



# PakAtom

Newsletter of the Pakistan Atomic Energy Commission

March - July 2022

## Pakistan's Delegation attends IAEA Board of Governors Meeting



*Pakistan's delegation paying courtesy call on DG IAEA Rafael Mariano Grossi*

The IAEA Board of Governors (BoG) meeting was held at IAEA Secretariat, Vienna International Centre (VIC) in Austria from 6-10 June, 2022. Pakistan delegation was led by Dr. Raja Ali Raza Anwar, Chairman Pakistan Atomic Energy Commission (PAEC). Mr. Aftab Ahmed Khokhar (Pakistan Ambassador to Austria) along with Embassy and PAEC officials also participated in the BoG meeting.

During the Meeting, Chairman PAEC and Pakistan Ambassador to Austria issued several statements on the agenda items ranging from climate change to various other technical subjects. The statements also included Pakistan's working relationship with the IAEA for the effective implementation of nuclear science and technology for the betterment of mankind. Pakistan has previously been elected as member of the IAEA Board of Governors several times. As a founding Member of the IAEA, Pakistan is working with all stakeholders for the propagation of nuclear science and technology in different areas of human interest.

Pakistan's delegation also called on DG IAEA Rafael Mariano Grossi.



*Chairman PAEC, Pakistan Ambassador with DG IA and Minister Technical in BoG meeting*

## PAEC Delegation Visits CERN

A delegation led by Chairman PAEC, Dr. Raja Ali Raza Anwar visited CERN for CERN Council and side meetings from 13-17 June, 2022. In CERN Council meetings, the status reports on CERN accelerator complex, upgrades, LHC experiments and non-LHC experiments, the latest physics results and computing developments for RUN3, Future Circular Collider (FCC) feasibility study were

presented by corresponding experts. An MoU signing ceremony was held on June 13, 2022 for the Future Circular Collider (FCC) Feasibility study. Dr. Raja Ali Raza Anwar (Chairman PAEC, Pakistan) and Dr. Michael Benedikt (FCC Study Leader, CERN) inked this MoU. After signing this MoU, PAEC and other institutes in Pakistan are entitled to get involved in various activities of FCC Feasibility Study.



*Dr. Raja Ali Raza Anwar and Dr. Michael Benedikt (Study Leader FCC, CERN) signing the MOU for the FCC Feasibility Study*

Study leader FCC, Dr. Michael Benedikt and head of International Relations for the associate and non-member state, Prof. E. Tsesmelis, congratulated Pakistani community and told that these would further enhance the collaboration between CERN and Pakistan. Membership of FCC will enable Pakistan to engage CERN for many decades to come and thus reaping direct and indirect benefits from the development of future technologies at CERN and training of manpower in the corresponding technologies.

PAEC delegation visited the HGICAL lab. Management of high-granularity calorimeter (HGICAL) and Fakhri Alam of PAEC briefed the honorable chairman about the involvement of PAEC manpower in the electronics projects and associated activities at HGICAL lab. HGICAL management specially appreciated the contributions of PAEC in the electronics projects of GEM and HGICAL. The delegation also met with the management of CERN. Dr. J.

Mnich (Director for Research and Scientific Computing), and Ms. Charlotte (Director for International Relations) along with Prof. E. Tsesmelis. Dr. J. Mnich gave a brief introduction of CERN's activities and involvement of Pakistan in different experiments/projects at CERN.

A protocol visit was arranged for Chairman PAEC to the experiments and lab facilities LHC Point 5 and to LHC Point2, etc. During the visit, the overall layout of the CMS experiment was explained and it was informed that the Higgs Boson particles were detected by the RPC (Resistive Plate Chambers) detectors supplied by Pakistan. LHC Point2 (ALICE) ALICE Experiment was explained through surface exhibition and control room by Dr. Luciano Musa (spokesperson of ALICE collaboration).

A brief presentation was given on ISOLDE experiment and facility, by K. Johnson. Different beam lines in the ISOLDE experiment hall were visited. The delegation was briefed about MEDICIS facility and involvement of PINSTECH engineers in the MEDICIS.

Chairman PAEC and Dr. Mnich Joachim (CERN) signed the addendum for HGICAL. CERN will provide raw material for manufacturing absorber plates to HMC-3.

