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# 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. Muhammad Sadiq

Dr. Riffat M. Qureshi

Dr. M. Javed Akhtar

Mr. M. Abbas Qamar

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Oath Taking of PNS Council 2023-24

## From the desk of Editor-in-Chief

A nine-members team of PNS Council have taken oath with the commitment to perform all functions and objectives of the Society in an efficient and effective manner. The Council Members are well aware of these responsibilities and determined to fulfil their assigned duties with dedication and devotion. The pre-defined activities and new initiatives are being successfully implemented, mainly due to the dedicated efforts and hard work of the Council Members who are rendering their services voluntarily, however, there is still a need to take more initiatives and dig out new avenues.

PNS has over 1100 Lifetime Members and their active participation is essentially required. The Council request the members to spare some of their precious time to contribute in PNS programmes. They may write brief articles for PNS Newsletter, prepare short videos on related subjects for PNS YouTube Channel, join hands in PNS Industrial Support Initiative, provide guidance to the younger generation, and so on. There is a feeling that about two third Members are retired officials and inclusion of young professionals is needed. Therefore, Associate Membership scheme has been started for the students of universities and professional colleges. In a few weeks time, more than 900 students became its members. It is encouraging that public awareness campaign about the peaceful uses of nuclear technology is at full swing through student sessions at various institutions. This initiative is expected to dilute the fear of the word **Nuclear**. Some attractions have been created for the youngsters in the form of cash prizes on essay writing, poster competitions, video clips to promote peaceful applications of nuclear techniques in different areas for the socio-economic development of the country. It will definitely open up new opportunities for young graduates to adopt careers in nuclear sciences and strengthen the process of national policy of indigenization in this field. Moreover, another forum for young scientists, engineers, medical doctors and teachers affiliated with S&T organizations who are members of PNS and are below the age of 35 years has been created in the name of Youth-in-Nuclear (YiN). The activities of Women-in-Nuclear (WiN) are also on the move under the umbrella of PNS and WiN-Pakistan Chapter has been rejuvenated.

## 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 A. Khan**

April 27, 2023

**NORI HOSPITAL AUDITORIUM**  
G-8/3, Islamabad.

## Contact us

**Pakistan Nuclear Society**

PAEC Rest House, Hanna Road,  
Near NORI Hospital, G-8/3, Islamabad

Email: [council@pns.org.pk](mailto:council@pns.org.pk)

URL: <https://pns.org.pk>

YouTube: PNSociety

Ph. No. (+92-51) 8895193 - 8895194

Fax: +92-51-9261823

## Activities during the 1<sup>st</sup> Quarter

### PNS Council 2023-24 Administered

The oath taking of the newly elected Council of the Pakistan Nuclear Society (PNS) for the term 2023-24 was held on 9th January 2023 at IFQ Hotel and Resort, Club Road, Islamabad. A large number of PNS members and their families witnessed the ceremony. Dr. Raja Ali Raza Anwar, *HI, SI*, Chairman Pakistan Atomic Energy Commission (PAEC) took oath from the Council Members. The new team is a blend of young and experienced

**The new team is a blend of young and experienced office bearers who are determined to take up the Society to a level of an international forum for the promotion of peaceful uses of nuclear technology.**

office bearers who are determined to take up the Society to a level of an international forum for the promotion of peaceful uses of nuclear technology. Those who took oath were Dr. Muhammad Tahir Khaleeq, President, Mr. Waqar Ahmad Butt, Vice President, Dr. Muhammad Mohsin,

General Secretary, Mr. Ghulam Sarwar, Finance Secretary and five Executive Members; Prof. Dr. Javed Iqbal Saggu, Mr. Muhammad Abbas Qamar, Ms. Huma Qamar, Ms. Nazia Kashif and Syed Zahid Hussain.



After the formal oath taking, Dr. M. Mohsin presented the Progress Report of the Society and Dr. M. Tahir Khaleeq elaborated about the future initiatives and programmes. The Chief Guest, **Dr. Raja Ali Raza Anwar** in his speech lauded the enhanced activities of PNS for the peaceful uses of nuclear technology. The outreach to



other S&T organizations/universities and to focus on students was well appreciated. He especially mentioned about the quality and contents of PNS quarterly Newsletter. He ensured to provide all possible support for the activities of PNS.

### 2<sup>nd</sup> Meeting of the Administrative Advisory Board

The second meeting of the Administrative Advisory Board (AAB) of Pakistan Nuclear Society (PNS) was held on January 26, 2023 at PAEC Rest House, G-8/3, Islamabad. The members of the Board, Dr. Ansar Parvez, Major General (R) Ahmed Bilal, Mr. Nusrat Mirza, Prof. Dr. Muhammad Mujahid, Prof. Dr. Rubina Farooq, Prof. Dr. Zafar Nawaz Jaspal and Dr. Muhammad Tahir Khaleeq attended the meeting. PNS Council Members participated as observers. Dr. Ansar Parvez, Chairman AAB, in his opening remarks appreciated the efforts of the council and showed satisfaction that PNS established a group comprising of highly senior professionals with decades of technical expertise in various sectors.

Dr. Tahir Khaleeq, President PNS formally welcomed the board members and gave a presentation on PNS activities conducted in the light of suggestions given by the AAB members during the first Board meeting held in July, 2022. He reiterated that PNS has the mandate to promote peaceful applications of nuclear science and technology and allied disciplines for the socio-economic development of the country. He recalled that one of the main objectives of this Board is to enhance the scope from scientists and engineers to personalities in other fields like industry, media, lawyers' community, universities, strategic organizations and foreign affairs for visibility of PNS in these sectors.

**Dr. Ansar Parvez** stressed upon the need to increase communication with not only scientific organizations, but also other public and private sectors. He advised to create a strong connectivity between people from industry, educational institutions and experts working in government organizations. He



suggested that the website of PNS should be made more attractive covering the new initiatives by PNS i.e. Women in Nuclear (WiN), Youth in Nuclear (YiN), Associate Membership etc. He admired the efforts of PNS council particularly for conducting seminars, conferences, symposia etc. and declared that the meeting was quite productive.

**Gen. Ahmad Bilal** emphasized on the dissemination of knowledge about nuclear sciences in the education sector particularly at secondary school level so that the young generation would be attracted to adopt careers in nuclear sciences. He expressed his concern that mathematics which is a key to development of all sciences is being ignored in our education system and urged PNS to highlight its importance at various forums. He strongly supported and asked for more activities of PNS regarding creation of awareness about nuclear sciences and technology through conferences/seminars/symposia etc. He also supported the idea of close connectivity between educational institutes, scientific organizations and industrial sector to promote R&D activities and familiarize with the latest technological advancement in the world.

**Mr. Nusrat Mirza** urged PNS to establish a closer collaboration with private sector organizations by providing technical and scientific expertise in nuclear and other fields. He emphasized that PNS may play a pivotal role in successful implementation of these efforts for making it beneficial for the general public, industries and the agriculture sector. He highlighted that PAEC and other R&D organizations have performed significant research and development work but unfortunately the benefits are not visible to general public. He also mentioned that the activities of PNS regarding utilizing experienced nuclear scientists and engineers (particularly retired persons) would be very beneficial in various industries. Their expertise may be used in private sector organizations as advisors/consultants etc. In his capacity, as a media person, he offered his help for facilitation of connectivity between PNS and other organizations.

**Dr. Rubina Farooq** mentioned that Govt. College Women University Faisalabad (GCWUF) has already created a forum of all the women universities in Pakistan and meetings are held from time to time for discussions/resolution of various issues related to women. PNS forum can be best utilized for broadening the base and sharing the activities of Women in Nuclear (WiN). She promised to extend her full support in the activities of PNS, particularly, for WiN Pakistan chapter. In addition, she mentioned that the facilities available at GCWUF can be utilized for PNS-WiN activities at Faisalabad.

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Nuclear (WiN).**

**Dr. Muhammad Mujahid** presented his viewpoint regarding inclusion of applied subjects in various fields of Science and Engineering with a special emphasis on industrial applications. He mentioned that the experts working in industries can be best utilized to share their experience with university students. He added that Pak-Austria University near Haripur is already utilizing their expertise in the form of courses in the degree programs. This scheme has proved very beneficial results for students and has provided a good connectivity between industry and education sector. He offered his help to PNS regarding provisions of industrial experts and premises for holding seminars, symposia etc. He also mentioned that the research of nuclear scientists in the area of materials can be useful for the persons working in the business of materials.

**Dr. Zafar Iqbal Jaspal** mentioned that the PNS programmes should be made more visible to general public by using the media (print, electronic and social) by inviting more people from other sectors in the events organized by PNS. He also suggested that in the programmes of PNS at agriculture centers, farmers and agriculturists should also be invited and the information regarding new advancement in the field of nuclear agriculture may be provided to them in order to attain full benefits of the latest techniques and research in this area. Such efforts will contribute to boost the economy of the country.

At the end, on behalf of the PNS council, Dr. Tahir Khaleeq thanked the honorable members of AAB for their valuable suggestions and guidance and assured that all possible efforts would be made to implement the suggestion of the Board Members in true letter and spirit. It was also added that PNS council is looking forward for the continued valuable guidance & support of AAB.

### **Seminar on Nuclear Techniques in Agriculture at NIA**

It is encouraging that PNS has been continuously organizing seminars/symposiums/ workshops on current trends/ recent advances in the areas of nuclear applications in agriculture, health, environment, industry, and power generation throughout the country with the aim to play its part in national development. Consequently, PNS organized a one-day seminar on 'Nuclear



Techniques in Agriculture' at the Nuclear Institute of Agriculture (NIA), Tando Jam in Sind province on 27th February 2023. Mr. Waqar Ahmad Butt, Vice President PNS, Mr. Ghulam Sarwar, Finance Secretary and two Executive Members, Mr. Muhammad Abbas Qamar and Syed Zahid Hussain travelled to Tando Jam. Dr. Syed Sarwar Alam also accompanied the group as a speaker.

In the opening session, Dr. Mahboob Ali Sial, Director NIA welcomed PNS delegates from Islamabad as well as the guests from various relevant organizations and universities. Dr. Saima Mir, who is the Focal Person of both PNS as well as Women in Nuclear (WiN) in NIA, performing as Seminar Secretary, elaborated the programme of the day long activity. On behalf of the President PNS, Mr. Waqar A. Butt gave an introduction to PNS and informed about the various programmes and initiatives of the Society. It was followed by the speech of the Chief Guest, Prof. **Dr. Fateh Muhammad Marri**, Vice Chancellor, Sind Agriculture



University, Tando Jam. He appreciated the usefulness of the event and asked for arranging another programme in-collaboration with his university. More than 90 persons attended this seminar.

Three lectures were delivered in the technical session: **Dr. Mahboob Ali Sial** gave details on the ‘Peaceful uses of nuclear techniques in the development of improved crop varieties’.

Recalling the history of the establishment of this first ever nuclear agriculture centre in the country, he gave an overview of the crops developed in that centre. **Dr. Syed Sarwar Alam** presented the ‘Development of improved varieties in crop for disease resistance and yield using radiation and other techniques’ in which he elaborated his 30 years of experience at NIAB. And **Mr. M. Abbas Qamar** explained in detail the ‘International nuclear safety standards and their application to agriculture’ in the light of his experience while working as the Director of Safety at PAEC HQ and at Chashma Site of PAEC. These presentations will be uploaded at PNS website (<https://pns.org.pk>). At the end, Mr. Hafeez ur Rehman Bughio, DCS, Head Plant Breeding and Genetics Division, NIA presented concluding remarks and extended thanks to PNS for holding the important seminar. PAEC provided the logistic support and Pakistan Science Foundation (PSF) provided financial assistance for this event.



## Seminar on Recent Advances in the Management of Differentiated Thyroid Cancer

Pakistan Nuclear Society (PNS) with the collaboration of Larkana Institute of Nuclear Medicine and Radiotherapy (LINAR) organized a one day seminar on “Recent Advances in the Management of Differentiated Thyroid Cancer”. Representatives of PNS, consultant surgeons from Chandka Medical College



The seminar was divided into two sessions (Introductory session & Academic session). In the first session, **Dr. Abdul Samad Shaikh**, Director LINAR gave the welcome address. He warmly welcomed, PNS Council members from Islamabad, guests and all the participants. He presented glimpse of LINAR facilities and all the services provided by hospital in the region. **Mr. Waqar Ahmed Butt** briefly introduced PNS and its activities being performed in the country. He emphasized upon the peaceful uses of nuclear technology for the benefits of mankind. **Dr. Asma shaikh**, Consultant Nuclear Physician LINAR, talked about the objectives, vision and mission of women in nuclear. **Dr. Abdul Khaliq Tunio**, Head of Nuclear Medicine and Allied Division

Teaching Hospital and retired renowned consultant surgeons graced the event as guests. Before start of the seminar, a visit of PNS delegation was conducted to various sections of the hospital. About 70 persons attended the seminar.



LINAR, gave an introductory talk on **Sonological assessment of thyroid nodule**. He explained the characteristics features of benign and malignant nodules and recommended guidelines.

During the academic session, **Dr. Qurat ul ain Bugti**, Consultant General Surgeon talked about the “Surgical management of thyroid goiter and various procedures recommended internationally for thyroid surgeries”. **Dr. Murk Laghari**, Consultant Nuclear Physician, presented “The role of radioactive iodine (I-131) in differentiated thyroid cancer”. **Dr. Hafeezullah Soomro**, Consultant Clinical Oncologist talked about “The role of tyrosine kinase inhibitors in the refractory differentiated thyroid

cancer”. **Dr. K. DAS**, renowned Consultant Surgeon and former Principle of Chandka Medical College, Larkana, was the Chief Guest of the event. In his speech, he appreciated the organizers of the event and briefly talked about differentiated thyroid cancer and elaborated the role of radiations in the management of DTC. Mr. Waqar A. Butt in his concluding remarks appreciated Dr. Abdul Samad Shaikh, Director LINAR, Dr. Aatif Hussain Memon, In-

charge Nuclear Medicine Department, Dr. Riffat Wadho, PNS Focal Person / Consultant Nuclear Physician and LINAR faculty for organizing a well-managed seminar and extended thanks to LINAR management for the nice hospitality. He thanked all the speakers and guests for their active participation. Dr. Irum Naz, Head of Radiotherapy Department, LINAR presented vote of thanks in very attractive words.



### Nuclear Technology - Peaceful Uses: A session at Fatima Jinnah Women University, Rawalpindi

The constitution of PNS mentions about Associate Memberships and Student Memberships, but such memberships could not be matured in the past. The present council has taken it up and within a few weeks, a large number of students from universities and professional colleges became members throughout the country. Consequently, a student session was organized at the Fatima Jinnah Women University (FJWU), Rawalpindi on 13th February 2023. **Prof. Dr. Azra Yasmin**, Chairperson, Department of Biotechnology chaired the session.



The session was started with the recitation from the Holy Quran. The Chair of the session, Dr. Azra in her opening speech, welcomed and thanked the delegates of PNS for organizing the session at the university. Mr. Waqar Ahmad Butt, Vice President PNS gave a presentation on the Applications of Nuclear Techniques in Pakistan elaborating their peaceful and beneficial uses in the field of power generation, industry, health and agriculture. Dr. Muhammad Tahir Khaleeq, President PNS introduced the Society

emphasizing on the new initiatives of Associate and Student Memberships. He informed that the membership is free as long as they remain students in professional colleges and universities. Similarly, the faculty persons can become Lifetime Members by paying a nominal fee. He mentioned many benefits of becoming members of PNS.



Dr. Rakshanda Bilal, former DG Technical PAEC who is also the Member of PNS Scientific Advisory Board made a motivational speech by telling her life long experience of working in different areas of nuclear fields. She introduced Women in Nuclear (WiN) activities in Pakistan. Students were urged to adopt challenging careers in nuclear science and technology to take up the nation at par with other advanced countries. Very fruitful question/answer session was held at the end of the event which was concluded with closing remarks and a vote of thanks by Prof. Dr. Shazia Iftikhar from the Department of Environmental Sciences. The session was moderated by Dr. Naila Safdar who is the Coordinator of PNS in FJWU. About 200 students participated in the event.

**Students were urged to adopt challenging careers in nuclear science and technology to take up the nation at par with other advanced countries.**



### 1<sup>st</sup> National Workshop of ISO-19443 Trainers

Pakistan Nuclear Society (PNS) organized a very productive Train the Trainers Workshop on the need and importance of ISO certification of organizations and industries required to produce quality products. This initiative was proposed and supported by thought provoking minds from some national organizations like Pakistan Atomic Energy Commission (PAEC), Pakistan Nuclear Regulatory Authority (PNRA), Pakistan National Accreditation Council (PNAC) and Certification Services Pakistan (pvt) Limited (CeSP). The workshop was arranged at PAEC Rest House, G-8/3, Islamabad on 8-9 March, 2023. Dr. Anjum Iqbal was the main coordinator of this venture who gathered about 25 participants from various stakeholders. After brief introductions of the speakers, Dr. Anjum elaborated the aims and objectives of the course and future directions. He informed that a series of training programmes will be arranged in which the participants will be invited from relevant organizations throughout the country. **Dr. Abdul Ghani Akram**, Member Technical, PAEC was the Chief Guest of the workshop. During the inaugural session, he highly appreciated holding of such a fruitful programme and stated that such events are essentially required for the nuclear industry in Pakistan as well as other industrial sectors. He reiterated all possible support in such endeavors in future.

In the technical session conducted by Dr. Rizwana Mehboob, Head (CM) PAEC, nine lectures were delivered by experts: “Need

of Sustainable Technical Support for National Nuclear Power Programs/ Plants (NPPs)” by Mr. Muhammad Farooq Awan, Director (QAD) PINSTECH, “Introduction and Need of ISO-19443 based QMS for NPP Technical Support Organizations” by Mr. Zahid Salman, Head (QAC) PAEC, “Audit and Certification Process of ISO-9001/19443 based Quality Management System (QMS)” by Mr. Rashid Hanif Bhutta, Lead Auditor, CeSP, “Culture for Safety” by Mr. Shahbaz Ali Nasir Bhatti, Director (NSD) PNRA, “Safety Culture Self-Assessment” by Mr. Muhammad Sadiq by SPE (NISAS) PNRA, “Graded Approach and Important to Nuclear Safety (ITNS) Items” by Mr. Atif Javed, PE (NSD) PNRA, “International Perspective of Accreditation” by Mr. Azhar Iqbal Director (IL) PNAC, “Supply Chain Management & Provision for Counterfeit, Fraudulent or Suspect (CFS) Items” by Mr. Ahsan Qadeer, PE (NSD) PNRA, “Measurement, Assessment and Improvement” by Mr. Muhammad Ilyas, PE (MED) PNRA. Interactive question answer sessions and round-table discussions were also held to develop National Training Programs for ISO-19443 based QMS. The workshop concluded by preparing a communiqué and nominating focal person from relevant organizations. The focal group will prepare and present a viable work-plan to achieve the objectives.

**Mr. Zia Uddin**, former Member Engineering PAEC, was the Chief Guest in concluding ceremony. He lauded the successful venture



by taking on board all the stakeholders and showed his confidence for the success of future training programmes at national level.

Certificates of participation were awarded to all the attendees and mementos (shields) were presented to the chief Guests.

(Dr. Anjum Iqbal)



## Outreach and Linkages

### Meeting with Federal Minister for Energy

PNS delegation comprising of Dr. M. Tahir Khaleeq, Mr. Waqar A. Butt and Kh. Zahid Shakeel held a meeting with Engr. Khurram Dastgir Khan, Federal Minister for Energy (Power) in his office as a follow up to his participation as Chief Guest in the closing session of PNS International Conference on the Applications of Nuclear Techniques for Sustainable Development conducted during October 2022 in Islamabad. Fruitful discussions were held in an hour long meeting. Various options of producing affordable, reliable and clean energy were considered. Merits and demerits of renewables like solar, wind, hydro etc. were put on the table. Convincing arguments for electricity generation by nuclear power plants came under discussions. Apart from bigger plants of GW range, 4th generation Small Modular Reactors (SMR) and Micro Modular Reactors (MMR) into the energy mix to cater for energy security of the country. The Minister informed about various initiatives and schemes of the present government for producing low cost electricity. However, he emphasized upon indigenization in

**Various options of producing affordable, reliable and clean energy were considered.**

nuclear power production as Pakistan has more than 50 years of experience in this field. He appreciated various activities of PNS for public awareness and knowledge sharing through seminars and conferences. He also lauded PNS programmes of Industrial Support Initiative (ISI) and a Forum for students of professional colleges and universities. He ensured to take up the voice of PNS to higher circles and its representation in relevant committees which are formed by the government for specific purposes as and when needed.



## Meeting with the Coordinator General COMSTECH

Dr. Muhammad Tahir Khaleeq and Mr. Waqar A. Butt made a courtesy call on Prof. Dr. Muhammad Iqbal Choudhary, *H.I, S.I, T.I*, Coordinator General of COMSTECH in his office on 17th January 2023. The aim was to discuss how the linkages and collaboration of PNS with other similar international societies in the Muslim World can be established and enhanced. Dr. Iqbal Choudhary appreciated the initiatives and activities of PNS. He proposed to organize 3-4 seminars/ workshops for OIC countries on capacity building in the fields of agriculture, health, industry and power production as a joint venture. He suggested forming a consortium of Nuclear Societies in other Muslim countries, planning and conducting S&T activities at local and foreign

avenues that could be of help to kick start relationship in Muslim countries. Prof. Khurshid Hasnain, Advisor COMSTECH has been nominated to coordinate these activities. To begin with, it was proposed to organize a two-day workshop on capacity building in the field of nuclear medicine and oncology for OIC members states in Islamabad during the month of May 2023.



## Joining hands with Pakistan National Accreditation Council (PNAC)

To move a step forward in the direction of certification and accreditation of national products specifically for nuclear supply chain, Dr. M. Tahir Khaleeq, President PNS and Mr. Waqar A. Butt, Vice President along with Dr. Anjum Iqbal, GM (Quality) ATCOP/PAEC, met Ms. Ismat Gul Khattak, Director General Pakistan National Accreditation Council (PNAC) in her office. She strongly supported the idea of holding workshops and training courses at national level involving all the stakeholders. Consequently, for detailed discussions and to take practical measure in this direction, she was invited as a special guest in the Planning Meeting of the 1st National Train-the-Trainers Workshop of ISO-19443 at PAEC Rest House, G-8/3, Islamabad. Representatives from PAEC, PNRA, PNAC and Certification

Services of Pakistan (CeSP) were invited to look into the pros and cons of this initiative focusing on the Quality Management System (QMS) of standards. Dr. Anjum who is the coordinator of this programme elaborated the aims and objectives of the workshop and gave a tentative future plans. It was informed that after the two-days workshop in the 2nd week of March 2023, a series of training programmes will be arranged in which the participants from relevant organizations and industries will be invited from all over the country. Ms. Ismat Gul reiterated the importance of this venture and ensured all possible help especially the provision of resource persons from PNAC and recognition at government level.



## Excel Lab to facilitate PNS Community

PNS is trying to get maximum benefits and privileges for its members and their families from different hotels, restaurants, outlets, service providers etc. Consequently, the Managing Director of Excel Labs, Mr. Kamal Khan Afridi visited PNS Office on 26th January 2023 and signed an agreement under which 20-25% discounts on all tests would be given to PNS

Members and their families throughout Pakistan. It is worth to mention that Excel Lab has 140 branches in different cities of the country. PNS Members can claim discount by showing their PNS Membership Card. The copy of the agreement is displaced for ready reference at PNS website. Dr. Javed Iqbal Saggi, the newly elected Executive Member of PNS Council played a pivotal role in this MoU.

## Islamabad Chamber of Commerce to support PNS Initiatives

Since the establishment of linkages with Engineering Development Board (EDB) of the Ministry of Industries, efforts are being made



at all possible forums to utilize the expertise of scientists, engineers and technologists having lifelong experiences in various S&T fields. Consequently, a meeting was arranged with Mr. Maqsood Tabish, Member Executive, ICCI at the Islamabad Chamber of Commerce. Dr. M. Tahir Khaleeq, Mr. Waqar A. Butt and Kh. Zahid Shakeel from PNS participated in the meeting. Various proposals for making benefits from the experienced professionals were discussed seeking viable solutions. The envisioned project of PNS for value addition in gemstones by nuclear techniques gathered the attraction of the host who ensured to establish contact with the relevant persons involved in export of such precious stones.

## PNS Public Awareness Programme

### Current trends in Nuclear Research & Technology at Islamia University Bahawalpur (IUB)

The dedicated efforts of Prof. Dr. Faisal Iqbal, Coordinator of PNS at the Islamia University of Bahawalpur (IUB) and two students Muhammad Amjad Rashid and Khadjia Manzoor, Focal Persons of PNS have resulted into the maximum number of Associate Members in any university of Pakistan. Consequently, a seminar 'Introduction to Current Trends in Nuclear Research & Technology' was jointly organized by PNS and the Institute of Physics (IOP) at the main auditorium of the Faculty of Sciences on 1st March 2023. The session was attended by about 300 students from various science departments. The main purpose of the seminar was to create awareness about the peaceful use of nuclear energy and its applications in various fields.

The session was attended by about 300 students from various science departments. The main purpose of the seminar was to create awareness about the peaceful use of nuclear energy and its applications in various fields.



