS, PINSTECH
3. Ms Huma Qamar, PSO, PNRA
4. Ms Nazia Kashif, PS, PAEC HQ
5. Dr. Ayesha Ammar, PMO, NORI

This Committee will chalk out future programmes and activities to be carried out within the country and abroad especially some joint ventures with WiN Global; an international organization for the women involved in nuclear science and technology. It is to mention that a special session has been conducted during PNS International Conference held in Islamabad Hotel on 25th Oct. 2022. It was attended by a good number of women from various organizations working in nuclear R&D.

Students Forum

A student forum is being structured for liaison with youngsters mainly science and engineering graduates. PNS will arrange some activities at different colleges and universities to motivate them to adopt carriers in nuclear S&T. Links have already been established in PIEAS, QAU, NUST, COMSATS Islamabad, GCU Lahore, NED and Karachi University. The following officials will coordinate activities in their respective centres.

1. Miss Isra Jahangir, PIEAS
2. Mr. Saheeb Ahmad Kayani, NUST
3. Mr. Akif Pervaz, QAU

Obituaries

Dr. S.H.M. Naqvi, S.I



Dr. Sayiad Hasan Mujtaba Naqvi was born at Arnroha, Muradabad U.P, India on 22nd November, 1936. After getting his early education from his native town, he did intermediate from Muslim University Aligarh. The family migrated to Pakistan during 1955 and settled in Peshawar from where he obtained B.Sc. and M.Sc. from Peshawar University in 1960. He joined PAEC as Assistant Scientific Officer (Officer on Special Training) in 1961 and as per vision of Dr. I.H. Usmani, PAEC sent him for higher studies abroad. Consequently, he completed his Ph.D degree in Steroid Biochemistry from the School of Medicine, University of Edinburgh, UK in 1964. He carried out his post-doctoral research at St. Louis University, USA. He was posted at NIAB as the Head Radiobiology Division. There he served in various positions as Director Nuclear Medicine, Director Chemistry, Director Agriculture and Director of the Institute in 1975. In addition to his own duties, he was appointed as the Project Director of NIBGE and upon his promotion as Chief Scientist, he became DG NIAB & NIBGE. During his tenure, many varieties of crops like mungbean, chickpea and rice were developed. In cotton, NIAB-78 was developed which brought 'White Revolution' in the country. On the basis of invention in cotton, the first International Gold Medal in the field of agriculture was awarded to NIAB. Dr. Naqvi retired from the PAEC services in 1997 and left for Vienna for an

appointment under IAEA. For his meritorious services to the nation he was awarded Sitara-e-Imtiaz by the Government of Pakistan. He breathed his last on 8th November 2022.

May Allah subhanahu wa ta'ala bless his soul in eternal peace.

(Dr. Uzma Maqbool, NIAB)

Dr. Khunab Gul

Dr. Khunab Gul was born on 18th May 1940 in Peshawar. After graduation from Panjab University, Lahore, he obtained M.Sc. in Physics from Peshawar University. He was awarded Gold Medal and President of Pakistan Award for securing first position among Faculty of Sciences in his M.Sc. He started his professional career as a Lecturer at the Physics Department of Peshawar University in 1964 and taught there for about seven years. During his attachment as lecturer, he won a scholarship for the higher studies and obtained Ph.D degree from Oxford University, UK in Nuclear Physics in 1967. He joined PINSTECH in 1973 and served in PAEC till 2000. He remained Head of Fast Neutron Generator Group. He also served as Head Nuclear Physics Division. He carried out extensive theoretical studies in nuclear physics and published 32 papers in IST journals. On the basis of his publications, he was awarded First Prize for research in 1986 by the Ministry of Education. He also served as the Head of Scientific Information Division (SID), PINSTECH and was appointed as Liaison Officer of INDC (IAEA) for PINSTECH. After retirement, he became Consultant of Experimental Physics Labs of NESCOM. He was entrusted with the responsibility to establish an Accelerator Lab at National Center for Physics. He also served as the Project Director of HEC for Tandem Accelerator. He also served as Senior Research Scientist at the Energy Research Lab. in Dharan, Saudi Arabia from 1987-1989 and had the privilege to help establishing the accelerator labs at Dharan.

Dr. Gul left for the eternal journey on 6th October, 2022.
May Allah Kareem place his poise soul in Jannah.