Special meetings of the Pakistani delegation also took place with the CMS management and the technical coordination of the CMS experiment for tracker and HGICAL projects. Briefings on CMS detector and its physics, progress made on CMS tracker project and the involvement of Pakistan in HGICAL project especially for manufacturing of Toolings



*Pakistani delegation with CMS management during underground visit of CMS experiment at CERN*



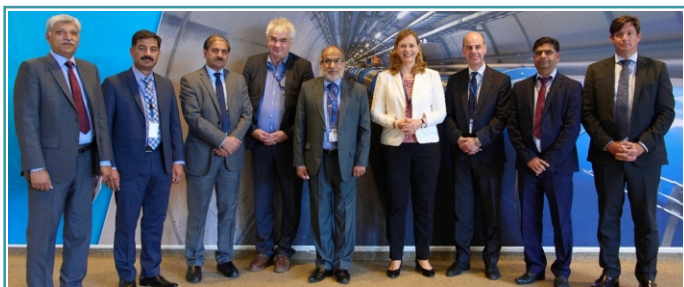
were given. PAEC delegation was briefed about the current status of the ALICE experiment, role of COMSATS and PINSTECH in the experiment and future plans for the ALICE upgrade particularly ALICE3. They also pointed out that PINSTECH has been an associate member of ALICE since 2017 and for a proper collaboration with ALICE, full membership is essential.

CERN, the European organization for Nuclear Research, founded in 1954, is one of the largest and most prestigious scientific research centers in the world. It is the biggest ever scientific collaboration in the human history spanning across the whole world. The physics programme at CERN delivered many promising discoveries including the Higgs boson. Pakistan is an associate member of CERN since

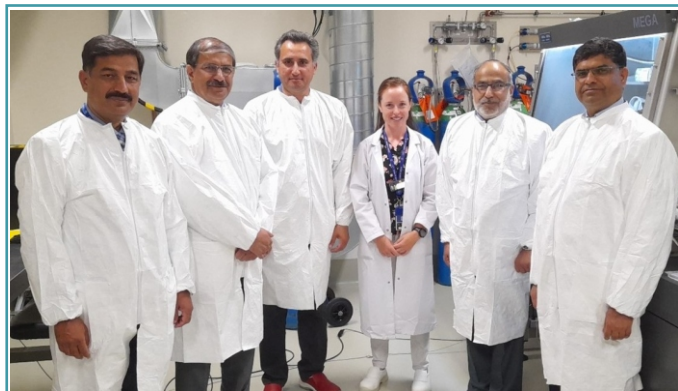
July 2015. PAEC and NCP and have been playing the leading role in the Pak-CERN collaboration.

Visit of Chairman PAEC along with Pakistani delegation for participation in the CERN council and side meetings was extremely effective in solving the bottle necks as well as in policy making for further enhancement of Pak-CERN collaboration.

Regular participation in the CERN Council meetings, held quarterly, is crucial for Pakistan to keep in touch with CERN updates and therefore spotting the future engagement possibilities. This was the first time that PAEC Chairman participated in all sessions of the Council meeting.



PAEC delegation with CERN management at CERN



PAEC delegation with Ms. L. Lambert on visit of MEDICIS experiment

## Interaction of Young Pakistani Scientists with Nobel Laureates

Chairperson Higher Education Commission (HEC) Dr Shaista Sohail met with scholars leaving for the 71<sup>st</sup> Lindau Nobel Laureate (NL) Meeting in Germany under "Interaction of Young Pakistani Scientists with Nobel Laureates" programme. This year's meeting will be held from June 26 to July 7, 2022 and it is dedicated to Chemistry.

Talking to the scholars, Dr Shaista Sohail said HEC is committed to supporting talented professionals and human resource development, research funding, facilitation of university-industry linkages, enhancement of quality education, investment in physical and technology infrastructure, and international collaboration. In the end, she congratulated the selected scholars.

During their pre-departure meeting, the scholars including Dr. Iqra Zubair Awan, Dr. Rotaba Ansir, Miss Sonia Zahara, Mr. Qaisar Khan, Ms. Mehek Rimsha, Ms. Ramsha Saleem,

Dr. Saba Ashraf, Dr. Rizwan Ahmad, Dr. Syeda Kiran Shahzadi also interacted with Dr Naseem Irfan, Pro-Rector, Pakistan Institute of Engineering and Applied Sciences (PIEAS), Dr. N. M. Butt, Founder NL meetings Programme, Dr. Abdullah Sadiq, former Rector PIEAS, Dr. Mutawarra Hussain, former director NL meeting Programme and Dr. Muhammad Aftab Rafiq, Director NL meeting Programme.

Interaction of Young Pakistani Scientists with Nobel Laureates is a joint programme of HEC, PIEAS, and the Council for Nobel Laureate Meetings in Lindau, Germany. The project is being funded by HEC out of its recurring funds for the promotion of higher education and human resource development in Pakistan. This project provides a unique opportunity to talented graduates and young researchers of the country to interact with 30 to 40 Nobel Laureates and more than 600 fellow participants from over 75 countries at Lindau, Germany.