Dr. Faisal Mukhtar from IOP coordinated the programme. Aylah Khan took up the responsibility as Stage Secretary. After recitation from the Holy Quran by Masroor Khan and Naat sharif by Aleeza

Shaukat, Mr. Ghulam Sarwar, Finance Secretary presented the introduction of the Society on behalf of the President PNS. He also counted the potential benefits of becoming Associate Members. Mr. Waqar Ahmad Butt, Vice President PNS, gave an elaborated talk on the peaceful uses of Nuclear Technology in Pakistan and shared his lifelong experience and knowledge from nuclear power to industry, health, agriculture, hi-tech research and human resource development. He lauded the efforts of scientists and engineers who made Pakistan the 7th nuclear power in the world. Mr. Muhammad Abbas Qamar, Executive Members PNS, in his talk provided information about nuclear radiation and its effects on human health.



Prof. Dr. Saeed Ahmed Buzdar, Dean Faculty of Physical and Mathematical Sciences thanked the organizers for hosting such an informative seminar at the university. He highlighted the importance of nuclear research and technology in the current global scenario and how it can benefit society in various fields. In his closing remarks, Amjad Rasheed expressed his views that the attendees enjoyed the opportunity to connect with like-minded individuals and the Society has provided a platform for students to learn from professionals and experts. As a gesture of goodwill, PNS Souvenir (a keychain) was given to all the students and a memento to the Director of IOP.

## Awareness session with the Students at Bahauddin Zakria University (BZU), Multan

PNS Delegation visited Bahauddin Zakria University (BZU), Multan on 2nd March 2023 to conduct a general session with students of various science and engineering disciplines. This fascinating programme was arranged and coordinated by Dr. Aamir Bashir, Professor at the Institute of Physics. Just before start of the formal presentations, Prof. Dr. Javed Ahmad, Director, Institute of Physics (IOP) and his colleagues welcomed PNS delegation and held an introductory meeting with the faculty of IOP.



Mr. Ghulam Sarwar, Finance Secretary introduced the Society on behalf of the President PNS. Mr. Waqar Ahmad Butt, in his talk showed historical photos of some milestones in the history of atomic energy. A presentation was delivered on

the applications of Nuclear Technology in Pakistan covering many areas in which nuclear techniques are playing pivotal role for the socio-economic development of the country with emphasis on nuclear power production. The students showed keen interest in the awareness session and asked meaningful questions which were properly addressed. They were excited to become Associate Members of PNS. After the student session, a meeting was arranged with the faculty members

The presentation was on the applications of Nuclear Technology in Pakistan covering many areas in which nuclear techniques are playing pivotal role for the socio-economic development of the country with emphasis on nuclear power production.

of IOP in which various activities of PNS were discussed in detail. Dr. Javed and his colleagues showed their interest to become part of PNS community and asked for a full day seminar at BZU. Around 100 students attended the session.



## Meeting with Students' Focal Persons to set future Activities

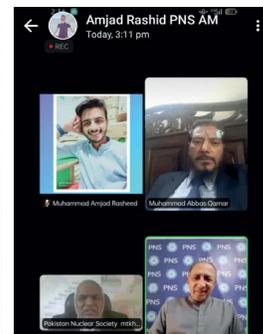
Initiating the process of Associate Membership for students of universities and professional colleges related to science, engineering, and Medical disciplines is a major milestones in the history of PNS. It is a matter of great satisfaction that within a few weeks, more than 900 students from 45 universities enrolled themselves. Focal persons (FPs), one male and one female student have been designated in the institutions having a sizable number of members. A meeting of FPs from the universities in and around Islamabad was held at PNS Secretariat on 11th March 2023 which was attended by 16 FPs and 6 Council Members. Dr. M.

It is a matter of great satisfaction that within a few weeks, more than 900 students from 45 universities enrolled themselves.

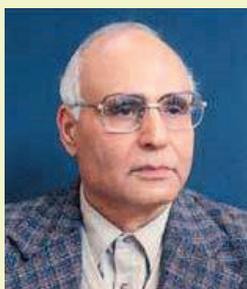
Tahir Khaleeq, President formally introduced PNS and elaborated the importance of Associate Membership. He shared numerous benefits of joining this fruitful scheme including assistance in selecting and initiating projects, guidance about adopting professional careers and counseling in pursuing higher studies. He further added that, PNS provided free access to nuclear-related webinars, online courses, and discussions, allowing members to stay up-to-date with the latest developments and advancements in the field of nuclear technology and allied sciences. Additionally, he informed that PNS organizes various competitions, such as article writing, poster presentations and making video clips, to encourage participation and foster creativity among members. It was followed by thought provoking questions by the students which were well taken by the Council Members. Some future activities were also discussed.

Another meeting with FPs from other cities was arranged on 18th March through zoom link. Very encouragingly, 70 students and 4 PNS Council Members joined that meeting which lasted for more

than an hour. The students gave good suggestions and proposed some future programmes. Some clarifications and queries were addressed by the Council Members.



## Renowned National Scientists



### Dr. Naeem A. Khan, S.I

Dr. Naeem Ahmad Khan, a highly accomplished nuclear scientist of the Pakistan Atomic Energy Commission (PAEC) was born on April 12, 1928 in Village Kot Abdul Khaliq of District Hoshiarpur (East Punjab), India. He received his early education from Anglo Arabic School, Delhi and BA (Hon's) in Mathematics from the famous St. Stephen's College, University of Delhi, India in 1946; MA (Mathematics) from Sindh University in 1950; M.Sc. (Physics) from Karachi University in 1955; and PhD from University of Manchester, UK in 1958.

Before partition of India, Dr. Naeem joined the Indian Meteorological Department as Professional Assistant (July 1946 - Aug. 1947). When the Hindu-Muslim riots started, he migrated along with his family from Delhi to Karachi and joined the Pakistan Meteorological Department. In 1951 he rendered services in Pakistan Air Force but after 5 years he returned to his parent department. His professional career with the PAEC started in 1961 when Dr. I. H. Usmani, (then Chairman PAEC) selected him as Senior Scientific Officer. Following this, he served at various key positions in the Commission: Head Nuclear Physics, Director Atomic Energy Mineral Centre, Lahore, Director Pakistan Institute of Nuclear Science & Technology (PINSTECH), Islamabad, Director IA & Training, Director Research and then Secretary (PAEC) at PAEC H.Q. Islamabad. In 1977 he again assumed the charge of Director PINSTECH and retired as Chief Scientist in 1986. Towards the end of his professional career with PAEC, Dr. Naeem was appointed as Chairman, Pakistan Council of Scientific and Industrial Research (PCSIR) from 1984-1989. Finally, in 1989, he earned the honour of being appointed as Advisor (Technical) in the OIC Standing Committee on Scientific & Technical Cooperation (COMSTECH) where he served for seven years.

Dr. Naeem Ahmad Khan was a scientist of great integrity and a strong administrator with utmost devotion to his duties. In his nine years services as Director PINSTECH, he made significant contributions to the development of PINSTECH and played a pivotal role both in the up-gradation and strengthening of PINSTECH research laboratories and its human resource for state-of-the-art innovative research outputs. He played a pivotal role in the development of key nuclear R&D facilities by providing trained manpower to PAEC projects from the pool of trained scientific and technical manpower at PINSTECH. He had more than 100 scientific publications, 69 scientific reports and 28 general articles to his credit. Five PAEC scientists earned their PhD from the University of The Punjab, Lahore under his supervision.

Based on his excellent research work in the field of nuclear physics, Dr. Khan was elected as Fellow: Physical Society London; Post-Doctoral Fellow, Atomic Energy Research Establishment, Harwell, England; Research Fellow at Bartol Research Foundation of Franklin Institute, Philadelphia, USA; Founding Fellow of the World Islamic Academy of Sciences-IAS (1986); Fellow of Pakistan Academy, Member National Economic Board; National Commission on Electronics; National Commission for Science and Technology and National Scientific Research and Development Board. In the year 1992, the Pakistan Academy of Sciences awarded him Gold Medal in the field of Physics. In the year 2000, the Government of Pakistan conferred upon him the prestigious Civil Award "Sitara-i-Imtiaz" in recognition of his outstanding contributions.

Dr. Naeem Ahmad Khan left this world on 29th September 2013 for his heavenly abode. Indeed, he was a legendary leader in science. He will be greatly missed by his colleagues and fellow scientists in Pakistan and in the Islamic World. May God bless his soul with peace and tranquility in the heavens (Ameen).

(Dr. Riffat Mahmood Qureshi)

## A Historical Photo



From left to right: Just after the award of Nobel Prize, Prof. Abdus Salam paid a visit to PINSTECH. Dr. Ishfaq Ahmad, then Member Technical, Mr. Munir Ahmad Khan, then Chairman PAEC and Dr. Naeem Ahmad Khan, then Director PINSTECH are in the picture.

## Nuclear News and Views

### International

#### Why Water-Cooled SMRs will win the New Nuclear Competition

*Jeff McMahon*

January 13, 2023

Alfredo Caro, a research professor at the George Washington University said, “Nuclear power has a future and it will likely be in small modular water cooled reactors. There are plenty of technologies; about 50 designs and concepts under development include models cooled by sodium, lead, gas or molten salt. The one that gets a financially viable equation, it will capture the entire market”. The economic advantages of Small Modular Reactors (SMRs) are often cited: factory produced and shipped to installation sites, they may avoid the regulatory labyrinths, cost

overruns and construction delays that plague traditional reactor projects. Nuclear by far is the safest way to produce electricity but the greater obstacle is initial investment cost which is much higher than other renewables. History tells us that in the 60s and 70s when the current nuclear technology was developed, all the options from Generation IV were tested, and the water-cooled reactor came as the winner because it was the cheapest and has something like 20,000 reactor years of operational experience as well as the fuel for those reactors.

<https://www.forbes.com/sites/jeffmcmahon/2023/01/13/why-water-cooled-smrs-will-win-the-new-nuclear-competition/?sh=1ef047771b73>

### Team uses muography to create 3D image of reactor

*World Nuclear News*

February 07, 2023

Researchers at the French Alternative Energies and Atomic Energy Commission (CEA) have used muons - cosmic particles - to remotely and non-invasively create a 3D image of the G2 reactor at Marcoule, France, which is undergoing decommissioning. Muons are high-energy subatomic particles that are created when cosmic rays enter Earth's upper atmosphere. These particles naturally and harmlessly strike the Earth's surface at a rate of some 10,000 muons per square meter per minute. Muon tracking devices detect and track these particles as they pass through objects. Muon imaging, or muography, can reveal the inside of the deepest structures and provide direct images like a penetrating photography. The technology has already been used to investigate several Egyptian pyramids to discover cavities hidden within their walls. "The first challenge in adapting muography to a dismantling project is that, compared to a stone pyramid with simple geometry, there are more than 20,000 components in a reactor," said Hector Gomez-Maluenda, a researcher at

CEA. The team began by making two major adjustments to the process used by prior groups: more detectors were required and the software used to stitch all the imagery generated from a large number of detectors needed improvement. The team combined 27 projections from four telescopes to derive the density map without any prior information on the reactor internal structure. The 3D reconstruction of the reactor was completed in March 2022. "Despite its complexity and large dimensions, the reactor could be imaged in a relatively short time, with reasonably good-quality reconstruction being achieved with only a few days in each projection," the researchers said. "Although anticipated from the simulation, the analysis confirmed that only a limited number of projections are enough to visualize and localize the main elements of the reactor. These conclusions open up new perspectives for the inspection and monitoring of nuclear sites over their entire operating lifetime as in their decommissioning phase, thus contributing to nuclear safety."

## National

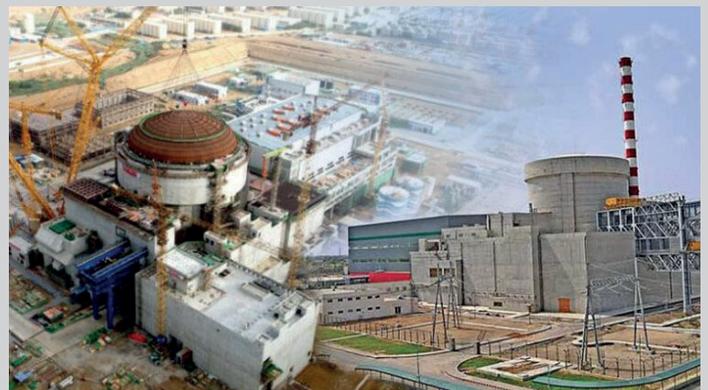
### PM Inaugurates Third Unit of Karachi Nuclear Power Plant

*Technology Times*

February 10, 2023

The Prime Minister of Pakistan, Mian Shahbaz Sharif officially inaugurated the third unit of the 1.1 GW Karachi Nuclear Power Plant (K-3). According to report, the Karachi Nuclear Power Plant, which cost \$2.7 billion to build, will help Pakistan's ongoing energy crisis. The facility will provide power to the national grid. The Plant was constructed with assistance from the Chinese government as part of the China-Pakistan Economic Corridor (CPEC) initiative, making it the 2nd Hualong-1 reactor to be installed at KANUPP site.

"Pakistan immensely needs clean and affordable energy sources, whether they come from nuclear power, hydropower, or other renewable sources", the prime minister said. He further stated that although the nation has the ability to generate 60 GW of electricity from hydroelectric resources, only 10 GW in the current energy mix comes from these sources. Pakistan is currently negotiating an increase in energy prices with the International Monetary Fund (IMF) in exchange for financial assistance. With the signing of the "Agreement for Cooperation in Peaceful Uses of Nuclear Energy" in 1986, China and Pakistan began working together



on nuclear energy projects. A contract to construct and install a 325 MW Pressurized Water Reactor (PWR) at Chashma was subsequently signed by the two countries in 1991. A separate agreement for the construction of two nuclear power plants in Karachi, each with a capacity of 1.1 GW, was signed in 2013. The construction of nuclear reactors K-2 and K-3 started in 2015 and 2016, respectively.

## Nuclear energy becomes top electricity source for Pakistan

*The News*

January 20, 2023

Nuclear energy became Pakistan's top power source for the first time, as it met over 27 percent of the country's energy demand in December 2022 at a cost of less than half a US cent. In November too, nuclear generation was the top source after hydropower. Nuclear sources contributed 2,338 GWh of electricity to the national grid. Pakistan has been actively pursuing the plan to increase the share of cleaner energy sources in its energy mix, as carbon-based power, especially oil and gas not only affect the environment but are also expensive. Each year, Pakistan spends multi-billion dollars on the import of fossil fuels. In December, out of the total price of electricity generated from all sources, the share of nuclear energy was 27.15 percent (or 2,284.8 GWh)

generated at Rs.1.073/unit, followed by hydro with 20.44 percent (1,720.4 GWh), coal-based power 18.1 percent (1,520.9 GWh) at Rs.11.5/unit, natural gas 15.13 percent (1,273.8 GWh) at Rs.10.5/unit, RLNG 13.7 percent (1,153.7 GWh) at Rs.20.2/unit. Besides, 0.46 percent (38.91 GWh) of expensive electricity was generated from furnace oil during December at Rs.25.7971/unit. No electricity was generated from high-speed diesel. Wind power contributed 2.5 percent (or 211.6 GWh) of electricity to the national grid, and Bagasse-based power was 1.2 percent (101 GWh) at Rs.5.97/unit, while solar-based energy's contribution was 0.8 percent or 69.5GWh in December 2022.

## DG IAEA inaugurated Cyber Knife at NORI

*Press Release-PAEC*

Islamabad, February 15, 2023

Mr. Rafael Mariano Grossi, Director General (DG) of the International Atomic Energy Agency (IAEA) arrived in Pakistan on two-day official visit to discuss matters related to Pakistan-IAEA collaboration. At the outset of his visit, Mr. Grossi inaugurated the latest Cyber Knife facility at PAEC's flagship cancer-care hospital in the capital named Nuclear Medicine, Oncology & Radiotherapy Institute (NORI). With the inauguration of this facility, NORI became the first public sector cancer hospital of the country to provide cyber knife treatment. During his visit to NORI hospital, he was taken to various departments and facilities. He appreciated the services of PAEC cancer hospitals in diagnosis and treatment of cancer in line with the IAEA's 'Rays of Hope' initiative that focuses on prioritizing a limited number of high-impact, cost-effective and sustainable interventions in line with national needs and commitment. The honorable guest highlighted the IAEA's assistance in strengthening cancer hospitals in developing countries to provide treatment to patients at par with international standards. The guest was also briefed about the role of PAEC's 19 cancer hospitals established in all provinces of Pakistan that are shouldering the responsibility of diagnosing and treating over 80% of the country's cancer-affected patients in line with the IAEA's slogan – 'Cancer Care for All'. Later, DG IAEA visited Pakistan

Institute of Nuclear Science and Technology (PINSTECH) to see various laboratories including isotope hydrology lab and isotope production facility that is supplying radiopharmaceutical kits for cancer patients throughout the country.

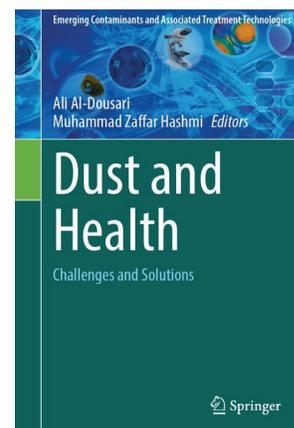


## News About PNS Members

### A book on Environmental Pollution

Dr. Zaffar Hashmi, Assistant Professor at the Chemistry Department of COMSATS University, Islamabad and a Lifetime Member of PNS has co-authored the book entitled ‘Dust and Health: Challenges and Solutions’ published by Springer. The book is a part of the series ‘Emerging Contaminants and Associated Treatment Technologies’. It contains Emerging Contaminants and Associated Treatment Technologies focuses on contaminant matrices (air, land, water, soil, sediment), the nature of pollutants (emerging, well-known, persistent, e-waste, nanomaterials, etc.), health effects (toxicology, occupational health, infectious diseases, cancer), treatment technologies (bioremediation, sustainable waste management, low cost technologies), and issues related to economic development and policy. The book series includes current, comprehensive texts on critical national and regional environmental issues of emerging contaminants useful to scientists in academia, industry, planners, policy makers

and governments from diverse disciplines. The knowledge captured in this series will assist in understanding, maintaining and improving the biosphere in which we live. The scope of the series includes monographs, professional books and graduate textbooks, edited volumes and books devoted to supporting education on environmental pollution at the graduate and post-graduate level.



### Participation in WiN Activities

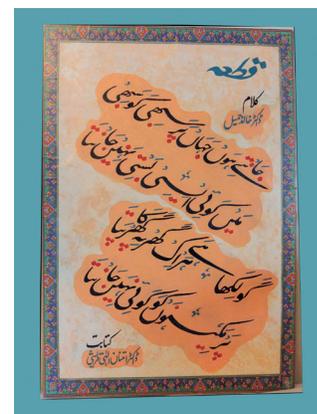
Upon the invitation from Women in Nuclear (WiN) Global, Dr. Khalida Gill, former Vice President Pakistan Nuclear Society (PNS) who has been the President of WiN-Pakistan in the past, participated in the panel discussion on ‘Supporting Nuclear Science and Technology Education at the Secondary and Tertiary Level’. The session was organized by the IAEA Division of Technical Cooperation for Asia and the Pacific in collaboration with WiN under 2023 Nuclear Science and Technology Exhibition.

In the virtual discussion which took place on 9th February, she talked about some of the main obstacles that women experience in the nuclear sector and how WiN PAK is trying to strengthen the capacities of active and equal participation of women in the nuclear field. She also mentioned the efforts of WiN PAK to promote capacity building and sustainable initiatives for various actions by organizing seminars, symposia and conferences with the cooperation of PNS.

### Good Pass of Time

After long professional association with science and technology, some PAEC scientists turn their attention to art and literature after retirement. Two retired PINSTECH physicists having several joint research publications in the field of solid-state nuclear track detectors are now engaged in poetry and calligraphy. Their ‘joint publication’ in the form of poetry by Dr. Khalid Jamil and calligraphy by Dr. Imtihan Elahi Qureshi, former President PNS, is shown here for the amusement of PNS members. It is worth mentioning that Dr. Khalid Jamil is now settled in USA and has been producing YouTube videos in which he recites his excellent poetry in remarkably melodious voice. Dr. Imtihan Qureshi has also been regularly producing calligraphic art. Two

of his calligraphic paintings were donated to PNS, which now adorn the offices of PNS in Islamabad.



## Obituaries

### Dr. Ejaz Ahmad



Dr. Ejaz Ahmad was born on 8th October 1959 in Sahiwal. After doing B.Sc Metallurgy from University of Engineering & Technology (UET), Lahore, he went to UK to pursue higher studies. After completion of M.Sc Metallurgy from Manchester University, he continued studies and did his Ph.D from the same university. Dr. Ejaz returned to Pakistan in September 1990 and joined PAEC as Senior Engineer in the Nuclear Materials Division of PINSTECH. On recognition of his services, the Government of Pakistan sponsored his

Post Doctorate research from Manchester University, United Kingdom in 2001. Furthermore, after Post Doctorate, he resumed his job in the same Division and rendered his services with full devotion. He remained humble and kept friendly attitude with his colleagues and subordinates throughout his career. Dr. Ejaz retired from PAEC as Chief Engineer in October 2019. And after 3 years of his retirement, he passed away on 31st December 2022 and was buried in Islamabad.

*May Allah almighty bless him with highest rank in Jannah. Ameen*

(Ch.Osama Ejaz, son)

## Recalling the Old Memories

### PNS Council - 2003



From left to right: Mirza Amanat Ali (Late), Mr. Shah M. Tanweeruddin, Mr. M. Ijaz, Dr. Iqbal H. Qureshi (Late), Dr. Ishfaq Ahmad (Late), Dr. Khalida Akhtar Gill, Mr. Zaheer Ayub Baig, Mr. S.D. Orfi and Mr. Shoaib Akhtar

## Social Events

### Entertainment and Dinner for PNS families

After the oath taking ceremony of PNS Council 2023-24 on 9th January and subsequent speeches of General Secretary PNS, President PNS and Chairman PAEC who was the Chief Guest on that occasion, PNS members and their families enjoyed a social event comprised of poetry, jokes and songs. Mr. Aamir Hashmi, a well-known anchor person of TV shows and the senior most newscaster of Radio Pakistan was especially invited for compering. He opened the programme with nice jokes and a splendid piece of poetry. As the event was supported by live music, Mr. Hashmi introduced the group who played *Rubab*, *Tabla* and *Harmonium*.

The first performance was by a school girl, Arfa Zainab, daughter of Dr. M. Aamir Hafeez, a Lifetime Member of PNS. She presented Kalam-e-Iqbal in a very thrilling and energetic voice for which she was very much praised by the audience. After that Dr. Hamid Saleem, an eminent physicist and an authentic poet was invited to entertain the audience with his unique poetry.

Another poet, Mr. Ahmad Raza Hanjra, who especially came from Lahore to participate in the event, recited nazams and ghazals that were much applauded by the participants. Engr. Farrukh Abbas, a Member of PNS presented a national song and then on the request of the audience, he presented another song in a melodious voice. The audiences contented and admired him with big hands. Dr. Shaukat Hameed Khan, a very senior scientist also recalled some interesting incidences of his student life.

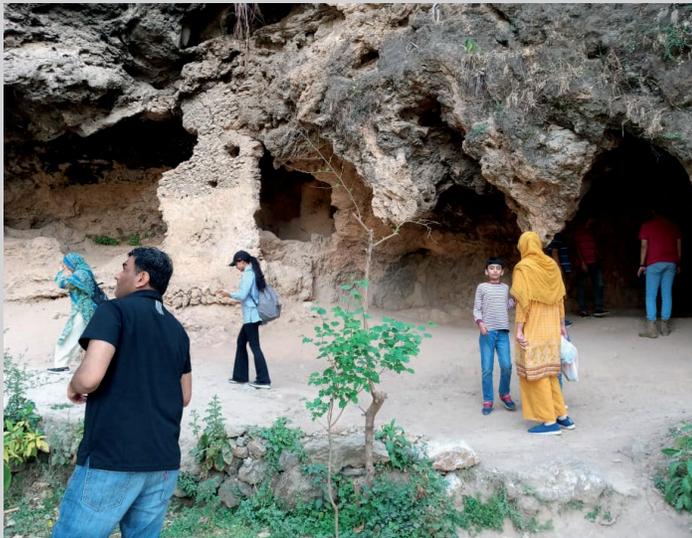
In the end, Mr. Aamir Hashmi concluded the event with some interesting jokes and appreciated the audience for their support and encouragement of the presenters. Finally, Mr. Waqar A. Butt, thanked the organizers, presenters, musical group and the audience for participation in such a colorful and wonderful gathering. Annual dinner was served at the end of the show.

(M. Abbas Qamar)



## A Short Hike/Picnic of PNS Family & Friends

The 1<sup>st</sup> hike cum picnic of 2023 for the families and friends of PNS members, was arranged on Sunday, March 12, 2023. A new spot was sorted instead of the traditional to and fro on Trail-5 in Margalla hills. This time it was on Trail-7. A private coach was hired for this purpose that took the participants from PNS Office to the starting point of the hike. Keeping in view of the relative tough and long distance, the hike started from Shah Allah Ditta top after a short visit to the old caves of Budaha's era on the way.