(Dr. Najam us Saqib, son)

Engr. Mian M. Jamil

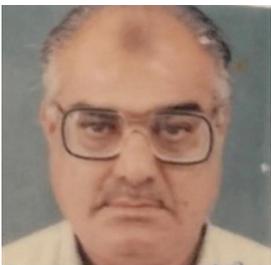


Engr. Mian Muhammad Jamil Ahmed was born in 1942 at Jehlum. He did his Matriculation /F. Sc. and B.Sc. from Lahore and BE in Chemical Engineering from UET in 1968. His first job was teaching at polytechnic institute Nawab Shah. Then he worked at Rafhan Oil Factory, Faisalabad. In 1976, he joined PAEC as Senior Engineer and posted in Nuclear Safety and Licensing Division (NSLD) which later grew as the Directorate of Nuclear Safety and Radiation Protection (DNSRP). There he did the pioneering work of establishing the Radioactive Waste Management Division. He was the first Head of that Division. He went to ONRL Oak Ridge, USA as IAEA Fellow and worked on radioactive waste management. He returned in 1979 and reported to NSLD. But soon after, he was transferred to Chemical Processing Complex (CPC) in D.G. Khan. In 1987, he was transferred to DNSRP. He was promoted as SPE in 1998. In 2000, he was posted at DTD (Wah) and retired from there in 2002.

Mian Jamil Ahmad had a very friendly attitude towards his seniors as well as to his junior staff. He had a unique quality of making friends. He was very active in organizing social activities. He was elected Executive Member of PNS for three terms and had the longest tenure as a Council Member. Mian Jamil breathed his last on 21st December 2022. May his soul rest in peace.

**(S.D. Orfi, Colleague)
(Mr. Fahad, son)**

Mr. Abdul Aziz



Mr. Abdul Aziz was born on 5th December 1934 at Jallundhar, East Punjab of British India. At the time of partition in 1947, his family migrated to Pakistan and settled in Lahore. Mr. Aziz did his B.Sc. Hons. and M. Sc. Physics from the Govt. College, Lahore in 1957. Mr. Aziz taught Physics at Municipal College Okara and Gordon College, Rawalpindi. He joined PAEC in 1961 at KARACHI but soon after he was transferred to AEC Lahore. In 1963, PAEC sent him to AERE, UK for specialized training. He returned in 1965 and was posted at PINSTECH in Health Physics Division (HPD). In 1973, he was sent to Belgo-Nuclear Belgium for another Specialized Training. He rejoined HPD PINSTECH in 1976 and was appointed as the Head of the Environmental Monitoring Group. He established good quality Laboratories in HPD till his transfer to NLP in 1984 from where he retired in 1994. Mr. Aziz was unwell during the last 2-3 years and had problems with his memory. He died in

PAEC hospital, Islamabad on 11th November 2022.

May Allah be please with him and grant him Janat ul Firdos. Ameen

**(Mr. S.D. Orfi, friend)
(Mr. Qamar ul Islam, son)**

Social Events

A Short Hike of PNS Families and Friends

As per calander of PNS activities during 2022, the 2nd hike for the families and friends of PNS members, was arranged on Sunday, 4th December, 2022. It was only 4km to and fro up to the first spring on Trail-5 in Margalla hills. About 60 persons participated in this healthy activity. After filling the lungs with oxygen for an hour in the refreshing green pathways, all the participants gathered on a cup of tea with light refreshments in the compound opposite to the wildlife office. One of the main purposes of such ventures is to provide a chance to the families to meet and greet one another and establish linkages. Accordingly, many retired and in service officials briefly introduced themselves. The credit of such events goes to Syed Zahid Hussain, Executive Member PNS who dedicatedly takes up the responsibility of all social events of PNS on voluntary basis.



Proposed Calendar of Activities January-June, 2023

Date	Activity	Title	Coordinator(s)
Jan.25	Meeting	2nd meeting of the Administrative Advisory Board, PAEC Rest House, Islamabad	Dr. M. Tahir Khaleeq
Feb.20	Seminar	Nuclear Institute of Agriculture (NIA), Tando Jam	Dr. Saima Mir
Feb.21	Symposium	Larkana Institute of Nuclear Medicine & Radiotherapy (LINAR), Larkana	Dr. Riffat Wadho
Feb.27	Workshop	Women in Nuclear (WiN), Fatima Jinnah Women Univ. Rawalpindi	Dr. Samreen Shahzadi
March 06	Seminar	Radioactive Waste Management, Chashma	Mr. M. Abbas Qamar
March 13	Recreational	Morning walk/ Fun Fair, F-9 park, Islamabad	Syed Zahid Hussain
March 21	Meeting	3rd meeting of PNS Scientific Advisory Board PAEC Rest House, Islamabad	Dr. M. Tahir Khaleeq
April 23	Social	Eid Milan PAEC Rest House, Islamabad	Syed Zahid Hussain
April 27	Memorial	Tribute to Mr. Munir A. Khan Pakistan Academy of Sciences (PAS), Islamabad	Waqar A. Butt
May 08	Seminar	Fusion energy, National Centre of Physics (NCP)/QAU	Dr. Javed Iqbal Saggu
May 22	Seminar	Center for Nuclear Medicine and Radiotherapy (CENAR), Quetta	Dir. CENAR
June 05	Workshop	Nano-technology and its applications, National University of Science & Technology (NUST), Islamabad	Dr. Javed Iqbal Saggu
June 19	Seminar	Advances in Medical Imaging, Swat Institute of Nuclear Medicine Oncology & Radiotherapy (SINOR), Saidu Sharif	Dir. SINOR