Group Photo of young scientists with chief guest



# PAEC always striving for Emerging Technologies

## 47<sup>th</sup> International Nathiagali Summer College on Physics and Contemporary Needs



Group Photo of foreign faculty and other dignitaries with Dr. Raja Ali Raza Anwar, Chairman PAEC

47<sup>th</sup> International Nathiagali Summer College (INSC) was held from June 20 to July 02, 2022 at the scenic hill station of Nathiagali. Chairman PAEC Dr. Raja Ali Raza Anwar inaugurated the 47<sup>th</sup> INSC on Physics and Contemporary Needs. On 20<sup>th</sup> June the scientific discourse covered the topics like Machine Learning and Artificial Intelligence, High Power Laser Systems and Applications, Recent Trends in 3D Printing and Advances in Quantum Technologies.

In his inaugural address, Chairman PAEC emphasized the importance of sustained and dedicated work in all sector of science and technology to help transform the country into a developed society. He said, "Maximizing international cooperation and building bridges to the world scientific community will be an importance element in that direction". He added that the increasing level of interaction with foreign R&D institutions like European Organization for Nuclear Research (CERN), Abdul Salaam International Center for Theoretical Physics (AS-ICTP) Italy, International Atomic Energy Agency (IAEA) and Institute of Higher Energy Physics (IHEP) would help the country to accelerate the process of transforming Pakistan into a dynamic hub of science and technology.

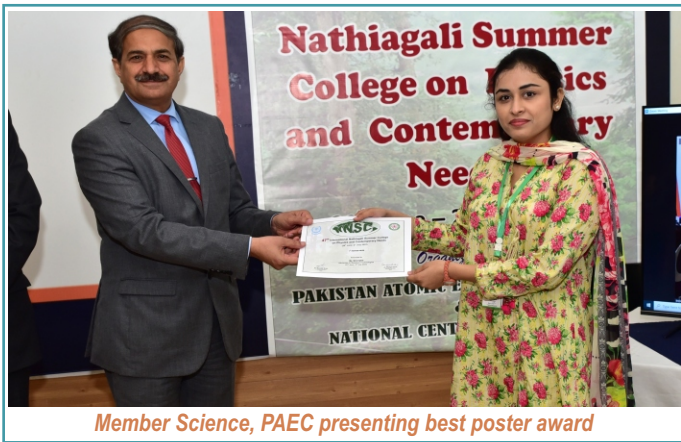
He expressed the hope that collaboration with these institutes will continue to increase for the mutual benefits for all of us and it will continue to foster the growth of science and technology in the country. The PAEC Chairman further said there is need to introduce young people to the challenges of the modern world, besides providing them with the opportunities to grow so that they can serve the nation at their best.

PAEC has been regularly organizing the college every year since 1976. The idea of holding the INSC on Physics and Contemporary Needs came from the distinguished Nobel Laureate Professor Abdul Salam who emphasized the vital need of communication for transferring and sharing scientific knowledge among the scientific community. INSC helps scientists to share knowledge and to learn from each other's experiences. This year INSC invited 34 experts from different countries including USA, UK, China, Canada, France, Germany, Australia, Italy, South Korea, Malaysia, Brazil, Spain, Turkey, Romania and Estonia to lecture on the important topics during the two-week duration of the college. PAEC selected about 250 researchers from the universities and other research organizations from all over



Chairman PAEC addressing at 47<sup>th</sup> INSC at Nathiagali





Member Science, PAEC presenting best poster award

the last 47 years. He also appreciated the organizing committee including Dr. Manzoor Ikaram, Dr. Shafqat Karim and other for their untiring and sincere efforts in managing this INSC.



Chairman PAEC presenting shield to a foreign faculty member

Pakistan out of more than 1200 applicants.

On the concluding day of the college, the chief guest Dr. Masood Iqbal, Member Science (PAEC) assured that PAEC would support all kind of scientific linkages developed during the summer college. He praised the efforts of all seniors who put their heart into it and had been taking personal interest to hold this college without any break for

## Salam Memorial Lecture in 47<sup>th</sup> INSC

Professor Irfan Siddiqui delivered Salam Memorial Lecture on "The Dawn of Quantum of Era" in 47<sup>th</sup> International Nathiagali Summer College (INSC), Pakistan. The lecture was delivered on 1<sup>st</sup> July and attended by a large number of Scientists/Engineers.