The track terminated at Ghram Thoan covering a distance of 6-7 km. The participants then travelled to Khanpur Dam where they enjoy delicious lunch in a restaurant on the other side of the lake. As per usual practice, all arrangements of transport, restaurant booking and meals/special tea were made by Syed Zahid Hussain, Executive Member PNS who happily takes up the whole responsibility voluntarily.



## PNS Calendar of Activities- 2023

Date	Activity	Title	Coordinator(s)
Jan 26	Meeting	<b>2<sup>nd</sup> meeting of the Administrative Advisory Board</b> at PAEC Rest House, Islamabad	Dr. M. Tahir Khaleeq
Feb 13	Special Session	<b>Women in Nuclear (WiN)/ Associate Membership for students</b> at Fatima Jinnah Women University, Rawalpindi	Dr. M. Tahir Khaleeq Dr. Rakshanda Bilal
Feb 27	Seminar	<b>Nuclear Techniques in Agriculture</b> at Nuclear Institute of Agriculture (NIA), Tando Jam	Dir. NIA Dr. Saima Mir
Feb 28	Symposium	<b>Latest Techniques and practices in Cancer Management</b> at LINAR, Larkana	Dir. LINAR Dr. Riffat Wadho
March 01	Students Session	<b>Current trends in Nuclear Research &amp; Technology</b> at Islamia University, Bahawalpur	Mr. Waqar A. Butt Mr. M. Abbas Qamar
March 02	Students Session	<b>Peaceful uses of Nuclear Technology</b> in Pakistan at Bahauddin Zakariya University, Multan	Mr. Waqar A. Butt
March 12	Recreational	<b>Short hike/ Picnic</b> , Trail-7/Shah Allah Ditta/ Khanpur Dam	Syed Zahid Hussain
April 27	Memorial	<b>Tribute to Mr. Munir Ahamd Khan</b> at NORI Auditorium, Islamabad	Mr. Waqar A. Butt
April 30	Social Event	<b>Eid Milan Party of PNS Members and their Families</b> at PAEC Rest House, Islamabad	Ghulam Sarwar Syed Zahid Hussain
May 03	Seminar	<b>Operational Safety Management at NPPs</b> at Chashma Nuclear Power Plant, Kundian	Mr. M. Abbas Qamar Engr. Tanveer ul Haq
May 20	Students Convention	<b>Interaction with Scientists for Peaceful Uses of Nuclear Technology</b> at NORI Auditorium, Islamabad	Dr. M. Tahir Khaleeq Mr. Waqar A. Butt
May 29	Seminar	<b>Advances in Cancer Diagnostic and Therapy</b> at CENAR, Quetta	Dir. CENAR
June 05	Workshop	<b>Nano-technology and its applications</b> at NUST, Islamabad	Dr. Javed Iqbal Saggu
June 19	Symposium	<b>Update on Nuclear Medicine and Radiotherapy</b> at SINOR, Swat	Dir. SINOR
June 26	Workshop	<b>HRD – Capacity Building</b> at PIEAS, Islamabad	Dr. Muhammad Mohsin
July 03	Symposium	<b>Artificial Intelligence for Safety of Nuclear Systems</b> at PNRA HQ, Islamabad	Ms. Huma Qamar
July 25	Seminar	<b>Small Modular Reactors (SMR) and Micro Modular Reactor (MMR)</b> at KCP, Khushab	Mr. M. Abbas Qamar Kh. Zahid Shakeel
Aug 15	Seminar	<b>Role of Environment Management in Safety of NPPs</b> at K2, Karachi	Mr. M. Abbas Qamar Syed Imran Shah
Aug 16	Seminar	<b>Water Desalination by Nuclear Techniques</b> at KINPOE, Karachi	Engr. Waqar Murtaza Butt
Aug 17	Seminar	<b>Advances in Nuclear Medicine and Oncology</b> at KIRAN, Karachi	Dr. Shazia Fatima
Sept 08-11	Recreational	<b>PNS Families Trip</b> to Kashmir valley	Syed Zahid Hussain Waqar A. Butt
Sept 18-19	Workshop	<b>Capacity Building in Nuclear Medicine and Oncology in OIC countries</b> at COMSTECH, Islamabad	Dr. Khurshid Hasanain Dr. Shazia Fatima
Oct 10	Memorial	<b>Tribute to Dr. A.Q. Khan</b> at Pakistan Academy of Sciences (Joint activity with KRL and PAS)	Mr. Waqar A. Butt
Oct 24	Workshop	<b>Radioactive Waste Management at Nuclear Facilities</b> at CPC, D.G. Khan	Mr. M. Abbas Qamar
Nov 13-14	Workshop	<b>Applications of Nuclear techniques in Energy Sector in OIC countries</b> at COMSTECH	Dr. Khurshid Hasanain Dr. Muhammad Mohsin
Nov 25	Recreational	<b>A short hike</b> on Trail-4, Margalla Hills, Islamabad	Syed Zahid Hussain
Dec 04	Seminar	<b>Fusion energy</b> at National Centre of Physics (NCP)/QAU	Dr. Javed Iqbal Saggu



## Privileges for PNS Member

1. Growing professional circle by strengthening connections with peers in relevant fields
2. Sharing specialist knowledge, insight and expertise by becoming a part of the elite forum
3. Enhance knowledge of current issues, challenges and opportunities in nuclear S&T
4. Counseling/guidance to young scientists/engineers in their professional careers
5. Help to science/engineering graduates in pursuits of their higher studies
6. Free access to nuclear related webinars, online courses and discussions to share views
7. Group visits at various S&T organizations/universities
8. Free e-copy of quarterly PNS Newsletter
9. A Membership Certificate and a Card with a photo
10. Special discounts at various outlets, hotels, restaurants, shops, hospitals, Labs 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. Subsidized recreational programmes like family picnic/hikes, trip to Northern areas, etc.
16. Registration/Lifetime Membership Fee is only Rs. 2,100/-.
17. No fee for Associate Members / Students

Membership Form is available at [www.pns.org.pk](http://www.pns.org.pk) (Form can be submitted online)  
Fee can also be deposited online in PNS Bank Account at NBP, Margalla Br. Islamabad  
IBAN: **PK18NBPA1725004018982691**

### Discounts can be availed at the followings:

- Excel Labs, throughout the country
- Tanweer Optical, Melody, G-6/2, Islamabad
- Fitfiction Gym, F-8 & Body Fit Gym, G-11, Islamabad
- Bar B Q Tonight, Blue Area, Islamabad
- Jahangir Restaurant, Blue Area, Islamabad
- Rumba Cafe and Rumba Meat Factory, Bharia Town/ F6 Markaz, Islamabad
- Baltistan Continental Hotel & Family Guest House, Skardu
- Indus Lodges, Gilgit
- Park Hotel, Gilgit
- Mulberry Hotel, Hunza
- Memories Resort, Kalam

Detail are given at PNS Website <https://pns.org.pk>



Issue 10/2023

April-June, 2023

# PNS Newsletter

Nuclear for Peace

A Quarterly Newsletter of the Pakistan Nuclear Society

#### Patron:

Dr. Muhammad Tahir Khaleeq

#### Editor-in-Chief:

Mr. Waqar Ahmad Butt

#### Editors:

Dr. Muhammad Sadiq

Dr. Riffat M. Qureshi

Dr. M. Javed Akhtar

Mr. M. Abbas Qamar

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## From the desk of Editor-in-Chief

The main objective of PNS 'to promote peaceful uses of nuclear technology' has been widened manifold with the initiative of Associate Membership for university students. It is very encouraging that more than 1300 students have become Associate Members up till now. Many of them are continuously keeping contacts with Council Members and are actively involved in PNS activities and programmes.

Awareness sessions were held at national universities in Bahawalpur, Multan, Quetta, Mianwali and Swat which were attended by a large number of students, faculty staff and other participants. A Student Convention took place in Islamabad to enable direct interaction of young scholars with experienced nuclear scientists and engineers. A significant number of students from various universities and professional colleges participated in this event and raised some very important questions.

Article writing and speech competitions (via short videos) were also held. A creative activity has been launched under which proposals regarding **Innovative Ideas in Science and Technology** are invited for socio-economic development of the country. Efforts are being made to manage internships for students during their studies. Guidance for higher studies and counselling for their future careers has also been provided. PNS Members, especially the retired seniors, are requested to spare some time to help the students in their academic pursuits.

Women in Nuclear (WiN) Pakistan Chapter has also been reactivated. It is intended to have closer linkages with WiN Global for organizing some international activities in Pakistan. A formal structure of office bearers, as per requirement of WiN Global, is being formulated through electronic voting of WiN-Pak members. A calendar of activities will be prepared after completion of this process in July 2023.

Some more privileges for PNS Members are being sought at various hotels, restaurants, hospitals/Labs, outlet stores etc. across the country. The list is placed at the end of this newsletter as well as on PNS website.

## 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 workshop on  
Advances in Nuclear Medicine  
and its applications  
September 19-20, 2023*

COMSTECH Secretariat  
ISLAMABAD

## Contact:

### Pakistan Nuclear Society

PAEC Rest House, Hanna Road,  
Near NORI Hospital, G-8/3, Islamabad

Email: [council@pns.org.pk](mailto:council@pns.org.pk)

URL: <https://pns.org.pk>

YouTube: PNSociety

Facebook: [pakistan.nuclear.society](https://www.facebook.com/pakistan.nuclear.society)  
Ph. No. (+92-51) 8895193 - 8895194

Fax: +92-51-9261823

## Activities during the 2<sup>nd</sup> Quarter

### A tribute to Mr. Munir Ahmad Khan

PNS is continuing to remember the heroes who dedicatedly and selflessly played crucial role to make Pakistan a Nuclear State. One such hero is Mr. Munir Ahmad Khan, former Chairman PAEC. A memorial reference was held to pay tribute to him on 25<sup>th</sup> May, 2023 at NORI Hospital Auditorium, G-8/3, Islamabad. A large number of young and senior scientists, engineers, technologists and people from different walks of life gathered to listen about the initiatives taken by the legendary leader. It encompasses the unbelievable achievements that PAEC made during his longest tenure as Chairman. Worth mentioning is the cold test performed in 1983.

The programme started with recitation from The Holy Quran. Dr. Muhammad Tahir Khaleeq, President PNS briefly introduced the Pakistan Nuclear Society (PNS) and described various activities being performed by PNS all around the country focusing on the peaceful uses of nuclear technology. Mr. Waqar Ahmad Butt, Vice President PNS presented a historical introduction of Mr. Munir A. Khan briefly covering his academic and professional life and highlighted the significant achievements that led the country to become 7<sup>th</sup> Nuclear Power of the world. *Fatiha* was offered not only for Mr. Khan but also for those PNS Members who left this world during 2022-23.

Elite personalities who shared their views and recalled memorable events while working with Mr. Munir A. Khan as a colleague or as his subordinate include **Dr. Raja Ali Raza Anwar**, *HI,SI*, Chairman PAEC; **Engr. Parvez Butt**, *NI,HI,SI*, Former Chairman PAEC; **Dr. Samar Mubarakmand**, *NI,HI,SI*, Former Chairman NESCOM; **Dr. Inam ur Rahman**, *HI,SI,AK*, DG CNS (now PIEAS); **Mr. Muhammad Naeem**, *NI,HI,SI*, Former Chairman PAEC; **Engr. Sultan Bashir ud Din Mahmud**, *SI*, Former DG (NP); **Dr. N.M. Butt**, *SI*, Former DG PINSTECH/ Chairman PINSAT; **Mr. Ghulam Nabi**, *NI,HI,SI*, Former Member Technical PAEC; **Dr. Shaukat Hameed Khan**, Former DG Optic Labs/ Rector GIKI; **Engr. Muhammad Mansoor**, *SI*, Former DG AEMC, Lahore; **Dr. Sher Muhammad**, Former Director IRNUM, Peshawar; **Dr. N.A. Kizilbash**, *SI*, Former Director

NORI Hospital; and **Engr. Waqar Murtaza Butt**, Former Member Engineering PAEC. Senator **Farhat Ullah Babar** was also present at the occasion and presented his views on Khan's accomplishments. A video message from **Mr. Omer Khan**, son of **Mr. Munir A. Khan** was played; Two more messages, one from **Dr. Shamim Ahmad Chaudhri**, 1st President of PNS, was read by Ms. Huma Qamar, Executive Member, PNS and the other from **Mr. Muhammad Afzal**, Former Secretary PAEC was read by Mr. M. Abbas Qamar, Executive Member PNS. More than 200



persons were present on that occasion which was quite motivating for the younger generation. Ms. Nazia Kashif, Executive Member PNS performed as Stage Secretary of the event. The programme was concluded with the vote of thanks by Dr. Muhammad Mohsin, General Secretary PNS followed by refreshments in the premises.

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### Students' Convention: Interaction with Renowned Scientists for Peaceful uses of Nuclear Technology

Ever since Pakistan Nuclear Society (PNS) has initiated the process of Associate Membership scheme for the students of universities and professional colleges related to science, engineering and medicine, more than 1300 students have become its members in a few months time. The main objective is to provide awareness about the benefits and peaceful uses of nuclear technology in electricity generation, hi-tech industry, agricultural productivity, environment and human health. For this purpose, PNS organizes various seminars, symposia, conferences and workshops in different educational institutes across the country. A few sessions have been held at various universities and institutions. Some attractions have also been created for youngsters in the form of cash prizes on essay writing, poster competitions, and short videos to promote peaceful applications of nuclear techniques in different areas for the socio-economic development of the country. It will definitely open up new opportunities for young graduates to adopt careers in nuclear sciences and strengthen the process of national policy of indigenization in this field.

Consequently, PNS in collaboration with the International Islamic University Islamabad (IIUI) arranged a symposium at the Allama Iqbal Auditorium as a part of this process. **Dr. Taimoor Khurshid**, Assistant Professor welcomed the distinguished panelist and PNS Council Members on behalf of the Chairman Physics Department, IIUI. **Dr. M. Tahir Khaleeq**, President PNS formally introduced PNS and elaborated the importance of Associate Membership. He shared numerous benefits of joining this fruitful scheme including assistance in selecting and initiating projects, guidance about choosing professional careers and counseling in pursuing higher studies. He further added that PNS provides free access to nuclear-related webinars, online courses, and discussions, allowing members to stay up-to-date with the latest developments



and advancements in the field of nuclear technology and allied sciences. **Ms. Ayesha Baig**, a student of the Preston University Islamabad performed the responsibility as the stage secretary.



In the technical session, eminent scientists and engineers were the panelists. The experts included **Dr. Ansar Parvez, HI**, Former Chairman PAEC, **Mr. Muhammad Naeem, NI, HI, SI**, Former Chairman PAEC, **Dr. N.M. Butt, SI**, Former DG PINSTECH/Chairman PINSAT, **Dr. Shaukat Hameed Khan**, Former DG Optics Lab/Rector GIKI, **Engr. Syed Ziauddin**, Former Member Engineering PAEC, **Dr. Qamar Mahboob**, Former Member Materials PAEC and **Dr. Naseem Irfan**, Rector PIEAS. They motivated the students by telling about their lifelong struggle to achieve such a status in the community of nuclear scientists and engineers. They mentioned many important achievements they made in spite of limited resources and without any foreign assistance.



It was followed by a questions/answer session. This session was moderated by **Mr. Waqar A. Butt**, Vice President PNS. Students asked thought provoking and intelligent questions which were well addressed by the panelists. After that **Prof. Dr. Farida Tahir**, Tenure Professor at COMSATS University gave details about the big initiative of International Young Physicists Tournament (IYPT) commonly known as ‘**Physics World Cup**’. It will be held for the first time in Pakistan in 30 years during July 2023 at Kohsar University, Murree. Students were urged to participate in this unique opportunity.



On behalf of Associative Members, three students, **Ms. Madiha Bibi** from Hazara University, **Mr. Hamza Khan** from Air University and **Mr. Tahir Taj** from IIUI expressed their views about PNS initiatives and gave some fruitful suggestions emphasizing on what the students expect from PNS. Prizes and certificates were given to the winners of the article and speech competitions among the Associate Members. The closing remarks were given by **Dr. Muhammad Irfan Khan**, Dean Sciences, IIUI and finally, **Dr. Mohammad Mohsin**, General Secretary PNS presented vote of thanks.

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### Seminar on Operational Safety Management at NPPs

PNS organized a one-day seminar on ‘Operational Safety Management at NPPs’ at CHASNUPP Centre of Nuclear Training (CHASCENT), Chashma, Kundian on 3rd May 2023. The Seminar was divided into two sessions; Introductory session & Academic



session. The seminar commenced with the welcome address of **Mr. Shamshad Ahmad**, Director CHASCENT. He admired the efforts of PNS for conducting seminar at CHASCENT. Afterwards, **Dr. Muhammad Tahir Khaleeq**, President PNS, presented the introduction of Pakistan Nuclear Society and its activities being performed at different places, emphasizing upon the peaceful uses of nuclear technology. The second session the first lecture was delivered by **Mr. M. Anwar Habib**, Former Chairman PNRA on “**Genesis of Nuclear Safety**”. Then **Mr. Muhammad Ayub**, CE(R), Former DG, PNRA made a presentation on “**Future Challenges in Technical Support for Operational Safety**”.



**Mr. M. Abbas Qamar**, CS(R), Former Director DOS delivered third lecture on the “**Importance of Leadership and Safety Culture in Operational Safety of NPPs**”. More than 60 officials attended this seminar and the lectures were very well taken by the participants. After the lectures, the participants asked questions in the question/answer session. The seminar was concluded with the vote of thanks by **Mr. Waqar A. Butt**, Vice President, PNS.

## Seminar on Cancer Diagnostic and Therapy at CENAR, Quetta

Pakistan Nuclear Society (PNS) with the cooperation of Pakistan Science Foundation (PSF) and Pakistan Atomic Energy Commission (PAEC) organized a one-day seminar on Advances in Cancer Diagnostic and Therapy at the Center for Nuclear Medicine and Radiotherapy (CENAR), Quetta on Monday, 29th



May 2023. Before start of the seminar, PNS delegation was taken to various sections and laboratories of the hospital having state of the art equipment in the province. In the opening session, about 40 persons were present. **Dr. Abdul Malik Tareen**, Vice Chancellor, University of Makran was the Chief Guest of the event. The seminar was divided into two sessions (Introductory and Academic). In the first session, **Dr. Hafiz Khush Naseeb Ahmad**, Director CENAR gave the welcome address. He warmly welcomed PNS Council members from Islamabad, guests from various hospitals and all other attendees. Afterwards, **Dr. Shehla Iftikhar** gave an introduction to CENAR. She also presented

glimpses of CENAR and all the facilities provided by hospital to its customers. **Dr. Muhammad Tahir Khaleeq**, President of PNS, briefly introduced PNS and the activities it is performing all around the country emphasizing upon the peaceful uses of nuclear technology. **Dr. Abdul Malik Tareen**, presented his point of view about the seminar. He appreciated PNS for organizing such a useful event in Baluchistan and desired that PNS may organize similar programme in future for which he offered his support.

In the academic session, **Dr. Muhammad Sadiq**, PMO, Head Nuclear Medicine, CENAR delivered a presentation on the “Role of Theragnostics in CA Prostate”. The second presentation was given by **Mr. Abdul Basit**, Sr. Scientist (Medical Physicist), CENAR on “New Trends of Radiotherapy in CENAR”. The last presentation was delivered by **Dr. Shahwali Kakar**, Assistant Professor, E.N.T. BMC, Quetta. The topic of his talk was “Preoperative RLM identification to prevent nerves case discussion”. **Dr. Shugufta Kanwal** from CENAR took up the responsibility as Stage Secretary and coordinated the session in a very efficient manner. The seminar was concluded with the vote of thanks by **Mr. Waqar A. Butt**, Vice President, PNS.



## Seminar at the Government Girls Postgraduate College, Quetta

Pakistan Nuclear Society and the Government Girls Postgraduate College Quetta (GGPCQ), jointly organized a seminar on the ‘Introduction to Current Trends in Nuclear Research & Technology’ was held at the main hall of GGPCQ, Quetta Cantt. on 30th May 2023. The seminar was coordinated by **Ms. Riffat Khaleeq**, Associate Professor, Department of Physics as she is also PNS coordinator of Baluchistan. The Chief Guest of the

seminar was **Dr. Munaza Qayyum**, Principal GGPCQ. Students from various universities of Quetta participated in addition to science and engineering students of local Colleges. The seminar was attended by more than 300 students and faculty members. The main purpose of the seminar was to create awareness about the peaceful use of nuclear energy and its applications in different fields.





**Ms. Sadaf Ashraf**, Associate Professor and Head Department of Chemistry, took up the responsibility as Stage Secretary and coordinated the session in a very efficient manner. The opening remarks were presented by **Ms. Riffat Khaleeq**. Afterwards, the introduction to Pakistan Nuclear Society was presented by **Dr. Muhammad Tahir Khaleeq**, President PNS. He elaborated the activities and programmes that the Society is performing in different cities emphasizing upon the peaceful uses and benefits of using nuclear techniques. A lecture was delivered by **Mr. Waqar A. Butt** on the “Applications of Nuclear Technologies

in Pakistan”. **Mr. Muhammad Abbas Qamar**, Executive Member PNS presented a lecture on the “Introduction of Nuclear Radiation and its Effects on Human Health”. In the end, a very effective Question/Answer session was held in which students and teachers asked very sensible and realistic questions. The closing remarks were given by **Dr. Munaza Qayyum**. In her address, she praised the efforts of PNS for conducting this seminar in her college and presented her viewpoint about the situation of education in Quetta. She also mentioned some grievances about the lack of facilities for research and development in the Province.



### Update on Nuclear Medicine and Radiotherapy at SINOR, Swat

Pakistan Nuclear Society (PNS) organized a one-day seminar titled “Update on Nuclear Medicine and Radiotherapy” on Monday, 24th June 2023 at the Atomic Energy Cancer Hospital known as Swat Institute of Nuclear Oncology and Radiotherapy (SINOR) situated at Saidu Sharif, Swat. This event was organized with the cooperation of Pakistan Science Foundation (PSF) and Pakistan Atomic Energy Commission (PAEC). **Dr. Israr-ul-Haq**, Chief Executive Saidu Group of Teaching Hospitals and Principal of Swat Medical College was the Chief Guest in this event. The seminar was divided into two sessions; Introductory & Academic. In the first session, **Dr. Shoaib Shah**, Director SINOR gave the welcome address. He warmly welcomed the guests, PNS

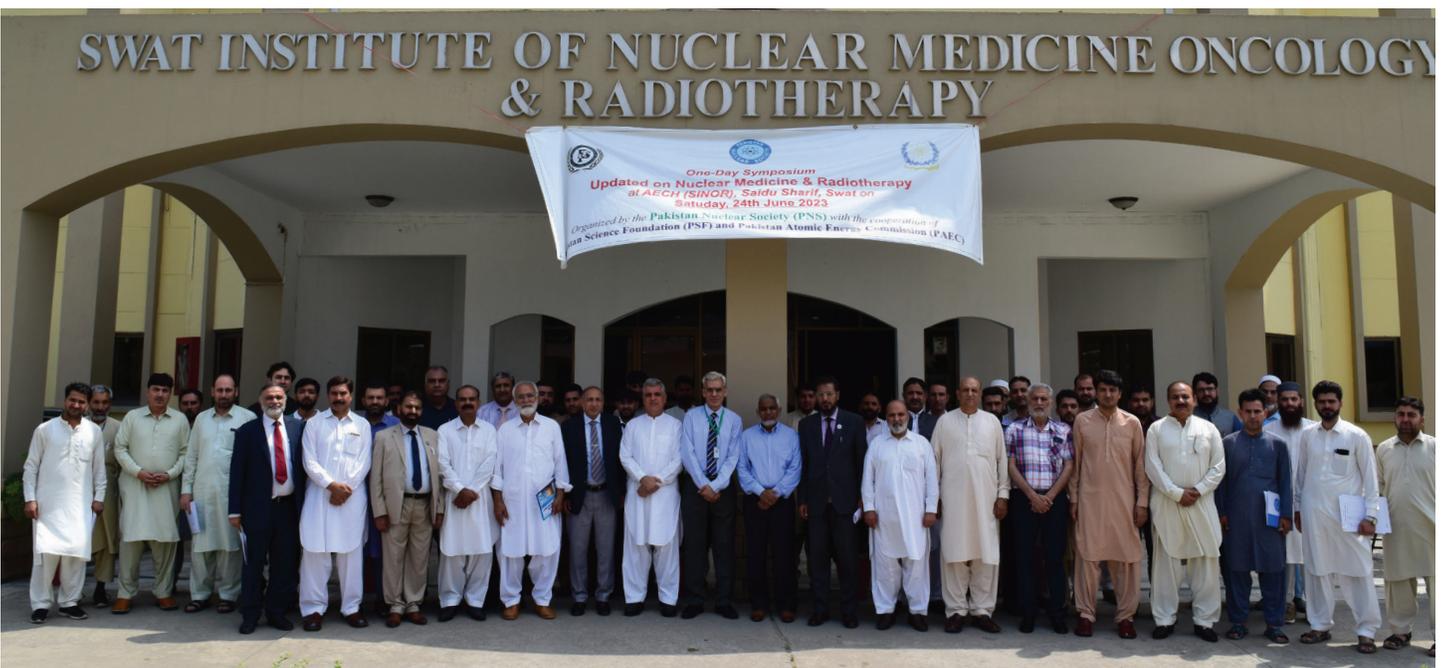
Council members from Islamabad, and all the attendees. **Dr. Muhammad Tahir Khaleeq**, President of PNS, briefly presented the introduction of PNS and all the activities it is performing all around the country emphasizing upon the peaceful uses of nuclear technology. Dr. Israr-ul-Haq expressed his views about the seminar. After the introductory session, a visit of PNS delegation was conducted to various sections of the hospital.

In the academic session, there were five presentations, first of which was delivered by **Dr. Shahzad Qasim**, SMO, SINOR, on “Nuclear Medicine Procedures: Myths & Reality”. Then **Dr. Nazia Neelam Shehzadi**, PS, NORI, gave presentation



on “Medical Physics: Conventional to Advanced Machines; Modalities and Techniques”. Third presentation was delivered by **Mr. Ashfaq Zaman**, SS, SINOR on “An Overview of Radiation Therapy for Health Care Professionals”. Then **Dr. Ahsan Nawaz Qureshi**, SS, O-Labs gave a very dynamic lecture on “Artificial Intelligence Based Blood Cell-Imaging for Disease Diagnostics and Therapeutics”. Last presentation was delivered by **Mr. M.**

**Abbas Qamar**, Executive Member PNS, CS(R)/Former Director DOS, PAEC on “Safety Requirements for Medical Exposure at Nuclear Medical Centers”. **Dr. Shauket Ali**, SMO, SINOR took up the responsibility as Stage Secretary and coordinated the session in a very efficient manner. The seminar was concluded with the vote of thanks by **Dr. Mohammad Mohsin**, General Secretary PNS/ Director HRD, PAEC.



### Students' Session at Post Graduate Jahanzeb College, Swat

A seminar on “Introduction to Nuclear Technology and Radiation Effects on Human Beings” was conducted on 23rd May 2023 at one of the pioneer institute of higher education in Swat; the Post Graduate Jahanzeb College (PGJC), Saidu Sharif. It was established in 1952 by Miangul Abdul Haq Jahanzeb, the former ruler of Swat state. This seminar was jointly organized by PNS and the aforesaid college. The Program Coordinator was Dr. Nisar Ali Swati, Head of Physics Department whereas the stage secretary of the seminar was Prof. Hamid Iqbal from the same Department. The Chief Guest of the seminar was Prof. Muhammad Saleem, Principal of the College. In this seminar, about 150 students and faculty staff of



and its applications in various fields as well as some basics of nuclear radiations.

The Welcome Address was given by Dr. Nisar Ali, from PGJC. Afterwards, Introduction to Pakistan Nuclear Society was presented by Dr. Muhammad Tahir Khaleeq, President PNS. He elaborated the programmes and activities of PNS which are being performed all around the country especially for students. He mentioned many privileges and benefits that students can have to become Associate Members of PNS. A lecture was delivered by Mr. Waqar A. Butt, Vice President of PNS on “Applications of Nuclear Technologies in Pakistan”. Mr. M. Abbas Qamar, Executive Member PNS gave a talk on “Nuclear Radiation and its Effects on Human Health”. In the end, the closing remarks were given by the Principal, Prof. Muhammad Saleem. In his address, he praised the efforts of PNS for conducting this seminar at PGJC and requested for more such type of seminars in future.



various departments participated. The main purpose of the seminar was to create awareness about the peaceful use of nuclear energy

### Students' Session at Namal University

Pakistan Nuclear Society organized a one-day seminar at Namal University, Mianwali on 4th May, 2023. The Namal management warmly welcomed PNS team and arranged a meeting with Dr. Najam ul Islam, Rector of the University. The seminar started with the welcome address by Dr. Ehsan Ullah Khan, Controller

of Examinations. He lauded the efforts of PNS for conducting such a motivating seminar at Namal. Afterwards, an introduction to Pakistan Nuclear Society was given by Dr. Muhammad Tahir Khaleeq, President PNS. He briefly presented the main objectives of PNS and all the activities it is performing across the country



with emphasize on the peaceful uses of nuclear technology. A lecture was delivered by Mr. Waqar A. Butt, Vice President PNS on the “Applications of Nuclear Technologies in Pakistan” for its beneficial uses in power production, medicine, agriculture and industry. Mr. Muhammad Abbas Qamar, Executive Member PNS talked about “Nuclear Radiations and their Effects on Human Health as well as protection from Ionizing Radiation”. In the end, a brief description of Pakistan Nuclear Regulatory Authority was presented by Mr. Muhammad Ayub, Former DG, PNRA. The seminar concluded with a question/ answer session. After the seminar, a visit of PNS delegation was also conducted to various department/ Labs of Namal University.

## Silent Heroes

### Dr. Muhammad Masud Ahmad, HI (1944 - 2018)



Dr. Muhammad Masud Ahmad was born in 1944 in Lahore and received his school, college and university education including his M.Sc. in Physics from University of the Punjab in 1966. He then moved to Islamabad University (now Quaid-e-Azam University) from where he secured his Doctorate Degree in Physics with specialization in Theoretical Elementary Particle Physics. It is worth mentioning that he was the first student of the University of Islamabad who obtained Ph.D from the University under the supervision of late Prof. Dr. Riazuddin.

He joined PAEC in 1973 and remained an outstanding and illustrious theoretical physicist of Pakistan Atomic Energy Commission (PAEC). He served as a key member of the Theoretical Physics Group at the Nuclear Physics Division of the Pakistan Institute of Nuclear Science & Technology (PINSTECH). He organized a group in Computational Physics which developed computer codes using advanced computational and numerical techniques. In late 1970s, he was transferred to PAEC Headquarters where he worked in association with Prof. Riazuddin and played a pivotal role in the development of computer codes which made crucial contributions in the design of various Projects of strategic importance. Dr. Masud contributed notably in fostering cooperation between Pakistan and the world's biggest experimental laboratory; European Centre for Nuclear Research (CERN), Geneva, Switzerland. He also served as Council Member of the SESAME Project in Jordan being sponsored by UNESCO. He played a key role in establishing International Nathiagali Summer College and National Center for Physics. He strongly supported initiating the programme 'Interaction of Young Pakistani Scholars with Nobel Laureates' for their participation in the meetings in Lindau, Germany which is continuing till today with the support of PAEC and HEC.

In addition to his technical expertise, Dr. Masud was also known for his leadership skills. He held several senior positions within the PAEC, where he successfully managed and supervised complex scientific and technical projects. His strategic vision and ability to inspire and motivate his team of scientists had been instrumental in achieving the goals set forth by the PAEC. As Member (Science) at the PAEC HQ, he made significant contributions in the peaceful applications of nuclear techniques in the promotion of projects of national interest in the fields of Food & Agriculture, Biosciences, Genetic Engineering, Medicine, Industry and Hydrology. He received numerous awards at national and international level. In recognition of his significant contribution in the pursuit of Pakistan's nuclear programme, the Government of Pakistan conferred upon him the prestigious Civil Awards of Hilal-e-Imtiaz (1998) and Pride of Performance (1993) in Science (Physics).

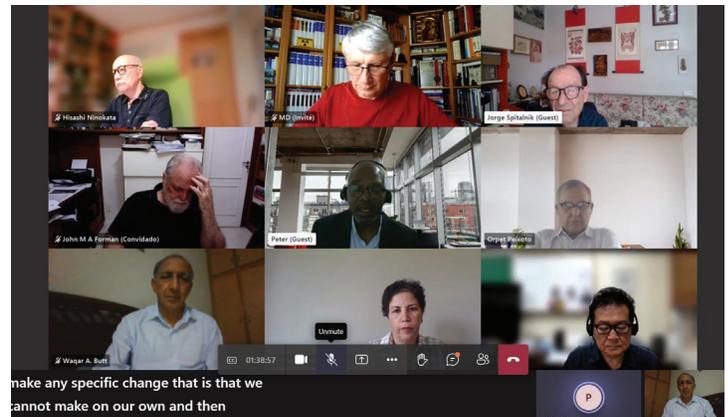
Dr. Masud Ahmad died on 30th December, 2018 at the age of 74 and was buried in Islamabad. The brilliant scientist left behind a rich harvest of sweet memories and marvelous achievements with his dedication and hard work. He will be remembered as a role model for young scientists in the country. May Allah rest his soul in eternal peace in the heavens (Aameen)

*(Dr. Riffat M. Qureshi)*

## Outreach and Linkages

### Participation in the Meeting of International Nuclear Societies Council

PNS is a member of the International Nuclear Societies Council (INSC) since 1991. The 1st Meeting of the year 2023 took place on 23rd June 2023. This on-line meeting was opened by the Chair, Mr. Peter Ozemoyah. He also introduced the new Secretary, Ms. Khadija Bendam from Morocco who participated in PNS International Conference during October 2022 and deeply involved in WiN Global affairs. As per agenda, the items under discussions were the publication of 'Nuclear Report' that has been finalized, INSC Workshop held last year (in which a presentation was made by PNS for the first time), financial report, INSC Global Awards and announcement of the next meeting (hybrid) which will take place in Vienna during the General Conference of IAEA in September 2023. The details can be found at INSC Website. Mr. Waqar A. Butt, Vice President participated in the meeting via Zoom link.



## Remarkable Achievement of PNS Focus Group for Quality Management (PNS-FGQM)

Quality Management is essential for socio-economic development of Pakistan and sustainable technical support of national nuclear power program (TS-NPP). The new International Standard ISO-19443 is applicable to TS-NPP. The PNS-FGQM group carried out all the spade work on documenting its process and activities to fulfill the requirement of ISO-19443. It is a matter of immense pleasure that the group obtained approval from the Technical Committee of Pakistan Standards & Quality Control Authority (PSQCA) on April 27, 2023, to adopt ISO-19443 & allied standards as Pakistan National Standards. PNS-FGQM aims excellence of the people & products. The credit of this achievement goes to Dr. Anjam Iqbal and his team who dedicatedly and very efficiently worked for this fruitful achievement.

PS: ISO 19443 /  
ICS No.:

PNS Focus Group for Quality Management (PNS-FGQM) and PSQCA collaborated to adopt this International Standard as Pakistan National Standard; April 27, 2023

### PAKISTAN STANDARD

QUALITY MANAGEMENT SYSTEMS — SPECIFIC  
REQUIREMENTS FOR THE APPLICATION OF ISO 9001:2015 BY  
ORGANIZATIONS IN THE SUPPLY CHAIN OF THE NUCLEAR  
ENERGY SECTOR SUPPLYING PRODUCTS AND SERVICES  
IMPORTANT TO NUCLEAR SAFETY (ITNS)



PAKISTAN STANDARDS AND QUALITY CONTROL AUTHORITY,  
STANDARDS DEVELOPMENT CENTRE,  
PSQCA COMPLEX, PLOT NO. ST - 7/A, BLOCK NO. 3,  
SCHEME - 36, GULISTAN-E-JAUHAR,  
KARACHI

## A Historical Photo



Dr. Javed Aslam, Dr. Arshad M. Khan, Dr. Qamar ul Haq, Dr. Ishfaq Ahmad, Dr. N. M. Butt, Mr Rafi Raza (Federal Minister Production and Industries), Mr. Munir A. Khan (Chairman PAEC), Dr. Ahsan Mubarak and Dr. Abdullah Sadiq

## Nuclear News and Views

### International

#### Previously unknown isotope of uranium discovered

By Bob Yirka, Phys.org  
April 5, 2023

A team of nuclear physicists affiliated with multiple institutions in Japan, working with a colleague from Korea, has discovered a previously unknown uranium isotope with atomic number 92 and mass 241. In their study, reported in the journal *Physical Review Letters*, the group forced the isotope to reveal itself and tested the results of their efforts to show that what they had found was indeed uranium-241.

Over the past several decades, physicists have found that determining the properties of neutron-rich isotopes is difficult due to problems caused in creating them. For that reason, ongoing research has been looking for new ways to synthesize them under lab conditions. In this new effort, the research team tried a new approach—they fired a sample of uranium-238 nuclei at a sample of platinum-198 nuclei using an isotope separation system. Such interactions are known to result in multi-nucleon transfer, in which isotopes swap neutrons and protons. The collision resulted in the creation of a large number of fragments, which the researchers studied to determine their makeup.

They found evidence of 19 heavy isotopes holding from 143 to 150 neutrons. Each was measured using time-of-flight mass spectrometry, a technique that involves determining the mass of a

traveling ion by tracking the time it takes to travel a given distance when its initial acceleration is known. The research team noted that most of the isotopes they measured had never been measured before. They also noted that one of them, uranium-241, had never been observed before and that it marks the first time since 1979 that a neutron-rich uranium isotope has been discovered. The researchers also calculated that uranium-241 likely has a half-life of just 40 minutes.

The technique used by the team represents a pathway to better understanding the shapes of large nuclei associated with the heavy elements, which could yield changes to models used to build nuclear power plants and to theories describing the behavior of exploding stars. The research team notes that their method of discovery could be used to learn more about other heavy isotopes and also, perhaps, to discover new ones.

Ref: T. Niwase et al, Discovery of New Isotope U241 and Systematic High-Precision Atomic Mass Measurements of Neutron-Rich Pa-Pu Nuclei Produced via Multi-nucleon Transfer Reactions, *Physical Review Letters* (2023).

DOI: 10.1103/PhysRevLett.130.132502

#### China's 'Artificial Sun' Smashes Nuclear Fusion Record

NEWSWEEK, SCIENCE & TECH  
APRIL 17, 2023

China's "artificial sun" has reached a new milestone in the rapidly advancing field of nuclear fusion. On April 12, a superhot fusion plasma was generated, sustained and confined for 403 seconds, bringing commercial-scale fusion energy one step closer to reality. Unlike nuclear fission, the nuclear reaction that is currently used in the energy sector, fusion does not create radioactive waste. It produces three to four times more energy than fission and does not release carbon dioxide into the atmosphere, unlike burning fossil fuels. Fusion is also a very fragile process that will shut down in a fraction of a second if the correct conditions are not maintained. Therefore, there is no risk of nuclear meltdown from this reaction. However, there is one problem: fusion requires vast amounts of energy to achieve the required temperature and pressure for the

reaction to take place. As a result, scientists have not yet managed to get significantly more energy out of a fusion reaction than they put in. Researchers around the world are working to overcome these challenges, increasing the efficiency of the process on multiple fronts to bring the dream of clean, almost limitless fusion energy to life. China's "artificial sun," officially known as the Experimental Advanced Superconducting Tokamak (EAST), does this by containing the reaction in an enormous, donut-shaped contraption called a tokamak. One of the features that allows EAST to reach and maintain high temperatures efficiently is its use of superconducting magnets. This achievement breaks the reactor's previous record for steady-state high confinement plasma, which was set in 2017 at 101 seconds.

## National

### PTV News

11:49 AM - Jun 20, 2023

Mr. Wang Yongge, President of China National Nuclear Corporation Overseas Ltd (CNOS) and Mr. Muhammad Saeed Ur Rehman, Member Power, Pakistan Atomic Energy Commission (PAEC) signing an agreement for Unit 5 of Chashma Nuclear Power Plant (C-5) in Islamabad on 20 June 2023. Prime Minister Muhammad Shehbaz Sharif, Mr. Ahsan Iqbal, Federal Minister for

Planning and Development, Engr. Khurram Dastgir Khan, Federal Minister for Power, Dr. Raja Ali Raza Anwar, Chairman PAEC, Ms. Pang Chunxue chargée d'affaires China, Mr. Shen Yanfeng, Vice President of China National Nuclear Corporation witnessed the signing ceremony. The plant is of 1200MWe capacity and the project is of US\$3.48 billion.



### PNRA grants operating license to Karachi Nuclear Power Plant Unit-3

Pakistan Observer

June 1, 2023

Pakistan Nuclear Regulatory Authority (PNRA) granted Operating License (OL) to Karachi Nuclear Power Plant Unit-3 (K-3) on Wednesday, May 31, 2023 upon completion of the licensing process under regulations PAK/909 and demonstration of safe operation of the plant. This process includes review of licensing submissions, inspections during initial fuel loading, initial criticality, low power and power ascension tests, and operation at full power. This plant is a Chinese designed (Hualong-1) Pressurized Water Reactor (PWR), which is the second such unit deployed at the Karachi site adding 1100 MWe to the national grid. The site for K-3 was registered in May 2014 and Construction License was awarded in November 2015. PNRA issued Fuel Load

Permit (FLP) to K-3 in December 2021 following the completion of review & assessment of Final Safety Analysis Report (FSAR) and other relevant documents. After successful completion of criticality and pre-operational tests, K-3 submitted the application for issuance of OL in October 2022. PNRA performs regulatory oversight during all the stages of licensing process and throughout the active lifecycle, which plays a pivotal role in safe operation of nuclear power plants in Pakistan. It is worth to mention that PNRA also granted Operating License to Karachi Nuclear Power Plant Unit-2 (K-2) with an installed capacity of 1100 MWe in June 2022.

## News About PNS Members

### Obituaries

#### Dr. A.H. Rehan



Dr. Abdul Hameed Rehan provided his invaluable services to Pakistan Atomic Energy Commission (PAEC) for almost 22 years. He was born on 14th November 1942 in India before the partition of sub-continent. After his preliminary schooling at Layyah, he earned M.Sc. degree in Chemistry from University of the Punjab, Lahore with a distinction in 1967. In quest of seeking a noble position

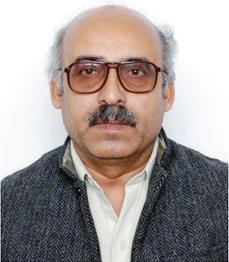
in society, he put in extraordinary efforts while remaining within available meager resources and successfully accomplished his Ph.D. from The University of Keele, England on Government of

UK Scholarship in 1971. Subsequently, he did his Post Doctorate from Heidelberg University, Germany in 1973 before serving as an Assistant Professor of Chemistry in the University of Isfahan, Iran from 1973-1979. Later he joined PAEC in May 1980 as Senior Scientific Officer in New Labs and contributed in various research and development programs. His extra-curricular participation in sports, hiking and other social activities has remained cherished and a source of inspiration for others. He was also a homeopathic doctor. He retired as Chief Scientific Officer from PAEC on 13th November, 2002. During his post retirement period, he kept himself involved in religious activities. He was also a renowned naat khawan. He died on 13th May, 2023 and was laid to rest in H-11 Graveyard, Islamabad.

*May his Soul Rest in Peace and may Allah bless him highest rank in Jannah, Ameen.*

**(Capt. Asim Nafees Rehan, Son)**

#### Mr. Farooq Jan



Mr. Farooq Jan was born on 14th November 1958, in a small Village, Umarzai in district Charsadda, KPK. He received his early education from his native village and completed his M.Sc. degree from Peshawar University. He then joined PIEAS (then CNS) in 1984 for participation in 2nd Health Physics Batch. After completing "Health Physics and Radiation Protection" course, he was

posted at Health Physics Division (HPD) of Pakistan Institute of Nuclear Science and Technology (PINSTECH) where he worked on various technical assignments relevant to radioactive environmental monitoring and waste management. Later in

his professional career, Mr. Farooq was appointed as Head of Radioactive Waste Management Group (RWMG). With his efforts, this group was renamed as "PINSTECH Predisposal Radioactive Waste Management Facility (PPRWMF)". This group actively worked with Nuclear Repository (NR) Directorate of PAEC HQs. He has published many PINSTECH technical reports and papers of national and international level. He remained humble and had friendly attitude with his colleagues and subordinates throughout his career. Mr. Farooq Jan retired from PAEC as Deputy Chief Scientist as he got early retirement in 2016 due to personal/domestic issues. He took his last breath on April 28, 2023 in Islamabad and was buried in his native village Umarzai.

*May Allah almighty bless him with highest rank in Jannah. Ameen.*

**(M. Abbas Qamar, EM, PNS)**

## Students' Corner

### Essay Writing Competition

An essay writing competition was held among PNS Associate Members on the 'Use of Nuclear Techniques for Betterment of Mankind' in which 49 students from various universities/professional colleges throughout the country submitted their articles. An evaluation committee comprising of three relevant experts declared the article produced by Muhammad Haroon Farooqi, M.Phil. (Physics) Student from Quaid-e-Azam University as the best article. A certificate and cash award were given to the winner during the Students Convention held at International Islamic University, Islamabad. Following is his article:



### Use of Nuclear Techniques for Betterment of Mankind

Nuclear techniques have become an integral part of modern science and technology, and they have enormous potential for improving the lives of people around the world. These techniques have been used in many different fields, including medicine, agriculture, energy production, and environmental protection. In this article, the ways that nuclear techniques are being used for the betterment of mankind will be explored.

One of the most important uses of nuclear techniques is in the field of medicine. Nuclear medicine is a branch of medicine that uses radioactive isotopes to diagnose and treat diseases. For example, radioactive iodine is used to treat thyroid cancer, and technetium-99m is used in a variety of diagnostic tests. Nuclear techniques are also used in cancer treatment, where radiation therapy is used to destroy cancer cells. These techniques have revolutionized the field of medicine, allowing doctors to diagnose and treat diseases more effectively than ever before.

Nuclear techniques are also being used in agriculture to improve crop yields and food security. For example, radiation can be used to induce mutations in plants, creating new varieties that are more resistant to pests and diseases. This technique has been used to develop new varieties of wheat, rice, and other crops that are now widely grown around the world. The technique of mutation breeding uses radiation to induce genetic mutations in crops, which can result in desirable traits such as resistance to diseases or increased yield. This technique has led to the development of over 3,000 crop varieties worldwide. Moreover, nuclear techniques are used to control insect pests and diseases, such as the sterile insect technique, which involves sterilizing male insects with radiation and releasing them to mate with wild females. Nuclear techniques are also used to control insect pests, such as the Mediterranean fruit fly, which can cause significant damage to crops. The sterile insect technique involves irradiating male insects and releasing them into the wild, where they mate with females but produce no offspring, reducing the overall population.

Nuclear techniques are also used to produce energy, both in the form of nuclear power and in the development of alternative energy sources. Nuclear power plants generate electricity by using the heat generated by nuclear reactions to produce steam, which drives turbines that generate electricity. This technology provides a significant source of energy for many countries around the world, reducing their dependence on fossil fuels. In addition, nuclear techniques are being used to develop alternative energy sources, such as nuclear fusion, which could provide a virtually limitless source of clean energy.

Finally, nuclear techniques are being used to protect the environment and ensure the safety of people around the world. For example, nuclear techniques are used to monitor and control pollution, such as by measuring air and water quality. They are also used to ensure the safety of food and water supplies, by detecting contaminants and other harmful substances. In addition, nuclear techniques are being used to address the problem of climate change, by developing new technologies that reduce greenhouse gas emissions and mitigate the effects of climate change.

In conclusion, nuclear techniques have enormous potential for improving the lives of people around the world. They have already revolutionized the fields of medicine, agriculture, energy production, and environmental protection, and there is no doubt that they will continue to play a vital role in the development of new technologies in the future. As such, it is essential that we continue to invest in research and development in this field, to ensure that we can continue to benefit from the many uses of nuclear techniques for the betterment of mankind.

## Speech Competition

A speech competition among PNS Associate Members was held on the 'Effects of Climate Change and Global Warming' in which 25 students submitted their short videos (4-5 minutes). The evaluations committee selected top three videos which are available at PNS Website. Cash prizes were distributed to the winners. The first prize amounting to Rs.10,000/- was awarded to **Miss Aresha Yasin from IIUI**, Islamabad. The second prize of Rs. 8,000/- was given to **Miss Ishrat Fatima, PU**, Lahore and the third prize of Rs. 6,000/- was granted to **Mr. Faraz Ahmed Mahr**, from the University of Sindh, Jamshoro. Certificates were also awarded to the winners during the Students convention.



1st



2nd



3rd

## Social Events

### EID Milan

As per routine practice, an Eid Milan party of PNS Members and their families was arranged at PAEC Rest House on 6th May 2023 in which about 120 persons along with their children gathered to celebrate EID Greetings. 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. As

usual, the credit of this colorful and memorable gathering goes to Syed Zahid Hussain, Executive Member and Mr Ghulam Sarwar, Finance Secretary, PNS who put lot of efforts in making such programme successful. The cooperation and well managed arrangements of the staff of PAEC Rest House was appreciable.



## PNS Calendar of Activities, July-December 2023

Date	Activity	Title	Coordinator(s)
July 15	WiN-Pak	<b>EID Milan</b> of WiN-Pak members, PAEC Rest House	Dr. Samreen Shahzadi Ms. Nazia Kashif
July 25	Seminar	<b>Small Modular Reactors(SMR) and Micro Modular Reactor (MMR)</b> at KCP, Khushab	Mr. M. Abbas Qamar Kh. Zahid Shakeel
Aug 12	WiN-Pak	<b>Women Convention</b> - Sharing experiences while working in Nuclear Science & Technology	Elected body
Aug 15	Students' session	<b>Nuclear Technology in Pakistan</b> , NED University, Karachi	Focal Person
Aug 16	Seminar	<b>Role of Environment Management in Safety of NPPs</b> at KINPOE, Karachi	Mr. M. Abbas Qamar Syed Imran Shah
Aug 17	Seminar	<b>Water Desalination by Nuclear Techniques</b> at KIRAN, Karachi	Engr. Waqar Murtaza Butt
Aug 18	Student's session	<b>Applications of nuclear techniques and radiation effects on human health</b> , Karachi Univ.	Focal Person
Sept 07-10	Recreational	<b>PNS Families Trip</b> to Kashmir valley	Syed Zahid Hussain
Sept 19-20	Workshop	<b>International Workshop on Advances in Nuclear Medicine and its Applications</b> at COMSTECH, Islamabad	Prof. Khurshid Hasanain Dr. Shazia Fatima
Sept 26	Students' session	<b>Beneficial uses of Nuclear Technology</b> , Punjab Univ. Auditorium, Lahore	Focal Person
Oct 10	Memorial	<b>Tribute to Dr. A.Q. Khan</b> at Pakistan Academy of Sciences (PAS)	Mr. Waqar A. Butt
Oct 24	Workshop	<b>Radioactive Waste Management at Nuclear Facilities</b> at CPC, D.G. Khan	Mr. M. Abbas Qamar
Nov 26	Recreational	<b>A short hike</b> on Trail-4, Margalla Hills, Islamabad	Syed Zahid Hussain
Dec 04	Memorial	<b>Tribute to Prof. Dr. Rafi M. Chaudhri</b> , GC Univ. Lahore	Mr. Waqar A. Butt
Dec 19	Seminar	<b>Fusion Energy</b> at National Centre of Physics (NCP)/QAU	Prof. Javed Iqbal Saggi



## Privileges for PNS Member

1. Growing professional circle by strengthening connections with peers in relevant fields
2. Sharing specialist knowledge, insight and expertise by becoming a part of the elite forum
3. Enhance knowledge of current issues, challenges and opportunities in nuclear S&T
4. Counseling/guidance to young scientists/engineers in their professional careers
5. Help to science/engineering graduates in pursuits of their higher studies
6. Free access to nuclear related webinars, online courses and discussions to share views
7. Group visits at various S&T organizations/universities
8. Free e-copy of quarterly PNS Newsletter
9. A Membership Certificate and a Card with a photo
10. Special discounts at various outlets, hotels, restaurants, shops, hospitals, Labs 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. Subsidized recreational programmes like family picnic/hikes, trip to Northern areas, etc.
16. Registration/Lifetime Membership Fee is only Rs. 2,200/-.
17. For Associate Members (university students) fee is only Rs. 500/-

Membership Form is available at [www.pns.org.pk](http://www.pns.org.pk) (Form can be submitted online)  
 Fee can also be deposited online in PNS Bank Account at NBP, Margalla Br. Islamabad  
 IBAN: PK18NBPA1725004018982691

## Deals and Discounts

- Excel Las (throughout the country)
- Bar B Q Tonight, Blue Area, Islamabad
- Jahangir Restaurant, Blue Area, Islamabad
- Rumba Cafe and Rumba Meat Factory, Bharia Town/ F6 Markaz, Islamabad
- Tanweer Optical, Melody, G-6/2, Islamabad
- Fitdiction Gym, F-8 & Body Fit Gym, G-11, Islamabad
- Memories Resort, Kalam
- Indus Lodges, Gilgit
- Park Hotel, Gilgit
- Mulberry Hotel, Hunza
- Baltistan Continental Hotel & Continental Family Guest House, Skardu



Issue 11/2023

July-September, 2023

# PNS Newsletter

Nuclear for Peace

A Quarterly Newsletter of the Pakistan Nuclear Society

#### Patron:

Dr. Muhammad Tahir Khaleeq

#### Editor-in-Chief:

Mr. Waqar Ahmad Butt

#### Editors:

Dr. Muhammad Sadiq

Dr. Riffat M. Qureshi

Dr. M. Javed Akhtar

Mr. M. Abbas Qamar

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## From the desk of Editor-in-Chief

Pakistan Nuclear Society deeply acknowledges its members, students, people and organizations for their continued appreciations and encouragements. This is mainly due to the initiation of some innovative programmes for enhancement of knowledge and skills of the students. PNS has been able to utilize services of experienced professionals in various fields with the aim to transfer knowledge to the next generations. Consequently, online training courses were launched in different fields as per requirements and demands of the students.

In the previous quarter, associate members, who are students of various universities and professional colleges, were encouraged to take part in essay writing and speech competitions in order to engage them in intellectual activities. A significant number of candidates participated in these contests. Moreover, a brain-storming creative exercise was conducted by inviting proposals on '**Innovative Ideas in Science and Technology for Socio-economic Development of the Country**'. Furthermore, the students were invited to participate in another activity by asking them to write a review paper on '**76 years of Science and Technology in Pakistan**'. Cash prizes were distributed amongst the winners in these competitions.

Additionally, efforts were made to arrange internships for students at industrial and engineering sectors. It is a pleasure to inform that some organizations and individuals have committed to arrange internships to a few students. Guidance was provided for higher studies and counselling was offered for their future careers. PNS Members, especially retired officers are requested to join hands with us in this noble cause by sharing their valuable expertise and lifelong experience with the youth to help them in their academic pursuits.

It is gladden to mention that Women in Nuclear (WiN) Pakistan Chapter has been re-established on firm footings and a formal structure of office bearers has been formulated. An exclusive Eid Milan party of women and oath taking ceremony of newly elected WiN-Pak Council was arranged. In addition, a seminar on '**Sharing Experience in Nuclear Science and Technology**' was also held which raised considerable enthusiasm and motivation among the ladies working in nuclear organizations. It is intended to have close association with WiN-Global for organizing some international activities in Pakistan.

## 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.*

## Announcements

**PNS GALA Dinner**  
17th December 2023  
Faisalabad

**PNS AGM**  
30th December 2023  
Islamabad

## Contact:

### Pakistan Nuclear Society

PAEC Rest House, Hanna Road,  
Near NORI Hospital, G-8/3, Islamabad

Email: [council@pns.org.pk](mailto:council@pns.org.pk)

URL: <https://pns.org.pk>

YouTube: PNSociety

Facebook: [pakistan.nuclear.society](https://www.facebook.com/pakistan.nuclear.society)

Ph. No. (+92-51) 8895193 - 8895194

Fax: +92-51-9261823

## Activities during the 3rd Quarter

### Seminar on Sea Water Desalination by Nuclear Techniques

A one-day seminar on ‘Sea Water Desalination by Nuclear Techniques’ was organized by the Pakistan Nuclear Society (PNS) with the collaboration of KNPGS and with personal interest of **Engr. Waqar Murtaza Butt**, Former Member (Engg.) PAEC/ Advisor to SPD. The seminar was held on Wednesday, 16th August at Karachi Institute of Radiotherapy and Nuclear Oncology (KIRAN). After recitation from the Holy Quran, Mr. Butt delivered welcome address. He praised the efforts of PNS for conducting this seminar at Karachi. **Dr. Muhammad Tahir Khaleeq**, President PNS introduced PNS and its activities being conducted all over the country regarding the peaceful uses of nuclear technology. **Mr. Jamshed Azim Hashmi**, Former Chairman PNRA was the Chief Guest of the event. He admired the efforts of PNS for conducting the seminar at KNPGS on a very important topic. Some senior officials including Engr. Javed Iqleem and Engr. Azfar Baig also graced the occasion as guests of honor.



After the formal opening session, four lectures were delivered by the speakers. **Mr. Saad Ullah Khan**, Sr. Director NEW-II delivered first lecture on ‘RO Plant and NDDP of KANUPP-1 (KDP)’. **Mr. Nadeem Ahmad**, Former GM, KNPGS gave the second presentation on ‘Sea Water Desalination: Plant Process and Contribution in Construction of K2 and K3 Plants’. **Mr. Ahsan Ullah Khan**, DCS, KNPGS presented third lecture on ‘Global Perspective of Nuclear Desalination Plants’. Engr. Waqar M. Butt delivered the last lecture on ‘Future Requirements and Challenges’. More than 80 persons attended this seminar and the lectures were very well taken by the participants. **Mr. Muhammad Abbas Qamar**, Executive Member, PNS conducted the questions & answers session. **Syed Imran Shah**, CE/ Director (C&O), KNPGS performed as Stage Secretary in a very efficient manner. The seminar was concluded with the vote of thanks by **Mr. Waqar Ahmad Butt**, Vice President, PNS.



### Seminar on the Role of Environmental Management in Safety of NPPs, at KINPOE, KNPGS

A one-day seminar on the ‘Role of Environmental Management in Safety of NPPs’ was organized by the Pakistan Nuclear Society (PNS) with the collaboration of KNPGS and PNRA on Thursday, 17th August at Karachi Institute of Nuclear Power Engineering. Seminar was divided into two sessions i.e. Introductory & Academic. The programme commenced with the recitation from the Holy Quran. The welcome address was delivered by **Mr. Nadeem Arshad**, GM, KNPGS. He welcomed the PNS team and praised the efforts of PNS for conducting seminar at KNPGS. Afterwards, **Dr. M. Tahir Khaleeq**, briefly introduced PNS and the activities it is performing at various places in the country emphasizing upon the peaceful uses of nuclear technology. **Mr. M. Anwar Habib**, Former Chairman PNRA who was the Chief Guest of this event, addressed the audience. He admired the efforts of PNS for conducting the seminar at KNPGS on a very important topic.



The second session was started after the tea break. In that academic session, four lectures were delivered on various topics. First lecture was by **Mr. M. Anwar Habib** on ‘Genesis of Nuclear Safety’. **Mr. M. Abbas Qamar**, CS(R), Former Director DOS gave a presentation on ‘Environmental Monitoring for Safety of NPPs’. Third lecture was delivered by **Mr. Javed Hussain**, Head (EM), EPP, KNPGS on ‘Environmental Monitoring at KNPGS’. Last lecture was presented by **Ms. Kausar Praveen**, SSO, RNSD-III, PNRA, on ‘The Role of PNRA in Environmental Monitoring in Pakistan’. More than 40 participants attended this seminar and the lectures were well appreciated by the audience. After the lectures, the participants asked meaningful questions in the panel discussion session conducted by Mr. Abbas Qamar. **Syed Imran Shah**, Director (C&O), KNPGS took up the responsibility as Stage Secretary. The seminar was concluded with the vote of thanks by **Mr. Abdul Rehman Sajid**, DPM, K2, KNPGS.

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### Seminar on Current trends in Nuclear Science & Technology at NED University, Karachi

A seminar on the ‘Current Trends in Nuclear Science & Technology’ was jointly organized by PNS and NED University of Engineering & Technology, Karachi on 15th August 2023. The seminar was coordinated by **Dr. Fakhar Alam**, Lecturer, Department of Physics, University of Karachi and **Mr. Ahsan Khalid**, Focal person of PNS for NED UET. The seminar was attended by more than 100 students and faculty members. The main purpose of the seminar was to create awareness about the peaceful use of nuclear energy and its applications in various fields.

**Dr. Irfan Ahmad Siddiqui**, Head Department of Physics, NED UET welcomed the audience. Afterwards, **Dr. M. Tahir Khaleeq**, introduced the Pakistan Nuclear Society to the audience and explained its activities being carried out for the peaceful uses of nuclear technology. **Mr. Waqar Ahmad Butt**, delivered a lecture on ‘Applications of Nuclear Technologies in Pakistan’. **Mr. M. Abbas Qamar**, gave a lecture on the ‘Introduction of Nuclear Radiation and its Effects on Human Health’. Dr. Fakhar took up the responsibility as Stage Secretary and conducted the session in a very efficient manner while Mr. Ahsan arranged the live coverage of seminar at social media. Seminar concluded with a very effective questions & answers session.



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### Seminar on Nuclear Techniques and Radiation Effects at Kohsar University, Murree

PNS organized a students session at the Kohsar University, a newly established Public Sector university in Murree on 28th September 2023 with the curtesy of Pro Vice Chancellor, **Prof. Dr. Muhammad Sultan Satti**. Students from Physics, Chemistry and Bio-sciences along with their faculty members participated in the seminar. PNS delegation comprised of seven members. After recitation from the Holy Quran, Dr. Sultan gave the welcome address appreciating PNS for holding the seminar at Murree. **Dr. M. Tahir Khaleeq** informed about the aims and objectives of PNS with emphasis upon various initiatives for students.



**Mr. Waqar A. Butt** presented an overview on the ‘Applications of Nuclear Techniques’ covering many areas of peaceful and beneficial uses of nuclear technology. Mr. M. Abbas Qamar explained ‘Radiations and their Effects’ with colorful slides. He cleared some perceptions about the danger of nuclear radiations and mentioned various safety measures. A special guest, **Dr. Anis Rashid**, a young professor from Massachusetts Institute of Technology (MIT), USA motivated the students with his life long

struggle and hard work that earned him lots of distinctions in a short span of time. He gave important tips to the students to excel in their academics leading to a bright career. **Ms. Hina Younis**, Executive Member of Women in Nuclear (WiN-Pak) Council elaborated how she struggled from a modest background to get into a successful life. **Ms. Huma Qamar**, Executive Member PNS, mentioned about the activities and importance of Pakistan Nuclear Regulatory Authority (PNRA) and its role in safety and security of the nuclear facilities in the country. **Ms. Nazia Kashif**, Executive Member PNS, also impressed the audience with her life story and practical experience in the nuclear field. These talks were followed by a thought provoking questions & answers session. In the end, Dr. Sultan thanked the PNS Council Members, guests and participants for joining the fruitful session and hoped that the students would have gained much out of this activity. The delegation also met **Prof. Dr. Syed Habib Ali Bokhari**, Vice Chancellor of the university in his office and discussed many possibilities for future cooperation and collaboration.



### Election for Reconstitution of WiN-Pakistan Chapter

Pakistan Nuclear Society, with the aim of re-establishing Women in Nuclear - Pakistan Chapter (WiN-Pak) took up the responsibility of conducting elections for its Council Members on 3rd July 2023 by electronic (online) voting system. Resultantly, the following office bearers have been elected:

President:	<b>Dr. Shazia Fatima</b> , Director KIRAN Hospital, Karachi
Secretary:	<b>Dr. Samreen Shahzadi</b> , Principal Scientist, PINSTECH
Treasurer:	<b>Ms. Benazir Zainab Dar</b> , Principal Scientist, PAEC HQ
Executive Member:	<b>Ms. Noureen Akhtar</b> , Principal Scientist, DNPER, PAEC
Executive Member:	<b>Ms. Hina Younis</b> , Senior Scientific Officer, PNRA

It is worth mentioning that all WiN-Pak members are also PNS Lifetime Members.



### Oath Taking of WiN-Pak Council

The Oath Taking of the newly elected Council of WiN-Pakistan Chapter was held on August 30, 2023, at the PAEC Rest House in G-8/3, Islamabad. The ceremony commenced with recitation from the Holy Quran. **Dr. Raja Ali Raza Anwar**, Chairman PAEC, presided over the simple yet elegant ceremony in which the elected WiN-Pak Council Members stood before the audience, pledging their sincere commitment to work for a greater national cause. Their promise was a compelling testament to their dedication to women rights and welfare. The ceremony was graced by the presence of esteemed individuals including Members of PAEC and their spouses. Distinguished guest speakers, particularly notable experienced women scientists and engineers were invited to provide inspiration and motivation.



**Dr. Rakhsanda Bilal**, Member PNS Scientific Advisory Board, in her welcoming address shared the history of the WiN-Pak and its initial working. She emphasized and commended the efforts of PNS in revitalization of this chapter. **Dr. M. Tahir Khaleeq** elaborated PNS role in re-establishing this important forum and elucidated the responsibilities of the Council.

The Chief Guest, Dr. Raja Ali Raza Anwar, in his inaugural speech, congratulated the elected council and lauded the commendable efforts of PNS in WiN-Pak revival. He emphasized PAEC enduring support for PNS activities and the recognition of the significant contribution of Pakistani women in advancing



the country. Gender equality and gender parity policies were highlighted. He urged to engage senior female doctors, scientists, and engineers for guidance in emerging scientific fields.

The ceremony concluded with expressions of gratitude and a vote of thanks delivered by **Dr. Shazia Fatima**, the newly elected President of WiN-Pak. She shared her vision for leading the Council and outlined a roadmap for the future. Acknowledgments were extended to the PNS Council for reviving WiN-Pak and organizing the investiture ceremony. Additionally, the Chief Guest was thanked for his unwavering support and his presence during the oath-taking.

### Sharing Experiences in Nuclear Science & Technology

After the Oath Taking session, a seminar was conducted on 'Sharing Experience in Nuclear Science & Technology' by women scientists, engineers and doctors who have made substantial contributions for 25-30 years in various fields of national importance. The seminar served as a platform for individuals and experts from diverse sectors to convene and share their valuable insights and experiences with a primary goal of fostering collaboration, innovation, and dissemination of knowledge within the realm of S&T. **Mrs. Fehmeen Raza Anwar** presided over the seminar. The notable speakers shared their success stories include



**Dr. Rakhsanda Bilal**, former Director General (Technical) PAEC-HQ, **Dr. Ismat Fatima**, former Director Research, **Dr. Shafqat Farooq**, Chief Scientist(R) and **Mrs. Shabana Waseem**, Chief Scientist(R). **Ms. Abida Khatoon**, Former Director PNRA, who served at IAEA as Program Management Officer (PMO), shared her experience in a voice note from US. **Miss Andleeb**



**Tariq**, a representative of the Young Women Forum (YWF) of WiN-Global, travelled from Lahore to express her views. These sessions provided a unique opportunity for the audience to engage with these experts, pose questions, and gain profound insights. The seminar also facilitated numerous networking opportunities, allowing participants to connect with like-minded professionals and explore potential collaborations. These networking sessions encouraged the exchange of ideas and the formation of valuable partnerships.

In her keynote address, the Chief Guest underscored the paramount importance of science and technology in confronting global challenges. She emphasized the continuous need for investment in research and development. Furthermore, she commended the speakers for their unwavering dedication and enthusiasm in serving PAEC and other S&T organizations. Her words of encouragement were directed towards younger participants, urging them to draw knowledge and inspiration from the dedication, hard work, and extensive experiences of all the speakers.

In conclusion, the Seminar served as a dynamic platform for the exchange of knowledge, collaboration, and inspiration. It united experts and enthusiasts from various sectors of nuclear fields, fostering a sense of community and shared commitment to advancing human knowledge and addressing pressing global issues. Beyond being a learning opportunity from seasoned professionals, this event celebrated the transformative potential of nuclear science and technology in shaping our world. It left attendees motivated and equipped with fresh insights to contribute to the ever-evolving landscape of nuclear technology.

### International Workshop on Advances in Nuclear Medicine and its Applications

With the collaboration of Pakistan Nuclear Society (PNS), Pakistan Society of Nuclear Medicine (PSNM), and the Ministerial Standing Committee on Scientific and Technological Cooperation of the OIC (COMSTech) organized a two-days International Workshop on Advances in Nuclear Medicine and its Applications held at its Secretariat in Islamabad on 19-20 September 2023. **Dr. Naseem Irfan**, Rector, Pakistan Institute of Engineering and Applied Sciences (PIEAS) was the Chief Guest. Two very learned and highly experienced foreign speakers, **Prof. Dr. Abdelhamid H. Elgazzar from Kuwait** and **Prof. Dr. Raihan Hussain from**

**Bangladesh** came to deliver lectures. Prof. **Dr. S. Khurshid Hasanain**, the Coordinator of the Workshop gave the introductory remarks. Prof. **Dr. M. Iqbal Choudhary**, Coordinator General COMSTech gave the welcome address via Zoom link from Italy.

In the technical session, there were 15 presentations. Dr. Abdelhamid delivered two lectures on **Diagnosis of Infection – Role of PET-CT**. Dr. Raihan gave a talk on **Multiple Primary malignancies PET-CT Perspective**. Dr. Shazia Fatima, President PSNM gave an overview of the **Status of Nuclear Medicine in Pakistan**. Prof. Ismet Sarikaya, Chair & Professor of Nuclear Medicine, Kirklareli University, Turkey talked via Zoom link on **Biology of Development and Metastatic Spread of Cancer with PET Images**. Dr. Arzoo Fatima, Head, Nuclear Medicine and Molecular Imaging, Institute of Nuclear Medicine and Oncology Lahore (INMOL), Lahore talked on **PSMA Theranostic - what we have at hand**. Dr. Shazia Fatima gave another talk on **PSMA Imaging - A Never Ending Success Story**. Dr. Muhammad Adnan Saeed, Head, Nuclear Medicine Oncology and Radiotherapy Institute (NORI) gave a talk on **PRRT - in neuroendocrine tumors**.

On the 2nd day, Dr. Muhammad Babar Imran, Director, Punjab Institute of Nuclear Medicine (PINUM), Faisalabad spoke on **SPECT-CT–Need of the hour** via Zoom link. Brig. Mahdi Raza - AFIC Rawalpindi, talked on **Ischemic heart Disease and management of chest pain**. Dr. Zaheer Chiragh, Joint Secretary, PSNM/Consultant Nuclear Physician at MoH Saudi Arabia presented the work on **Artificial Intelligence in Nuclear Medicine; current status & future perspective**. Dr. Ahmed Ahsan Nawaz from the Optics Lab gave a very fascinating talk on **Artificial Intelligence (AI) in blood cancer patients' management**. Ms. Noreen Marwat, Medical Physicist at NORI Hospital made a presentation on **Personalized Nuclear Medicine - Dosimetry**. Dr. Nadim Lodhi from PINSTech covered the useful topic **Theranostic: from bench to bedside**. The third talk of Prof. Dr. Abdelhamid was on **Under recognized bone diseases – role and pattern of scintigraphy**.

In the last session on the 2nd day, Dr. Arzoo Fatima presented the summary of dissertations in the Workshop. Dr. Muhammad Tahir Khaleeq, President PNS gave the concluding remarks elaborating





the activities of PNS and future collaboration with COMSTECH. Vote of thanks was given by Prof. Khurshid Hasanain which was

followed by presenting shields to the speakers from abroad and certificates to all the participants.

## Outreach and Linkages

### Peaceful Applications of Nuclear Technology: Appearance on Social Media



Mr. Nusrat Mirza a well-known journalist, a television broadcaster and famous for interactive shows, used to conduct interviews of renowned persons on Such TV. He is now arranging similar programmes on Rabita Forum International (RFI). He invited PNS Council in RFI studio, Karachi for a programme on the Role of Pakistan Nuclear Society for peaceful uses of atomic energy in the country. Accordingly, Dr. M. Tahir Khaleeq and Mr. Waqar A. Butt gave an exclusive interview which lasted for about one hour. Various topics remained under discussion during the TV programme including beneficial application in the fields of power generation, environment control, human health, water management, agriculture and industry. It is worth mentioning that RFI releases news and other programmes in different provincial languages. Video recording of the programme is available at PNS Website (<https://pns.org.pk>).

### Participation in International Events



PNS is a member of International Nuclear Societies Council (INSC) since its inception. Usually, INSC holds a meeting in anyone of its Member States once in a year and an Annual meeting during the IAEA General Conference. Consequently, the Annual Meeting was held on 26th September, 2023 in Vienna, Austria. Due to limited financial resources of PNS, it was not possible to attend the meeting in Vienna, therefore, on behalf of PNS, Ms Arooj Nawaz who is working in IAEA, physically attended the meeting. PNS Council appreciates and thanks Ms Nawaz to represent Pakistan.

### Collaboration of PNS and PNAC



Pakistan National Accreditation Council (PNAC) is an accreditation/certifying body in Pakistan. It works under the leadership of Mrs. Ismat Gul Khattak, Director General PNAC, which independently assess the competence of certification bodies in order to accredit them. To broaden its scope, PNAC has invited PNS to provide experts and assessors to strengthen impartial accreditation process in the nuclear related fields. Dr. Anjum Iqbal, the focal person of PNS Focus Group for Quality Management who is also a Member of PNAC Impartiality Committee, is designated to establish and implement the mutual framework. The collaboration and cooperation of PNS and PNAC would enhance the quality of local products and services to achieve the common objective of sustainable socioeconomic development in the country.

### Public Awareness Programme

Dr. Muhammad Tahir Khaleeq delivered a lecture about PNS programmes, objectives, activities and new initiatives at the Senior Officers Management Course (SOMC) to about 120 participants from different strategic organizations at the Pakistan Institute of Engineering and Applied Sciences (PIEAS) on 22nd August 2023. He also gave another lecture to the officers from different organizations on the same subject at South Asian Strategic Stability Institute (SASSI) University, Islamabad.

Mr. Waqar A. Butt visited Kohsar University in Murree on 18th September 2023 and met Prof. Dr. Muhammad Sultan Satti, Pro-Vice Chancellor and discussed matters of mutual interest particularly about the involvement of students in S&T affairs. It was decided that PNS will hold a session on the peaceful uses of nuclear technology and effects of radiations on human beings at the main campus of the university inviting students from all science subjects. Mr. Waqar was also accompanied by Dr. Rehain Hussain, a Senior Consultant/ former Member Bio-Science at



the Bangladesh Atomic Energy Commission, Dhaka who was invited by COMSTECH as an invited speaker in the International Workshop on Nuclear Medicine in Islamabad.

## Renowned Scientist

*Lest we forget*

**Dr. I.H. Qureshi, S.I**



Dr. Iqbal Hussain Qureshi, one of the most promising radio-analytical chemist of the country, was born in Ajmer (British India) on 27 September, 1936. After partition, his family migrated to Pakistan and settled in Hyderabad, Sindh. He obtained his B.Sc. in 1956 and M.Sc. (Chemistry) in 1958 from University of Sindh with Gold Medals. For a few months, he served as a lecturer in the same university. In 1960, he joined Atomic Energy Centre, Lahore where he established the Radiochemistry Lab. Then he got a scholarship for higher studies and went to America. He did MS from University of Michigan in 1962. From there he moved to Japan and got Ph.D. from University of Tokyo in 1963. He also availed a post doc at National Bureau of Standards, Washington DC, USA in 1967 and during 1969 he obtained a specialized training in uranium and plutonium separation from Denmark. In 1972, he was transferred to Pakistan Institute of Nuclear Science & Technology (PINSTECH), Islamabad as the Head of Nuclear Chemistry Division. In 1984, he became the Director of

PINSTECH and remained there till 1991 when he was appointed as Member (Technical), PAEC. Later, he was promoted to the rank of Senior Member. He retired in September 1996 and was awarded the lifetime honor by PAEC as Scientist Emeritus in Chemistry. For some years, he continued his research at PINSTECH before moving to Karachi.

Dr. Qureshi made pivotal contributions to the development of laboratories at PINSTECH. He was regarded as an International Expert in the field of Trace Element Analysis. As a result of acquiring world class facilities for trace element determination in various materials using neutron activation analysis, his Laboratory was recognized as a Reference Lab of the International Atomic Energy Agency (IAEA). Having high quality chemical analysis facilities, his Lab was able to detect radioactive emissions that leaked after the first Indian nuclear device test in 1974. Several mega projects were initiated during his seven year tenure as Director. The most promising being the upgrading of Pakistan's first research reactor (PARR-1) from 5 MW to 10 MW, installation of the 2nd research reactor (PARR-2) which is a 27 KW Miniature Neutron Source Reactor (MSNR), development of Laser Range Finder and fabrication of the 250 KeV Charged Particle Accelerator (CPA).

Dr. Qureshi published more than 170 papers in national and international journals. He earned several scientific honors like Gold Medal of Pakistan Academy of Sciences (PAS) in 1988, Khawarizmi Prize of Iran in 1997, Sitar-i-Imtiaz in 1992 and Shield of Honor by the Pakistan Nuclear Society (PNS) on being elected as its President. He was a versatile person and loved sports as well as music and even played sitar on occasions. He has left behind a widow and two talented sons, one a neurosurgeon and the other computer specialist. Dr. Qureshi expired peacefully on 8th December 2012 in Karachi with a sudden problem of breathing.

May God bless his soul with a peaceful place in the Heaven.

## A Historical Photo



Mr. M. Saeed Ch, Dr. G.D. Alam, Mr. M. Hafeez Qureshi, Brig. S. Sarfraz Ali, Dr. Samar Mubarakmand, Dr. M. Mansoor Beg  
Mr. Ghulam Nabi, Col. Asif Malik, Col. M. Inayat, Dr. Tariq Jamal Solaija, Dr. Masud Ahmad, Dr. Abdul Rashid  
Dr. Abdul Ghaffar, Dr. M. Zaman Sheikh, Mr. Ghulam Akbar Ghauri, Mr. M. Irfan Burney

## Nuclear News and Views

### International

#### China gives green light to nuclear reactor that burns thorium – a fuel that could power the country for 20,000 years

*CHINA Science*

July 04, 2023

China's nuclear safety watchdog has issued an operational permit for the nation's first thorium reactor, marking a significant milestone in the country's pursuit of advanced nuclear technologies. The reactor, a two-megawatt liquid-fuelled thorium molten salt reactor (MSR), is located in the Gobi Desert city of Wuwei in Gansu province and is operated by the Shanghai Institute of Applied Physics of the Chinese Academy of Sciences. The National Nuclear Safety Administration issued the permit on June 7, 2023 allowing the Shanghai Institute to operate the reactor for 10 years which will start testing operations. The permit specifies that the Shanghai Institute is responsible for the safety of the reactor and must comply with all relevant laws, regulations and technical standards. Thorium MSRs are a type of advanced nuclear technology that use liquid fuels, typically molten salts, as both a fuel and a coolant. They offer several potential advantages

over traditional uranium reactors, including increased safety, reduced waste and improved fuel efficiency. Thorium is also a more abundant resource compared with uranium, and China has significant thorium reserves. The Shanghai Institute has also launched a follow-up project – a small-scale modular thorium molten salt reactor research facility – at the same desert site to advance the technology and address technical challenges, according to information on the institute's website. Small-scale modular reactors offer several benefits, including flexibility, enhanced safety features and cost-effectiveness, according to the institute.

**Ref:** <https://www.scmp.com/news/china/science/article/3224183/china-gives-green-light-nuclear-reactor-burns-thorium-fuel-could-power-country-20000-years>

## “The Octopus” Molecules – A New Potential Solution to Nuclear Waste

*Cell Reports Physical Science, University of Houston*

July 27, 2023

In an effort to address the issue of nuclear waste management, a team from the University of Houston has developed molecular crystals that can effectively capture iodine, a common radioactive fission product. These crystals, which offer high iodine uptake capacity, could be a game-changer in maintaining the integrity of nuclear reactors and waste containment vessels, and they have the added benefit of being reusable.

Alexandra Robles, a former doctoral student who based her dissertation on this research, was working with the crystals in Miljanic’s lab when she made the discovery. ‘She ended up capturing iodine on the interface between the organic and water layers, which is an understudied phenomenon,’ said Miljanic, who added that this exceptional feature provides a crucial advantage. “When the material is deposited between the organic and aqueous layer, it essentially stops the transfer of iodine from one layer to another.”

These hungry little crystals are very versatile and can capture more than iodine. Miljanic and his team have used some of them to capture carbon dioxide, which would be another great step toward a cleaner, more sustainable world. In addition, “The Octopus” molecules are closely related to those found in materials used to make lithium-ion batteries, which opens the door to other energy opportunities.

Reference: ‘Cyclobenzil hydrazones with high iodine capture capacities in solutions and on interfaces’ by Alexandra Robles, Maymounah Alrayyani, Xiqu Wang and Ognjen Š. Miljanić, 18 July 2023, Cell Reports Physical Science.

DOI: [10.1016/j.xcrp.2023.101509](https://doi.org/10.1016/j.xcrp.2023.101509)

## National

### Groundbreaking of Chashma-5 Nuclear Power Plant

<https://www.radio.gov.pk/14-07-2023>



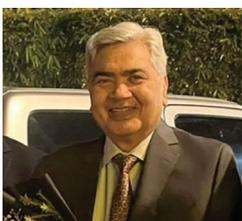
Prime Minister Shehbaz Sharif performed the groundbreaking of 1200 megawatts Chashma-5 nuclear power plant in Mianwali on Friday, July 14, 2023. PM said that the project costing 3.5 billion dollars will be completed in the next 7-8 years. He thanked China for providing a discount of 30 billion rupees on this project which, he said, is a very kind gesture from the Chinese friends. On this

occasion, Ms Pang Chunxue, Charge D’Affaires of the Chinese Embassy said that C-5 nuclear power plant will provide more than ten thousand local jobs and a large number of raw materials, equipment and related services will be purchased locally which can effectively promote socio-economic development. Speaking on the occasion, the Chairman of China National Nuclear Corporation (CNNC) said our cooperation in nuclear energy has been an integral part of China-Pakistan all weather strategic cooperative partnership and an admirable example of international nuclear energy cooperation. Chairman PAEC, Dr. Raja Ali Raza Anwar said Chashma-5 project will brought us one step closer to the envisaged goal of producing 8800 megawatts from clean nuclear energy. He said Chashma-5 will enhance not only our nuclear power technology experience but also have an impact on several areas of socio-economic uplift.

## News About PNS Members

### Congratulations

#### Dr. Kausar Abdullah Malik, HI, SI, TI



Dr. Kausar Abdullah Malik, a Lifetime Member of PNS, has been appointed as Federal Minister of National Food Security and Research. The President of Pakistan took oath from him on 11 September 2023. He is an eminent agriculture research scientist, distinguished national professor,

founding Director General NIBGE, former Member (Biosciences & Admin) PAEC, former Chairman Pakistan Agriculture Research Council (PARC), and winner of many national and international Awards. He has over 250 national and international publications and 5 patents in his credit. For his meritorious services, he was bestowed with three civil awards; Hilal-e-Imtiaz, Sitara-e-Imtiaz and Tamga-e-Imtiaz.

### Prof. Dr. Javed Iqbal Saggu



Dr. Javed Iqbal Saggu, Executive Member of PNS who is Professor at the Physics Department of Quaid-i-Azam University, Islamabad has

been appointed as Director Human Resource Department at QAU.

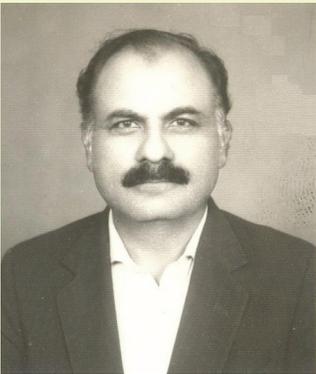
### Ms. Amara Nasir



Ms. Amara Nasir, a Lifetime Member of PNS, won the first prize in poster presentation at the 48th International Nathiagali Summer College (INSC). Out of 1200 researchers, about 250 were selected to participate in this prestigious event. The panel of judges from UK, Turkey and Poland evaluated the poster session and ranked her first in 'Semiconductor Materials & Devices' activity. The certificate along with a cash prize was awarded by PNS Lifetime Member, Dr. Masood Iqbal, Member Science/PAEC who was the Chief Guest at the closing session of INSC. The research of Ms. Nasir was supervised by Prof. Dr. Tariq Yasin, Chief Scientist/Registrar PIEAS, also a Lifetime Member of PNS.

## Obituaries

### Muhammad Younas Mughal



Mr. Muhammad Younas Mughal was born on 1st September 1939 at Tehsil Pasrur, District Sialkot. He was the only son of Mr. Muhammad Asghar who was a well-known mason in the town. In spite of his modest family background, his father made a firm decision to provide higher education to his son. Mr. Mughal received his earlier education from the Government High School Pasrur and completed his matric in 1954 and obtained his

F.Sc. from the Murray College Sialkot in 1956. He completed his bachelors from the Government College Lahore in 1958 and Masters in Geology from Punjab University in 1960. He joined PAEC in 1962. Then, he went to Canada for higher studies and completed his post-graduation from McGill University in 1964. Mr. Mughal was an honest, hardworking & competent Geologist. He played a pioneering role in the exploration of first Baghalchur Uranium Deposit in DG Khan District. This discovery played a pivotal role in the nuclear programmes of Pakistan. He held important positions in PAEC as Director AEMC Lahore, Head of Exploration Division and Project In charge UNDP Baghalchur Uranium Project. He retired as Chief Scientist. Mr. Younas Mughal breathed his last on 24th August 2023 and was buried in Lahore. He will be long remembered for his valuable services to PAEC.

May Allah grant him highest place in Jannah & rest his soul in eternal peace. Ameen

*(Mr. Shahid Ahmed Syed, CS (R), PAEC)*

## Students' Corner

### Innovative Ideas Competition



In order to keep the Associate Member (students) busy in useful and fruitful activities, PNS organizes various competitions to polish their abilities. Previously, an essay writing and a speech (short videos) competitions were held. Cash prizes were given to the winners to encourage them to

take part in such ventures. The third competition was conducted to brain storm and think about some implementable innovative ideas in science and technology. Twenty-one (21) students in four categories (1- Graduate students in Science, 2. Graduate students in Engineering, 3. Undergrad students in Science and 4.

Undergrad in Engineering) submitted their projects. According to the experts of the fields, almost all submitted ideas were ordinary (no innovations) except the one submitted by Mr. Mujahid Zareen, an undergrad student of Engineering from the Mirpur University of Science and Technology (MUST), AJK. It was about 'Software Requirements and Specifications for Medicine and Diagnostic Treatment System'. A cash prize of Rs. 10,000/- and a merit certificate was awarded to him in a ceremony held at PAEC Rest House, Islamabad in which Mr. Anwar Habib, former Chairman PNRA was the Chief Guest. Certificates were also issued to all participants of the competition.

### Review Papers Competition

To commemorate 76 years of Independence, PNS conducted a review papers competition on '76 Years of Science & Technology in Pakistan'. Resultantly, 19 articles were received. Cash prizes of Rs. 5,000 each were given to authors of the best five articles. Prize winners were:

- 1st - Kamran Khattak, UET, Taxila

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- 2nd - Ali Hamza, University of the Punjab, Lahore

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- 3rd - Alishah Anjum, International Islamic University, Islamabad

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- 4th - Ahtisham ul Haq, Hazara University, Mansehra

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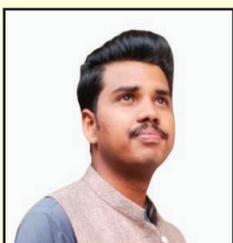
- 5th - Mujhid Zareen, Mirpur University of Science & Technology (MUST), AJK

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Cash prizes and certificates were awarded by Mr. Anwar Habib, former Chairman. Certificates were sent by email to all the contestants of the competition.

### Achievements of Associate Members



Mr. Ubaid Raza, a student of UET Lahore, Faisalabad Campus has won UCAS full scholarship for International Students to pursue his Masters in Physics at the Institute of Physics, Chinese Academy of Sciences (CAS), Beijing. This is

the top-class Institute ranked in top 1% in the field of Physics worldwide. Mr. Ubaid said, "The journey was not easy as I faced 20+ rejections, but hard work always pays off. This is the law of nature. Now I just want to look back and say, *I made it*".

## Training Courses

It is worth to mention that upon the need and the demands of some Associate Members, PNS arranged some online training courses with the support of its experts in relevant fields. It is understood that the students have to pay higher fees if they want to attend such specialized courses from professional institutions in the market. Since, PNS has experts in almost all S&T fields as its lifetime members, therefore, it was decided to utilize their expertise and skills and facilitate the students to their best. So far, following courses have been conducted successfully.

- Introduction to Artificial Intelligence (Dr. Ahmad Ahsan Nawaz)
- Exploring limitless possibilities of higher education (Dr. Ahmad Ahsan Nawaz)
- Writing a research paper (Dr. Ahmad Ahsan Nawaz)
- Fundamentals of MatLab (Dr. Zaka Ullah Sheikh)
- Fundamentals of Python (Dr. Zaka Ullah Sheikh)
- LINUX Basics (Mr. Abdul Malik Paracha)
- AutoCad 3D Basics (Mr. Muhammad Rafi)

## Social Events

### Recreational Family trip to Kashmir valley

For the entertainments of its Members and their families, PNS organizes recreational trips to scenic areas of Pakistan once in a year. Last year, a 3-days trip to Sharan Hill Resort in Kaghan Valley and Naran was arranged and this year a 4-days trip to Kashmir valley was organized. Two coaches accommodating about 50 persons, travelled through the curled reads surrounded by tall pine trees and lush green hills with heart alluring views of vast meadows. The first night stay was near the charming Banjosa Lake in Rawalakot. Next day, almost all participants hiked up to

Toli Pir that is about 9000 feet high. On the top, there is a 400 years old grave of some saint. The night stay was at Sudan Gali in Poonch District. The third day, a tiring day, was a tough hike up to the highest peak in the region, Ganga Choti. Only half of the participants made up to the end point. The next venture was another short hike up to Kopra Choti having vast green carpet like plains on the top. The enjoyable trip ended with a stopover at the waterfall near Muzaffarabad.



### EID Milan of Women in Nuclear (WiN)



Eid Milan party of WiN-Pakistan Chapter was held at PAEC Rest House on 15th July 2023 in which about 40 women along with their children gathered to celebrate EID Greetings. Many senior retired ladies 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. This event was organized by PNS as per commitment to facilitate its members to support such social events on subsidized rates. The services of the Rest House staff were appreciated for serving delicious dishes in a well-mannered way.



Issue 12/2023

October-December, 2023

# PNS Newsletter

Nuclear for Peace

A Quarterly Newsletter of the Pakistan Nuclear Society

## Patron:

Dr. Muhammad Tahir Khaleeq

## Editor-in-Chief:

Mr. Waqar Ahmad Butt

## Editors:

Dr. Muhammad Sadiq

Dr. Riffat M. Qureshi

Dr. M. Javed Akhtar

Mr. M. Abbas Qamar

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## From the desk of Editor-in-Chief

Pakistan Nuclear Society has continued its tradition of paying tribute to the national nuclear heroes on their death anniversaries. Consequently, PNS organized two memorial references during this quarter; one for honoring Dr. A.Q. Khan at the Academy of Sciences in Islamabad and the other for remembering Dr. R. M. Chaudhry at the GC University, Lahore. A large number of participants from different fields of life attended these events in which their colleagues, friends and students shared heartfelt memories.

The students' awareness campaigns regarding the beneficial uses of nuclear technology has expanded from university to college level. So far, PNS has organized knowledge sharing sessions at eight universities in different cities of the country. Moreover, it has conducted two sessions in Jhelum where a large number of students from three colleges participated. A bigger conference for college students has been planned by PNS in January 2024. It is intended to arrange a poster competition there on Peaceful Uses of Nuclear Science and Technology along with other programmes.

Realizing the importance of uplifting technical capabilities of industrial sector in the country by utilizing the skills of retired technologists, scientists and engineers, linkages with organizations like Engineering Development Board (EDB) are being established on firm footings. The expertise of PNS Members as experts/ consultants can play a pivotal role in the indigenization of various sectors. Furthermore, PNS highly acknowledges EDB for arranging paid internships for students that may lead to permanent positions in relevant fields.

PNS extends its thanks to Dr. Ahmad Ahsan Nawaz and Ms. Ruqiyah Shahid Altaf for their sincere, generous and well-informed Career Counseling of a significant number of students through their free training programmes/interactive sessions. Previously, similar courses were conducted online. Children of PNS Members are encouraged to participate in such useful career building activities.

## 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

**PNS College Conference**  
GGC Tahlianwala, Jhelum  
15th January 2024

## Contact:

### Pakistan Nuclear Society

PAEC Rest House, Hanna Road,  
Near NORI Hospital, G-8/3, Islamabad

Email: [council@pns.org.pk](mailto:council@pns.org.pk)

URL: <https://pns.org.pk>

YouTube: PNSociety

Facebook: [pakistan.nuclear.society](https://www.facebook.com/pakistan.nuclear.society)

Ph. No. (+92-51) 8895193 - 8895194

Fax: +92-51-9261823

## Activities during the 4th Quarter

### Tribute to Dr. A. Q. Khan

Pakistan Nuclear Society (PNS) takes it as a pride to keep the memories alive of those who rendered valuable services for the development of nuclear science and technology both for peaceful applications as well as strategic needs of the country. It is worth to mention that PNS has already organized memorial references for late Dr. Ishfaq Ahmad, Dr. I.H. Usmani, Prof. Abdus Salam and Mr. Munir Ahmad Khan. These have been reflected in previous publications. Another most popular personality for his invaluable contributions in the nuclear history of the country is of Dr. Abdul Qadeer Khan, *NI & BAR, H.I.* In order to continue glorification of our prominent nuclear stars, PNS organized a session to pay tribute to Dr. A.Q. Khan on his 2nd death anniversary. The event was held at the Pakistan Academy of Sciences (PAS), Islamabad on 10th October, 2023 during which his achievements were highlighted and significantly admired. PNS extends its highest appreciations to Dr. Khan's great contributions for Pakistan's nuclear programme that led the nation to become the 1st Nuclear Power among the Muslim nations and 7th in the world. Elite senior scientists and academicians especially those who worked with him joined this memorable reference to express their views during the half day discourse.



After recitation from the Holy Quran, a welcome address was delivered by **Prof. Dr. Tasawar Hayat, H.I, S.I, T.I**, Secretary General PAS. A formal introduction to Dr. Khan covering different stages of his life from the childhood to the professional career and achievements was presented by **Mr. Waqar A. Butt**, Vice President PNS. All the participants offered Fatiha for the departed soul. The invited speakers who shared their memories include **Dr. Inam ur Rahman, H.I, S.I, AK**, Former DG Centre for Nuclear Studies (now PIEAS), **Dr. N. M. Butt, S.I**, Chairman PINSAT/ Former DG PINSTECH, **Mr. Ejaz Ahmad Mukhtar, H.I, S.I**,

Former Chairman KRL, **Dr. Khalid Mahmood Khan, S.I**, President PAS, **Dr. Syed Wilayat Husain, S.I**, Former Member Science KRL and **Dr. Touqeer Anjam, H.I, S.I**, Former Member Science KRL. The ceremony concluded with a vote of thanks by **Dr. Mohammad Mohsin**, General Secretary PNS. A young student from the International Islamic University, **Miss Ayesha Yasin**, Associate Member of PNS performed the duty as stage secretary very elegantly.

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### Tribute to Dr. R.M. Chaudhry

Pakistan Nuclear Society (PNS) in collaboration with the Government College University (GCU) Lahore and Pakistan Physical Society (PPS) organized a memorial reference in respect of **The Father of Experimental Nuclear Physics in Pakistan**; Professor Dr. Rafi Muhammad Chaudhry, *H.I, S.I, S.K* on his death anniversary. After doing M.Sc. in Physics from the Aligarh Muslim University in 1929, Dr. Chaudhry proceeded to Cambridge (UK) for Ph.D. at Cavendish Laboratory under the supervision of Nobel Laureate Prof. Rutherford. He completed his doctorate in 1932 and returned to India. There he taught modern physics at Islamia College Lahore and then moved to Aligarh University as full Professor. Later he became Chairman of that Department. In 1948, he joined Government College Lahore where he laid foundation of the famous **High Tension Laboratory** in 1952 equipped with 1.2 MeV Cockcroft-Walton Generator. This laboratory has a major contribution to the experimental Physics where many top physicists like Dr. Ishfaq Ahmad, Dr. Samar Mubarikmand, Dr. N.M. Butt, Dr. Inam-ur-Rahman, Prof. Tahir Hussain, Dr. G.D. Alam, Dr. Ahsan Mubarak and Dr. Hameed Ahmad Khan were trained. His colleagues and students remembered him as an excellent teacher and a man of strong discipline. In recognition of his untiring services to development of S&T in Pakistan, the Government of Pakistan decorated him with the Civil Awards of Hilal-i-Imtiaz, Sitara-i-Imtiaz and Sitara-i-Khidmat.

The memorial session was held at Bokhari Auditorium of GCU on 4th December 2023 which was attended by a large number of distinguished guests, faculty staff, family members of Prof. Chaudhry and many students. The first session commenced with recitation from the Holy Quran followed by Naat e Rasool e Maqbool (SAW) and National Anthem. A short documentary





on **Physics is everywhere** was displayed. **Prof. Dr. Shazia Bashir**, Director Institute of Physics (IoP)/Dean of Physical and Mathematical Sciences, GCU introduced the seminar. **Prof. Dr. Hassan Amir Shah**, former Vice Chancellor GCU/currently the President PPS delivered the welcome address. Another documentary about the facilities and research work being carried out at IoP which was prepared by students of the institute was also shown. **Mr. Waqar A. Butt** presented a formal introduction of Prof. Chaudhry on his life from the childhood to the professional career. A short reference was also made in remembrance of late Prof. Dr. Faizan-ul-Haq, a student of Prof. R.M. Chaudhry who dedicated his 60 years to Physics at the HT Lab renamed as Centre for Advanced Studies in Physics (CASP). It was followed by the address of the Chief Guest, Prof. **Dr. Ahmad Adnan, Vice Chancellor GCU** who appreciated PNS, PPS and IoP for holding such a memorable event for remembrance and motivation of students.



The second session started with a documentary on the life and work of Prof. Chaudhry. A video message by **Dr. Samar Mubarakmand, N.I, H.I, S.I**, former Chairman NESCOM was played. **Dr. N.M. Butt, S.I**, Chairman PINSAT/ Former DG PINSTECH and **Dr. Inam ur Rahman, H.I, S.I, AK**, Former DG Centre for Nuclear Studies (now PIEAS), students of Prof. Chaudhry, shared their memories with historical photos and narrating interesting incidences that amused the students. **Dr. Shoab Ahmad**, former Member Science PAEC/ Rafi Chair also sent a video message bearing research work carried out in HT Lab. **Mr. Usman Rafi**, the grandson of Prof. Chaudhry, also expressed his views on behalf of his family. The ceremony lasted for about 3



hours and around 200 participants including students remained in the hall till the end. Shields were presented to all the speakers. Dr. Shazia gave the vote of thanks. At the end, the participants offered Fatiha for **Dr. R.M. Chaudhry** as well as other deceased persons.

\*\*\*\*\*

### Seminar on the Role of Nuclear Techniques in National Food Security at NIAB

A one-day national seminar on the “Role of Nuclear Techniques in National Food Security” was held on 26th December 2023 at Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad. The Seminar was jointly organized by PNS and NIAB. Before start of the seminar, a visit of PNS delegation was conducted to various sections of the Institute. About 150 persons were present in the main hall of NIAB. Due to space limitations, about 50 students attended the seminar in the adjoining hall through Zoom link. Additional 40 students witnessed the deliberation online in NIBGE Auditorium. **Dr. Iqbal Shahid, Director General (Ext.), Livestock Punjab** was the **Chief Guest** for this event. The seminar started with the recitation from the Holy Quran followed by welcome address and seminar introduction by **Dr. M. Yussouf Saleem, CS/Director NIAB**. He warmly welcomed the guests,



delegates from Islamabad, and all the attendees. Afterwards, **Dr. Muhammad Tahir Khaleeq, President PNS**, briefly gave the introduction of PNS and its activities performing all around the country emphasizing upon the peaceful uses of nuclear technology.

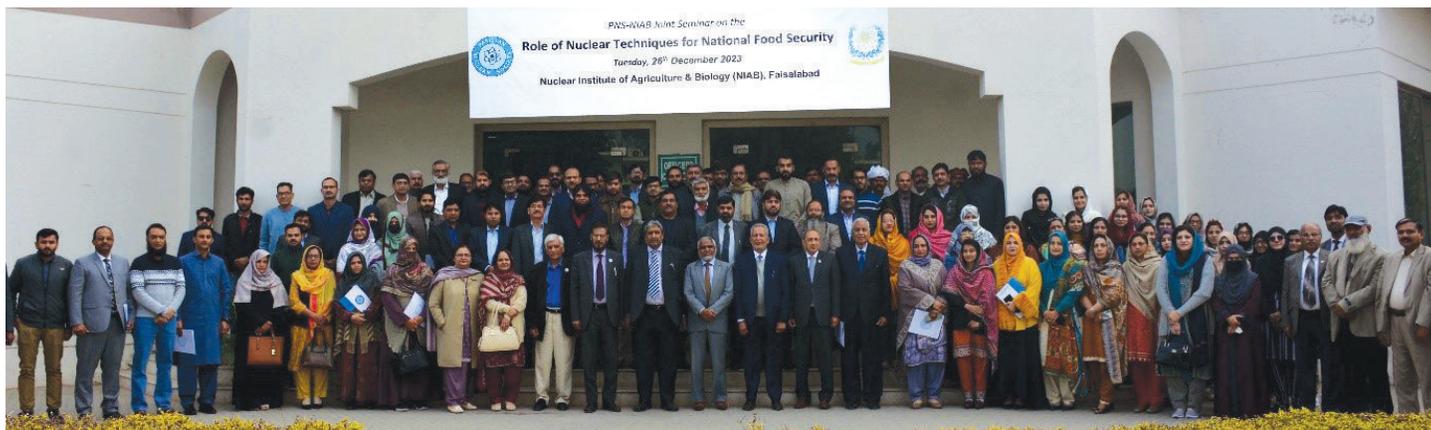
In the technical sessions, various presentations were given by the scientists and researchers of NIAB, NIBGE and other relevant organizations which are as follows; Dr. M. Yussouf Saleem, Director NIAB, “Role of Nuclear Techniques for National Food Security”, Dr. Tariq Mehmood Bhatti, Technical Consultant, SML Quetta, “The Dead Sea: A Partner in Food Security”, Dr. Muhammad Rashid, DCS, NIAB, “Enhancing Rice Crop Resilience through the Application of Nuclear Techniques”, Dr. Muhammad Arif, DCS, NIBGE, “Induced Mutagenesis and Biotechnology for Crop Improvement”, Dr. Mehboob-Ur-Rehman, DCS, NIBGE, “Induced mutations as useful genetic resource for understanding pathways to develop new wheat lines”, Dr. Kashif Riaz Khan, DCS, NIAB, “Mutation breeding for crop improvements (Cotton)”, Dr. Mahmood-u-Hassan, PS, NIAB, “Role of induced mutation on development of sesame and castor bean varieties and its impact on national food security”, Dr. Amjad Hameed, PS, NIAB, “TILLING: A powerful reverse

genetic tool in Molecular Mutation Breeding”, Dr. M. Jawad Asghar, PS, NIAB, “Improvement of Pulses at NIAB using Nuclear Techniques”. Dr. Mian Abdur Rehman Arif, SS, “Prospects and challenges in wheat improvement through induced mutations”, Ms. Mariyah Aslam, JS, PBGD, “Development of New Chickpea Varieties through Induced Mutation”, Dr. Ghulam Raza, PS, NIBGE, “Nuclear Technique; a useful strategy to develop improved soybean cultivars”, Dr. Humera Razzaq, Prof. UAF, “Role of nuclear technologies in the Oilseeds”, Ms. Javeria Asghar, PhD Scholar NIAB, “Role of Nuclear Techniques in Agriculture”, Dr. Uzma Maqbool, DCS, ASD, NIAB, “Role of Nuclear Techniques in Animal Production, Health and Food Safety”, Dr. Muhammad Akhter, DCS, HOD SEDS, NIAB, “Efficient Fertilizer Technology for better nutrient utilization and crop productivity on alkaline calcareous soil”, Dr. Sajid Nadeem, DCS, HOD PPD, NIAB, “Role of plant protection in pest and disease management of crops”, Dr. Rashid A. Khan, DCS, PPD NIAB, “Sustainable insect pests management in major field crops”, Dr. Nazia Suleman, DCS, PPD, NIAB, “Use of ecofriendly techniques for integrated pest management”, Dr. Rehana Kausar, PS, ASD, NIAB, “Nuclear and assisted reproductive techniques in animal production”, Dr. Sumaira Yousaf, PS, PPD, NIAB, “Nanomaterials as antimicrobials and fungicides for the control

of plant diseases under the changing climate scenarios, Dr. Syed Wajih ul Hassan, PS, PBG, NIAB, “Success of Gamma Irradiation”, Dr. M. Salahuddin Shah, PS, ASD, NIAB, “Irradiated technologies for vaccine development”, Mr. Ismail Chughtai, PS and Ms. Mehwish Mumtaz, PS, ASD, NIAB, “Application of nuclear techniques in food safety analysis”.



In the end, the concluding remarks were given by Dr. Yussouf Saleem in which he thanked PNS for holding such a seminar of national importance at NIAB. Certificates were given to all the speakers, organizers and participants of the seminar. The seminar was concluded with the vote of thanks by Mr. Waqar A. Butt, Vice President, PNS appreciating all those who devoted their time and efforts for the successful full day programme.



### Seminar on Exploring Nuclear Science and Technology in NIBGE

A seminar about awareness of PNS Programmes and activities was conducted on 27th December, 2023 at National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad. The seminar was organized by PNS with the collaboration of

NIBGE. After recitation from the Holy Quran, **Dr. Kalsoom Akhtar**, Director NIBGE gave the welcome address. She warmly welcomed the guests, PNS Council members from Islamabad, and all the participants.



The programme was coordinated and organized by **Mr. Abdul Malik Paracha** whereas **Dr. Rubab Zahra Naqvi** performed the duty as stage secretary. **Dr. Muhammad Tahir Khaleeq**, President PNS gave the introduction to Pakistan Nuclear Society emphasizing upon activities related to Women in Nuclear (WiN) and graduate students. **Mr. M. Abbas Qamar**, CS(R)/Former Director DOS, Executive Member PNS delivered a lecture

on “Nuclear Radiation and its Effects on Human Health”. **Dr. Samreen Shahzadi**, PS, PINSTECH, Secretary WiN-Pakistan Chapter talked on “The Role of Women in Nuclear S&T”. In the end, a thought provoking lecture was delivered by **Mr. Waqar A. Butt** on “Golden Principles and attitude of people” with specific examples from rich and poor countries. In the end, a useful question/ answer session was also conducted.



### Symposium on Nuclear Technology at University of the Punjab

PNS organized a symposium at the Chemistry Department of Punjab University, Lahore on the desire of former Chairman PAEC, **Mr. Muhammad Naeem, N.I, H,I, S.I**, for interaction with students. It is to mention that Mr. Naeem obtained his Master’s degree from the same department that has now upgraded

to School of Chemistry. PNS extends its acknowledgements and appreciations to **Prof. Dr. Abdul Qadir**, Chairman Chemistry Department for providing full logistic support in holding the event at Khorana Hall where more than 200 students, faculty staff and guests from other departments/organizations gathered.



The symposium commenced with the recitation from the Holy Quran by a student of the same Department in his melodious voice. **Prof. Dr. Sadia Atta** from the same department presented welcome address. Prof. Qadir elaborated the programmes and activities of the Department. Then, **Mr. Waqar A. Butt**, Vice President PNS introduced PNS and its various initiatives

especially for the guidance of students. **Prof. Dr. Khalid Mahmood, Vice Chancellor, PU Lahore, the Chief Guest** of the event, in his inaugural address applauded the efforts of PNS for organizing such useful seminars at various national universities and thanked the delegates who travelled from Islamabad to Lahore for this purpose.



The technical session started with a presentation by Mr. Waqar A. Butt on 'An Overview of Nuclear Technology' in a historical prospect. After that, the Guest of Honor, Mr. Muhammad Naem made a detailed presentation in which he unfolded his lifelong struggle from a modest family background to the top most position in the most reputed organization (PAEC) in the country and decorated with the highest civil awards. Then he highlighted the work done at different nuclear centers, starting from exploration of uranium

to the fuel fabrication for Pakistan's first nuclear power plant (KANUPP) with indigenous efforts. In his pictorial presentation he also covered applications of nuclear techniques in the areas of agriculture, industry, environment, human health and electricity generation. Finally, he gave some fruitful advices to students for their future planning to have a successful life. The symposium ended with vote of thanks by Dr. Mohammad Mohsin, General Secretary PNS.



### Session on Climate Change and Global Warming

College of Earth and Environmental Sciences (CEES) at University of the Punjab Lahore, organized its 4th International Conference on Emerging Trends in Earth and Environmental Sciences from 4-6 December 2023. In this conference about 140 papers were presented in four parallel sessions that were attended by more than 500 participants. It is worth to mention that PNS has inked MoU

with CEES for organizing such joint ventures, therefore, a half-day session on GLOBAL WARMING & CLIMATE CHANGE (GWCC) was sponsored by PNS. This session was **chaired by Prof. Dr. Kausar Jamal Cheema**, former Dean Faculty of Natural Sciences, LCWU and **Co-Chaired by Mr. Waqar A. Butt**, Vice President PNS.



In that session the following presentations were made.

1. **Man and the Environment** by Dr. Imtiaz Ahmad, Chief Scientist (R)/ DG-IA PAEC
2. **The Muslim Bagh Ophiolite: A Potential Site for Climate Change Mitigation** by Dr. Arshad Ali, Researcher, Sultan Qaboos University, Qatar
3. **Adapting to Global Warming: Innovating Resilient Solutions for Water Security in Changing Climates and the Cryosphere** by Dr. Amjad Masood, Scientific Officer, GCISC, Islamabad
4. **Utilization of Fe/Co-doped TiO<sub>2</sub> Nanoparticles for Photocatalytic Hydrogen Production** by Ms Iqra Anwar, Centre of Excellence in Solid-State Physics, PU, Lahore
5. **Evaluation of the Effect of Indigenous Landfill Covers on the Emission of Greenhouse Gases from Waste** by Tayyaba Younas, Univ. of Gujrat
6. **Assessment of Greenhouse Gases Emission Potential from Solid Waste Dumps using Static Chamber Method** by Dua Nouman Rana, Univ. of Gujrat

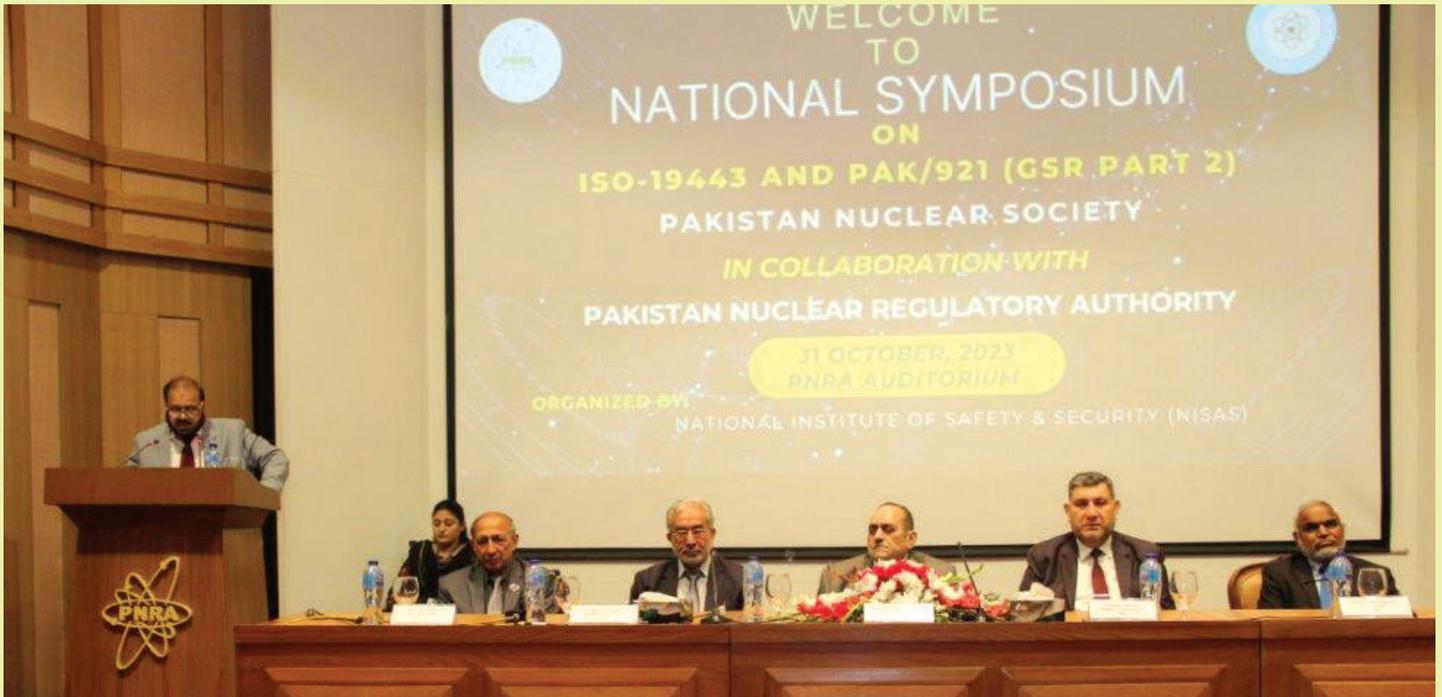
Prof. Dr. Sajid Rashid Ahmad, Principal CEES gave the concluding remarks and presented shield to all the speakers and organizers of the session. Certificates of participation to the students who attended the conference were also arranged.



### Fostering Safety & Quality for Sustainable Technical Support of NPPs

PNS Focus Group for Quality Management and National Institute of Safety & Security (NISAS), PNRA jointly organized **National Symposium on ISO-19443 and Regulations PAK/921 (GSR Part 2)** on 31st October, 2023 at PNRA Auditorium, Islamabad. The objective of the symposium was ‘Quality of indigenous products & services is one of the main solutions for socio-economic development of Pakistan’. The theme was fostering safety & quality for sustainable technical support to nuclear power plants. Speakers from Pakistan National Accreditation Council (PNAC),

Pakistan Standard and Quality Control Authority (PSQCA), Pakistan Atomic Energy Commission (PAEC), Certification Services of Pakistan (CeSP) and Pakistan Nuclear Regulatory Authority (PNRA) delivered lectures. The participants were from CNPGS, ICCC, DOS, DQM, WASO, NPO and PNRA. The ceremony was honored by **Engr. Parvez Butt, N.I, H.I and S.I**, former Chairman PAEC as Chief Guest. Resource persons were from PNAC, PSQCA, EDB and Ministry of Industries.



Welcome Address was given by **Mr. Muhammad Sadiq**, SPE PNRA, while the Introduction to Symposium was presented by **Dr. Anjum Iqbal**, Coordinator PNS. There were four presentations in the symposium. **Mr. Zahid Salman**, DCS, PAEC gave a talk on “Introduction to ISO-19443”. **Mr. R. H. Bhutta**, GM/HoD CeSP spoke on “ISO-19443 Certification Process”. **Mr. Azhar Iqbal**, Director PNAC elaborated on “Accreditation Process for ISO-19443 Certification”. **Ms. Samia Javed**, Assistant Director, PSQCA gave online presentation on the “Process of Adopting ISO-19443 as a National Standard”.

In the afternoon session, four more presentations were delivered by officials from PNRA. “Introduction to PNRA Regulations PAK/921 and IAEA Standard (GSR Part 2)” by **Mr. M. Sadiq**, “Introduction to Safety Culture” by **Mr. Shahbaz Ahmad Bhatti**, “Process to Conduct Safety Culture Self-Assessment” by **Mr. M. Usman** and “Supply Chain for Items Important to Nuclear Safety” by **Mr. Ahsan Qadeer**.

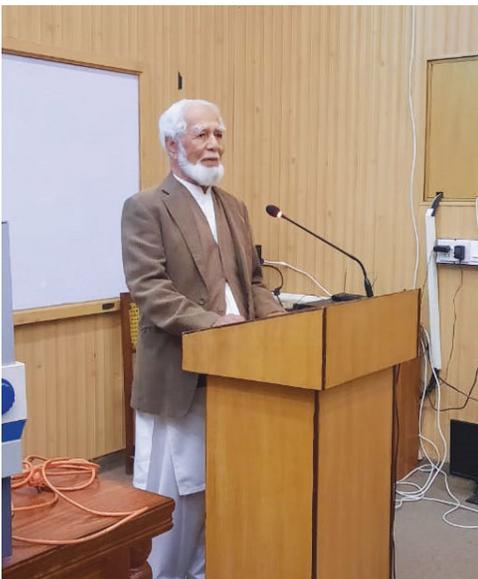


**Mr. Muhammad Rahman**, Member Executive PNRA was the Chief Guest in the closing ceremony. He applauded the efforts of PNS for holding such useful sessions which are essential for indigenization process in the country. Memento shields prepared

by PNS were presented to all the speakers. The symposium was also attended virtually by PNRA regional offices at Karachi and Chashma and by many others via zoom link. The seminar was concluded with the closing notes by Dr. Ajnum Iqbal.



#### Motivational Lecture by Dr. Inam ur Rahman at QAU



PNS, with the cooperation of the Department of Physics, Quaid-i-Azam University (QAU), Islamabad arranged a lecture on 'Inner Peace and Happiness in Times of Turbulence' on December 11, 2023. The lecture was delivered by a very honorable and distinguished speaker Dr. Inam ur Rahman, *H.I, S.I, AK* who is regarded as an Institutional Builder in nuclear science and technology. He is the founder of Centre for Nuclear Studies (CNS), now PIEAS. He is a Model Teacher of many scientists and engineers who are at top positions not only in PAEC but in strategic organizations. More than 100 persons, mostly science students gathered in the Razmi Auditorium from different departments.





Dr. Mohammad Mohsin, General Secretary PNS performed the duty as stage secretary. Prof. Kashif Sabeeh, Head Physics Dept. welcomed the audience. Dr. M. Tahir Khaleeq talked about PNS programmes and activities emphasizing upon the initiatives taken for the benefits of young graduates. Mr. Waqar A. Butt briefly introduced the speaker. The lecture of Dr. Inam ur Rahman was a blend of historical evolution of nuclear technology in Pakistan followed by highlighting human values to achieve peace of mind. He quoted many Quaranic verses as well as Ahadees relevant to the subject. During the discussion session after the lecture, students asked meaningful questions. In the end, Dr. Imtinan Elahi Qureshi, former President PNS gave the concluding remarks and presented vote of thanks. He gifted a calligraphy painting to Dr. Inam ur Rahman that he made by himself. Dr. Tahir Khaleeq also presented PNS Shield to the speaker.

### PNS Council greets Previous Presidents of PNS

PNS Council extended invitation to the previous PNS Presidents for holding a meeting at PAEC Rest House on 28-10-2023. Dr. Mustansar Jahangir, Dr. Javed Hanif, Dr. Syed Javaid Khurshid and Dr. Imtinan Elahi Qureshi graced the occasion. All of them appreciated the initiatives and enhanced activities by the present Council. However, the discussions were mainly focused on the sustained financial support to PNS and the medical issues like the newly circulated proforma for reimbursement of medical expenditures, 20% medical allowance, and special care for senior officers, particularly, the retired officials at PAEC General Hospital.

Detailed deliberations were made on the difficulties faced by senior officers in the hospital. Participants shared their personal experiences, underscoring the problems in accessing timely healthcare, especially in areas located far from the Hospital. There was a consensus that the facilities should be easily available to senior officers at the hospital. Suggestions put forth during the meeting involved streamlining the reimbursement process, better support to retirees' healthcare needs, and increasing awareness about available assistance programs. Regarding proforma for medical reimbursement, it was informed by General Secretary PNS that there is no restriction for monthly claims of reimbursement and one can apply within 6 months. Dr. N. M.



Butt, could not participate in the meeting due to personal issues, however, he sent a suggestion that PAEC hospital management should be approached for discussion on these issues.

Mr. Waqar A. Butt took up the responsibility to interact with the PAEC hospital management to address the aforementioned issues. In this regard, he had a meeting with Dr. Abdul Majeed, Director PAEC hospital and discussed the aforementioned issues. The Director informed him that the Management of PAEC hospital fully realized the difficulties faced by senior officials, especially the aged ones. It is happening due to overwhelming rush of patients and space limitations. He further said that the new building near the entrance gate is almost ready at which the OPD will be shifted in 4-6 months. In that building there is sufficient space to have a decent waiting room, separate counter and a separate doctor's room for seniors. He further informed that the monthly reimbursement proforma is not mandatory and the hospital as well as some other establishments have not adopted it. The issue raised by Dr. N. M. Butt, was also discussed and the hospital management informed that collection of samples from homes would not be possible due to long distances of residents from the hospital. However, it can be done when the proposed 3-4 Sample Collection Centers at various places in Rawalpindi and Islamabad will be set up. The proposal is with PAEC Foundation for implementation.

The discussions during the meeting were quite productive, fostering an atmosphere of collaboration with a constructive dialogue among the seniors and the juniors. The presidents extended their full support and guidance for the Council to keep up doing the best of its efforts. In the end, Dr. M. Tahir Khaleeq thanked the presidents for sparing their valuable time for fruitful exchange of ideas and encouragement.

### Graduate Students Session on Benefits of Nuclear Technology at the Preston University

Pakistan Nuclear Society (PNS) upon invitation from the Preston University arranged a seminar on **Exploring Nuclear Science & Technology for the benefits of mankind**. The students' session was held at the main hall of their Islamabad Campus on November 23, 2023 in which about 150 students and faculty members participated. **Dr. Nisar Ali Swati**, was Program Coordinator whereas the stage secretary was **Ms. Madiha**, an Associate Member of PNS. The main purpose of the seminar was to create awareness about the peaceful uses of nuclear energy and its applications in various fields. **Dr. M. Tahir Khaleeq** gave a brief introduction of PNS and its various initiatives for the students. He urged them to become PNS Associate Members for grooming of their future career. **Mr. Waqar A. Butt** gave a presentation on 'Nuclear Technology in Pakistan' elaborating beneficial uses of nuclear

techniques in various fields emphasizing on the importance and need of electricity generation by nuclear power plants. **Mr. M. Abbas Qamar's** talk was on 'Introduction of Nuclear Radiation and its Effects on Human Health' clarifying some misconceptions about the danger of radiations and fear of nuclear. **Dr. Samreen Shahzadi**, being the Secretary WiN-Pak Chapter, spoke on the 'Role of Women in Nuclear Science' showing the photos of some prominent women scientists and their achievements. In the end, Prof. **Dr. Mohammad Daud Awan, Vice Chancellor**, Preston University, thanked PNS for holding the seminars at their campus and desired that PNS would also hold seminar on specific topics in science subjects. He assured his full support for collaboration with PNS in future programmes at the university campus.



### College Students Session in Jhelum

Pakistan Nuclear Society (PNS) invites the youth of Pakistan in various knowledge sharing sessions for fostering peaceful uses of nuclear science and technology, capacity building of educational institute, bridging academia and industry, etc. PNS is extending these initiatives to small cities and planning for a conference at Govt. Graduate College Thalianwala, Jhelum in January 2024. The aim is to enhance the knowledge and creativity of local students about applications of nuclear techniques in various sectors. There would be various activities including poster competition, quiz, entertainments, stalls, etc. The principals, teachers and students of Govt. Graduate College for Women and Govt. Graduate College GT Road, Jhelum are also showing keen interest in this event.

An introductory session of the conference was conducted at Govt. Graduate College Tahlianwala, Jhelum on 3rd November 2023 in which Dr. Anjum Iqbal, Coordinator PNS briefed about the forthcoming conference. Mr. Waqar Ahmad Butt, Vice President PNS enlightened the students on peaceful uses of nuclear technology. Due to large number of students from three colleges, this activity was performed in two sessions. In each session about 200 students participated. The principal of the college, Dr. Shahid Saeed Qureshi led the organized event very professionally and thanked PNS Officials to travel from Islamabad for the fruitful sessions.



As a follow up to that interaction and future collaboration, the Principal of the College, Dr. Shahid Qureshi invited Dr. M. Tahir Khaleeq and Dr. Anjum Iqbal as Guests of Honor in the Convocation of the College. **Mr. Bilal Azhar Kayani**, former Coordinator to the Prime Minister on Economy and Energy was the Chief Guest on that occasion. Such ventures may create greater visibility of PNS at national level.



## Outreach and Linkages

### Meeting with Federal Minister for National Food Security and Research

Six members of PNS Council made a courtesy call on **Dr. Kausar Abdullah Malik, H.I.S.I.T.I**, Federal Minister National Food Security and Research who is a Lifetime Members of PNS. Dr. Malik was Member Bio-Science and Member Administration in PAEC. He also served as Chairman Pakistan Agriculture Research Council (PARC). Many issues of national interest and academic

programme being carried out by PNS remained under discussion for about an hour. Dr. Malik appreciated new initiatives and expanding activities of PNS especially the interesting material that appears in PNS Newsletter. Dr. Yusuf Zafar, Advisor to the Federal Minister who is also a Member of PNS Scientific Advisory Board (SAB) was also present in the meeting.



### Meeting with CEO, EDB

PNS delegation comprising of Engr. Parvez Butt, *N.I.H.I.S.I*, former Chairman PAEC who is also the Head of PNS Scientific Advisory Board (SAB), Dr. M. Tahir Khaleeq, President PNS and Mr. Waqar A. Butt, Vice President PNS visited Engineering Development Board (EDB) on Wednesday, 27th November 2023 and held a meeting with Mr. Raza Abbas Shah, CEO, EDB and Mr. Muhammad Shahzad, GM (HR and Finance). One of the main purposes of the meeting was to discuss possibilities of utilizing the expertise and skills of PNS Members who have 30-40 years of experience in various technical fields. As per practice in vogue, most of the experts for solving problems faced by the local industry are hired from abroad. It was agreed that if experts of relevant fields were available within the country, they would be preferred. An MoU may also be signed between PNS and EDB after identifying some specific areas of interest. Regarding the power sector initiatives, it was proposed to consider indigenous manufacturing of Small Modular Reactors (SMR) to support the national grid. Relevant experts in PNS Pool can play a major part in the feasibility studies.



### Collaboration with PSQCA for International Standards

Pakistan Standards & Quality Control Authority (PSQCA) and PNS opened a new avenue of collaboration to enhance the contributions of national experts for International Standards. On receiving invitation from PSQCA, PNS Focus Group for Quality Management (FGQM), headed by Dr. Anjam Iqbal, arranged eleven experts for the Technical Committees and Sub-Committees

of four International Standards ISO & IEC. The experts would contribute to develop, improve, adopt and implement the International Standards. The PNS-FGQM would coordinate for the participation and contribution. The collaboration of PNS and PSQCA would further enhance the quality of local products and services leading to the socio-economic development of Pakistan.

### Public Awareness

#### PNS Stall at PC, Rawalpindi

Pakistan Society of Nuclear Medicine (PSNM) held its 8th Annual Conference from 20-22 October 2023 at the Pearl Continental Hotel, Rawalpindi. Learned speakers from USA, UK, Germany, France, Italy, Morocco, Kuwait and Oman as well as from various local cancer hospitals throughout the country gave very useful and informative talks which were attended by more than 200 participants. PSNM offered a free stall to PNS for public awareness about its activities related to peaceful uses and benefits of nuclear technology in health sector. Handouts and brochures were distributed to the visitors. Discussions were also held with various organizations and companies for collaborations and joint ventures in relevant areas. The main figure behind this very successful conference was the President PSNM, Dr. Shazia Fatima, Director KIRAN Hospital. She is also the President of Women in Nuclear (WiN) Pakistan Chapter. Therefore, introductory leaflets of WiN were also distributed among the participants.

During the conference, PNS delegation met Ms. Barbara Hertz, the daughter of Dr. Saul Hertz who is credited with the initial

conceptualization and development of radioactive iodine in the 1930s. He conceived and brought from bench to bedside the medical uses of radioiodine (RAI) for thyroid disease that opened the way of treatment with nuclear medicine. The family saved his work which was in the form of handwritten data charts. Ms. Barbra displayed that work in a chronological order and explained the whole history of it in a passionate way. Participants took lot of interest in this small exhibition.



## Silent Heroes

### Dr. Muhammad Yunus

*The main person behind Pakistan's nuclear fuel cycle programme*



Dr. Muhammad Yunus was born on 1st June 1935 to the noble parents Fateh Muhammad and Fatima Bibi at a village named Syed Hussain near Dina in district Jhelum. His father died when he was only four years old. Therefore, his elder brother Abdul Kareem took him to Lahore where he did matric from Govt. Central Model High School, B.Sc. from Govt. College and Masters in Chemical Engineering from the Institute of Chemical Technology, Punjab University. For some time, he served as Lecturer in the University of Punjab, Lahore. In 1958, he left for Belgium in pursuit of higher studies and completed his doctorate in metallurgical science from Université Libre de Bruxelles in 1961. After that he got training in nuclear energy and metallurgy from Mol nuclear power plant in Belgium and Saint Gobain Techniques Nouvelles in Grenoble, France from 1961-63. He returned to Pakistan and joined PAEC in 1963 when the Head Office was at Drigh Road, Karachi. PAEC sent him to Holland where he worked at the famous Reactor Institute in Delft. From there he went to Canada with KANUPP Team for fuel design part of that programme and worked at Peterborough/ Chalk

River from 1966-68. Returning from abroad, he was posted at the Atomic Energy Centre Lahore. He set up a Fuel Cycle Group there and did pioneering work in that area. He was then transferred to PINSTECH in 1971 and became the first Head of Nuclear Materials Division. When the scope of nuclear fuel exploration and processing was extended, he was transferred to PAEC HQ to set up various sites and laboratories at different places in the country. He served as the Director, Directorate of Nuclear Fuels and Materials (DNFM) that was responsible for all facilities related to fuel cycle. He also played a pivotal role in the deal of reprocessing plant from France and also established contacts for collaboration in the field of nuclear development with UK, Argentina and China. He spent a very active life and died on 28th January 1980 in Brussels, Belgium when he was still in service of PAEC. His dead body was brought to Pakistan and buried in H-8 Graveyard, Islamabad.

May ALLAH Kareem rest the departed soul in eternal peace

*PNS is grateful to Mrs. Dr. Yunus, Dr. Usman Yusuf and Mr. Abdul Raheem (Former Head LAO, DNFM) for providing the information.*

## A Historical Photo

### First International Conference on Solid State Physics at PINSTECH-1974



1. Dr Ehrlich Karlsruhe, 2. Prof Sibley (USA), 3. Prof. Yaqub(USA), 4. A.Liddiard(UK) 5. Wannier(USA), 6. M.W.Thompson(U.K), 7. Mr. Rafi Raza(Minister-Chief Guest), 8. Prof.J.M.Ziman FRS(UK), 9. Mr.Munir A Khan (Chairman PAEC), 10. Dr.Ishfaq Ahmad (Director PINSTECH), 11. W.Koehler(USA), 12. B.Brockhouse (Canada) and 14. Dr.N.M.Butt (Conf. Secretary).

## Nuclear News and Views

### International

#### Floating Nuclear Power Plants: Benefits and Challenges

Lucy Ashton, IAEA Department of Nuclear Energy

November 21, 2023

How can we provide a reliable supply of energy far out to sea, or on an island, or in a coastal community? The typical answer is by using fossil-fuelled generators. But as efforts to decarbonize global energy systems expand, one of the answers could be to use a floating nuclear power plant (FNPP). Interest is growing in installing small modular reactors (SMRs) on floating barges or platforms to provide clean electricity and heat for remote coastal locations, to decarbonize offshore oil and gas or mining activities, or even to provide grid scale electricity production, unlocking cost reductions through serial production in shipyards. However, FNPPs are different since they will produce low-carbon power and heat for different applications, including district heating, desalination and hydrogen production. At an IAEA symposium on floating nuclear power plants that took place from 14-15 November 2023 in Vienna, legal experts, nuclear and maritime regulators, and industry leaders discussed the benefits and challenges of FNPPs and exactly what role they could play in the fight against climate change and the transition to Net Zero.

Floating NPPs can be built in a factory, assembled in a shipyard and transported to a site, all of which may help to speed up construction and keep costs down. Canada, China, Denmark, South Korea, Russia and the USA are each working on marine small modular reactor designs, some are in advanced development. However, it is the very mobility of these FNPPs that raises new questions, particularly when they move across international borders or operate in international, rather than territorial, waters. For example, how about licensing, transportation and application of safeguards when a FNPP is built and fuelled in one country's jurisdiction, and then transported to another jurisdiction? There are also considerable legal and regulatory challenges that must be addressed if a truly international floating nuclear power market is to emerge.

For details: <https://www.iaea.org/newscenter/news/floating-nuclear-power-plants-benefits-and-challenges-discussed-at-iaea-symposium>

#### Kohler Energy unveils Hydrogen solutions for Clean Energy Portfolio

Technology Times

November 15, 2023

Kohler Energy, a pioneer in clean energy solutions, has introduced a cutting-edge hydrogen engine and its inaugural hydrogen fuel cell power system. The latest innovations underscore a diverse range of clean energy and hydrogen-ready solutions, catering to off-highway equipment and serving standby and prime power applications for both residential and industrial needs, spanning from 20kw to 5MW and beyond. The hydrogen internal combustion engine will be designed to deliver performance and power density equivalent to traditional diesel engines but with the added advantage of utilizing a carbon-neutral hydrogen solution. This move aligns with its strategy to invest in innovative engine technologies that enhance energy efficiency while significantly reducing environmental impact. In parallel, Kohler Energy's

industrial sector is set to launch its maiden hydrogen fuel cell power system; an impressive 100 KW Solid Polymer Electrolyte Membrane fuel cell, powered by green hydrogen. Tailored for emergency backup, peak shaving, and demand response, the system caters to a wide spectrum of mission-critical power users, including hospitals, data centers, utilities, ports, and water treatment plants. The hydrogen engine was debut at the Agritechnica trade show in Hanover, Germany on November 13, showcasing its capabilities to a global audience.

<https://www.technologytimes.pk/2023/11/14/kohler-energy-unveils-hydrogen-solutions-for-clean-energy-portfolio/>

#### Agreement to triple nuclear capacity signed at COP28

World Nuclear News

December 02, 2023

Twenty-two nations, including US, UK, France and Japan, have signed a declaration at the COP28 climate conference to commit to tripling global nuclear energy capacity by mid-century to achieve carbon neutrality. The declaration recognizes the importance of financing for new builds and the role of the International Atomic

Energy Agency in supporting the inclusion of nuclear in countries' energy planning.

Full story: <https://www.world-nuclear-news.org/Articles/Ministerial-declaration-puts-nuclear-at-heart-of-c>

## National

### Use of Biotechnology to develop Bio-degradable Plastics

Technology Times  
November 17, 2023

Traditional plastics are made from non-renewable fossil fuels, such as oil or natural gas, and are designed to be durable and long-lasting. However, this durability also means that plastic waste can persist in the environment for hundreds of years, causing harm to ecosystems and wildlife. Bio-degradable plastics, on the other hand, are designed to break down into harmless substances over time, reducing their impact on the environment. Bio-degradable plastics can be made from a variety of renewable resources, such as corn starch or cellulose, using biotechnology. One approach is to use microorganisms, such as bacteria or fungi, to break down renewable resources into the building blocks of plastics, such as monomers or polymers. These building blocks can then be used to create biodegradable plastics with a variety of properties, such as strength or flexibility. Another approach is to use genetic

engineering or gene editing to modify organisms to produce new types of plastics, or to optimize existing processes for producing bio-degradable plastics. The use of biodegradable plastics has several potential benefits for the environment and society such as that biodegradable plastics can break down naturally over time, reducing the amount of plastic waste that ends up in landfills or the environment. The production of traditional plastics contributes to greenhouse gas emissions, while the production of biodegradable plastics made from renewable resources can have a lower carbon footprint. Biodegradable plastics can be more expensive to produce than traditional plastics, making them less competitive in some markets. Biodegradable plastics may not have the same durability or other properties as traditional plastics, making them less suitable for certain applications.

## News about PNS Members

### Congratulations

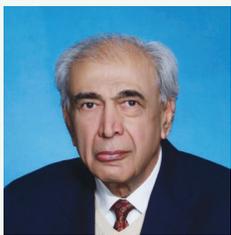


Dr. Muhammad Zaffar Hashmi, a Lifetime Member of PNS who is currently a Fulbright Scholar at Michigan State University, USA and Associate Professor at the University of Lahore, has been

elected as Fellow of Pakistan Academy of Sciences (PAS) in a very young age of 36 years. He is the youngest fellow of PAS. PNS Council congratulate him for the great achievement.

### Obituaries

#### Dr. Arshad Muhammad Khan



Dr. Arshad Muhammad Khan was born on 29th May 1938. He had a meritorious academic record with gold medals in High School and B.Sc (Honors) examinations. He joined PAEC in 1960 after M.Sc. (Physics) from Karachi University in 1959 and then completed his Ph.D in Physics from the Birmingham University, UK in 1964. His outstanding scientific career spanning over 50 years was very versatile and covered three related yet distinct fields – nuclear physics; energy systems analysis and planning; and climate change modeling and policy formulation. He was awarded Gold Medal in the field of Energy by the Pakistan Academy of Sciences (PAS) in 1986 and then elected PAS Fellow in 1992. He also served as Secretary, Prime Minister's Committee on Climate Change from 2004.

Dr. Khan's activities in nuclear physics spanned the period 1960 to 1978. As Head Nuclear Physics Division in PINSTECH, he was also involved in several other research activities. During

1978-80, he participated in the Energy Systems Program of the International Institute for Applied Systems Analysis (IIASA), located at Laxenburg in the suburbs of Vienna, Austria. IIASA is a global think-tank established to analyze and recommend solutions for global issues like energy, climate change, agriculture etc. He was one of the key authors of the reputed study 'Energy in a Finite World' under Program Leader, Wolf Hafele, published in 1981. Dr. Khan was the founding Director of Applied Systems Analyses Group (ASAG), which was later elevated to the status of a directorate. During 1996-2001, he served as Senior Nuclear Power Planner at the Planning and Economic Studies Section, Division of Nuclear Power, IAEA, Vienna. During 2002-15, he was involved in capacity building at Global Change Impact Studies Centre (GCISC) as Executive Director to assist national planners and decision makers in strategic policy planning in consonance with the changing global environment in areas such as climate, water, energy, food, agriculture, health, new technologies etc. He was author/coauthor of about 160 research publications in the three above mentioned fields and editor of seven books.

## Condolence Reference

Pakistan Nuclear Society, in collaboration with the Applied Systems Analysis Division (ASAD), PAEC HQ and GCISC, organized a Condolence Reference for Dr. Arshad M. Khan on October 27, 2023 at the PAEC Rest House, Islamabad. The Reference was attended by several of his former colleagues, some via ZOOM, in-service personals and his family members. Mr. Waqar A. Butt, VP PNS gave the welcome note. Dr. Farzana Naqvi presented the formal introduction covering various aspects of Dr. Khan's life. Ms. Hina Qazi read out the message sent by Mr. Jamshed A. Hashmi from Karachi. The audio message of Dr. M. Jameel was played. Then, Dr. N.M. Butt, Dr. N.M Qazi, Mr. Ahmad Mumtaz, Mr. G.R. Athar and Dr. Arif Goher, Director GCISC recalled their memories and good time spent with Dr. Khan. In the end, dua-e-mughrfat was offered by Mr. M. Latif,

former Director ASAD. May Allah Kareem reward Arshad Muhammad Khan for all his personal virtues and contributions for the betterment of Pakistan.



(Mr. Ahmad Mumtaz)  
(Dr. Farzana Naqvi)

## Mr. Riaz A. Malik



Mr. Malik Riaz Ahmed was born on 20th April 1948 in Pind Dadan Khan, Jhelum in 1948 and received his early education from Jhelum. Afterwards he did B.Sc. from University of the Punjab, Lahore in 1966 and was awarded Roll of Honor. He was later admitted to UET Lahore for B.Sc. Electrical Engineering and during first semester he was awarded Inter Wing Scholarship to study Electrical Engineering at University of Engineering & Technology, Dhaka (East Pakistan, now Bangladesh). After completing his studies in 1971, he joined Fauji Foundation as Assistant Engineer and worked on planning, designing and execution of several projects. Then in 1976, he joined Pakistan Atomic Energy Commission (PAEC) as Senior Engineer and worked for about 34 years

on various important assignments in different PAEC setups and promoted to Chief Engineer in 2001. He was awarded the International Atomic Energy Agency (IAEA) Fellowship in 1984 for on-the-job training of 900 MW NPP. He was a member of different professional engineering bodies and was also bestowed upon the Fellowship by Pakistan Nuclear Society in 2002 for his valuable contributions towards PAEC Programme. During his service, he held the appointments of Director Institute of Nuclear Power (INUP), Director Coordination and then DG (Planning) at PAEC HQ and also DG (Admin.) Nuclear Fuel Cycle (NFC). His meritorious services for PAEC will always be remembered by his colleagues. Mr. Malik passed away on 18th December, 2023 (Inna Lillah he Wa Inna Illehe Rajeon). May Allah (SWT) grant him Jannat-ul Firdous (Ameen).

(Dr. Sohaib Ahmad, son)

## Mr. M. Asghar Chohan



Mr. Muhammad Asghar Chohan, Chief Engineer (Rtd.) was born on 5th March 1946 in Gujranwala. After completion of his early education from Gujranwala, he completed B.Sc. in Chemical Engineering from Karachi University in 1966 and was awarded Roll of Honor. Then he got a job at PCSIR Labs, Karachi as Assistant Engineer in 1969. Under the banner of PCSIR, he worked on planning, designing and execution of several valuable projects of national interest. Later in 1976, he joined Pakistan Atomic Energy Commission (PAEC) as Senior Engineer at DNFM, Islamabad. He was then posted to CPC project, Dera Ghazi Khan. During his 30 years of service, he worked on numerous important

assignments in different PAEC setups. He was also a member of many professional Engineering bodies. In reward of his valuable contribution to PAEC programmes, he was promoted as Chief Engineer in 2001. During his service in PAEC, he held the important position of PM NISLP (NMC-1), Dera Ghazi Khan. His meritorious services for PAEC will always be remembered by his colleagues and friends. Mr. Chohan passed away on 16th December, 2023. May Allah (SWT) grant him high rank in Jannat-ul Firdous (Ameen).

(Mr. Muhammad Rizwan, PS, NIAB, Son)

### Mr. Ghulam Muhammad



Mr. Ghulam Muhammad, usually called 'GM' by his friends and colleagues was a Health Physicist who spent almost all his practical life at the Health Physics Division (HPD) of PINSTECH. He was born on 12th May, 1955 in the town of Tala Gang, District Chakwal. After obtaining master's degree in Physics from Quaid-i-Azam University, Islamabad,

he got admission in Health Physics Course at PIEAS. After successful completion of the course, he joined HPD/PINSTECH in November 1979 as Scientific Officer. He was bestowed upon the responsibilities of Radiation Dosimetry lab. He was also

involved in Applied Health Physics, Environmental Monitoring and Radioactive Waste Management. Throughout his service, he lived in PINSTECH Colony and for his friendly attitude and social aptitude, he was elected as President of PINSTECH Colony Welfare Committee. Due to health issues, he got early retirement in the year 2006 when he was Principle Scientific Officer. He built a house near Barrier-1, Nilore Complex and settled there after retirement. He breathed his last on 7th November, 2023.

May Allah Kareem rest his soul in eternal peace.

(Mr. Abdur Rashid, DCS(R), HPD)  
(Syed Zahid Hussain, EM, PNS)

## WiN Activities

### Role of Women in Nuclear Science and Technology

WiN- Pakistan organized a one-day Seminar on "The Role of Women in Nuclear Science" on December 7, 2023 at PINSTECH. More than 50 women scientists and engineers from PINSTECH complex, PAEC HQ, and PNRA attended the seminar. Four ladies from the Syria Atomic Energy Commission who were on training through IAEA also participated. **Dr. Samreen Shehzadi**, PS, PINSTECH/ Secretary WiN-Pak delivered a talk on "The Role of women in the nuclear field, WiN Global and WiN Pakistan chapter". **Ms. Warda Rana** from Syria presented "The Role of Women in Atomic Energy Commission of Syria". **Ms. Mousa Nisreen**, **Ms. Alasalhy Safaa** & **Ms. Alhabbal Raghada** spoke about their experiences in the nuclear field and IAEA Fellowship at PINSTECH. **Dr. M. Tahir Khaleeq**, President PNS gave introductory Remarks regarding the seminar and the activities

of PNS and WiN- Pakistan. **Dr. Khalida Gill**, Former President WiN- Pak was the Guest of Honor. She shared her lifelong experiences in various positions in PAEC, PNS, and especially WiN Global programmes in which she represented Pakistan in many countries. It is worth mentioning that she had the longest tenure as In-Charge WiN-Pak Chapter and remained PNS Council Member for many years. **Dr. Anila Usman**, CS/Dean Applied Sciences, PIEAS presented a memento to Dr. Khalida Gill. **Dr. Muhammad Waseem**, Director Technology, PINSTECH, the Chief Guest of the seminar, appreciated the efforts of PNS and WiN-Pak for strengthening and promoting the role of women in the nuclear field. **Dr. Saira Butt**, Head Isotope Application Division, PINSTECH presented the vote of thanks. Shields were given to the foreign participants.



### Interaction with WiN Global

WiN-Pak Council members had a meeting with Dr. Nouzha ben Rais from Morocco, Representative of WiN Global Imaging Committee on October 21, 2023 at PC Hotel Rawalpindi and discussed with her current programmes and future collaboration with WiN Morocco as well as WiN Global. She appreciated the efforts and seriousness of WiN-Pak for strengthening the role of women working in the field of nuclear science & technology. She assured all possible help in organizing some international events in Pakistan.



Dr. Samreen Shehzadi had an online meeting with Dr. Janette Donner, President WiN-IAEA on November 26, 2023. In the meeting, Dr. Samreen informed about the activities of WiN-Pakistan chapter and collaboration with WiN Global. She clarified that presently WiN-Pak is working under the umbrella of the Pakistan Nuclear Society (PNS). Dr. Donner appreciated these efforts for promoting the role of women in nuclear field. She also showed her interest in the collaboration of WiN-IAEA with WiN-Pak and may extend invitations to relevant ladies from Pakistan to participate in future events in Vienna.

### WiN Awareness Section at Preston University

Dr. Samreen, the Secretary WiN-Pak Chapter, spoke on the Role of Women in Nuclear Science showing photos of some prominent women scientists and their achievements during the students session at the Preston University, Islamabad. She urged the female students to become WiN-Pak members and make the role of women visible for socio-economic development in the country.

## Students' Corner

### Students Counseling for Higher Studies



Ms. Ruqiyah Shahid Altaf, a Lifetime Member of PNS who is a Certified Career Counsellor, conducted a free session of about 3 hours for students interested in higher studies. PNS arranged this interactive physical activity at PAEC Rest House on Saturday, 18th November 2023 in which more than 40 students participated and gained valuable knowledge on end to end guidance, cost and scholarships, document completion, visa insights, post study opportunities etc. In that interactive session, students asked many questions to choose the right pathway and destination. Another career counsellor, Mr. Khizar Shahid also helped the students in the similar way.



### Internships

The interaction and collaboration with the Engineering Development Board (EDB) has started bringing fruitful outcome. Resultantly, two paid internships for recently graduated students were offered to PNS Associate Members. It was circulated through WhatsApp and twenty two applications were received which were sent to EDB for selection. It is worth mentioning that these internships may convert into permanent positions on satisfactory performance.

During the monthly meeting of PNS Council held on 4th November, 2023, it was decided to hire a person for day to day work at PNS office including maintenance of records, updating database, editing of promotional videos, etc. Accordingly, Mr. Azhar Hussain who graduated recently from the University of Punch, Rawlakot, AJK has been inducted as Paid Intern initially for three months.



### Achievements of Associate Members

Two Associate Members of PNS, Mr. Ghazi Mujtaba Mujaddad and Mr. Mudassar Imam Hadi from the Department of Electrical Engineering and Technology, Riphah International University, Faisalabad were honored by Pakistan Engineering Council (PEC) for accepting their Final

Year Design Project financed by PEC. The award was presented in a ceremony held at the University of Agriculture, Faisalabad on December 13, 2022. The topic of their Design Project was "Implementation of prototype of Electric Vehicle with IOT Monitoring".

## Social Events

### Hike cum get to gather

The 2nd hike of the year for families of PNS members was arranged on Sunday, 26th November 2023 at the traditional attractive track of Trail-5 in Margalla Hills. About 80 persons including young children moved through lush green pathway up to the 1st spring which is only 2km from the parking site. A new spot on the grassy lawn opposite to CDA Nursery was

selected for get-to-gather after the walk. The participants briefly introduced themselves as a usual practice to establish linkages and friendships. Hats off to Syed Zahid Hussain, Executive Member PNS who made all arrangements of tea at the spot and refreshments boxes which were served to all the participants.



### Gala Dinner for PNS families at Faisalabad

With the cooperation of NIAB, NIBGE and PINUM, PNS organized a family get-to-gather in Faisalabad. It was the first ever social event for PNS Members held outside Islamabad. The gala dinner was arranged at the Chiniot Palace in which more than 120 persons including children participated. The directors of all the three centres, Dr. M. Yussouf Saleem, Dr. Kalsoom Akhtar and Dr. M. Babar Imran, former directors and retired officials along with their family members graced the occasion. Mr. Waqar A. Butt, opened the programme with

a few jokes. Two children performed on the stage and some other members entertained the participants by telling amusing incidents. Dr. Tahir Khaleeq briefed about PNS programmes and its social and cultural activities. Dr. Yussouf Saleem expressed his views on this colorful initiative and thanked PNS for opening a way of families' interaction as well as opportunities to meet old friends. Delicious dinner was served at the end of the show with half of the contribution from PNS Members.