Professor Irfan Siddiqui who came from USA as a Faculty in INSC, is a professor of Physics and Electrical Engineering and Computer Sciences at University of California, Berkley and Director of the Quantum NANO Electronics Laboratory at UC Berkley. He is also a fellow of American Society and recipient of many prestigious awards and prizes. In his lecture, he highlighted the early life of Nobel Laureate Dr. Abdus Salam, his genius initiatives and drives as well as achievements in modern mathematics and physics. He elaborated different features of Quantum Information Era and explained various quantum processes like tunneling effect etc. The audience took keen interest in lecture and

raised many questions in the interactive session. Member (Power), Mr. Muhammad Saeed-ur-Rehman also participated in the lecture and appreciated the scientific-discourse by Professor Irfan Siddiqui.



Prof. Irfan Siddique presenting slide on Dr. Abdus Salam



Dr. Irfan Siddique delivering Salam memorial lecture in 47<sup>th</sup> INSC



# Glimpses of 47<sup>th</sup> INSC

## Informal Discussions



## Poster Session



## Lectures and Scientific Discourse



## Outdoor Recreational Activities





# Students Bring Laurels to the Country in 52<sup>nd</sup> International Physics Olympiad

The 52<sup>nd</sup> International Physics Olympiad (IPhO) was organized by Switzerland in online format during the period July 10 - 17, 2022. This year 368 students from 78 countries participated in the Olympiad. The Pakistan team was led by Dr. Shahid Qamar and Dr Aman ur Rehman from PIEAS. The performance of the team in 52<sup>nd</sup> IPhO was quite impressive. Pakistan team won two Bronze Medals and one Honorable mention in this competition. Muhammad Bilal Asmatullah from the Science School and Osman Siddique from OPF Boys School won Bronze Medals while Muhammad Sabeer Asad from NIXOR College won one Honorable Mention.

Pakistan team has been participating in IPhO since 2001 and had won Silver, Bronze and Honorable Mentions on

several occasions. It is the team effort of the participating students and faculty members from PIEAS that has resulted in bringing pride for the whole nation.



*A group photo of Students who received laurels*

## Chashma Unit -3 Celebrates Continuous (365 Days) Operation & Nuclear Safety Culture Day

Chashma Nuclear Power Generating Station (CNPGS) Unit-3 (C-3) achieved milestone of continuous one year operation on 20-02-2022 at 1236 hours. This landmark achievement was celebrated alongside CNPGS first-ever Nuclear Safety Culture (NSC) Day on 1<sup>st</sup> March, 2022.

Member (Power) Mr. Muhammad Saeed ur Rehman graced the occasion as Chief Guest. Management and employees of all four Plants participated in the event.

The day was marked by displaying NSC banners depicting traits and attributes of NSC Model adopted from WANO, distribution of Pamphlets to employees depicting concept,

steps to develop and associated management expectations for a strong NSC. To signify the occasion a promotional walk led by Member (Power) and other Senior Management was organized around CNPGS premises. The walk was largely participated by employees.

Addressing on the occasion, Member (Power) applauded the struggle and tremendous efforts of the employees towards enhanced safety and smooth run of the CNPGS Units. He declared it a moment of pride and pleasure for PAEC that currently three CNPGS Units are operating above WANO worldwide median.



*Group Photo of Participants of Safety Culture Promotion Walk with Member (Power)*

## 9<sup>th</sup> Open House held at PIEAS

PIEAS 9<sup>th</sup> Open house was held on May 28, 2022. The event was organized by Office of Research Innovation and Commercialization (ORIC) which plays a key role in providing strategic and operational support to the research activities / programs of PIEAS. This year students from Department of Computer and Information Sciences, Department of Electrical Engineering, Department of Mechanical Engineering, and Department of Physics and Applied Mathematics presented their final year projects. A lot of professionals/experts from both industry and academia attended the event.



*A Student explaining project to Chairman Pakistan Science Foundation*



Chairman Pakistan Science Foundation, Prof. Dr. Shahid Mehmood Baig, S.I., a former graduate of CNS (now called PIEAS) was the Chief Guest for the event. Director, ORIC apprised the audience about the PIEAS open house and the related activities. Prof. Dr. Shahid Mehmood Baig, S.I. in his address briefed the audience about the steps taken by PSF to promote science in Pakistan, which included funding

equipment and upgradation of laboratories at both the college and university level. Dr. Nasir Majid Mirza, Rector PIEAS, Dr. Naseem Irfan, Pro-Rector, PIEAS and Dr. Shoaib, Director ORIC, along with the chief guest visited PIEAS open house where students explained and demonstrated their projects.

## International Workshop on 2D Materials and Quantum Effect Devices Organized at PIEAS



*Group photo of the opening ceremony*

The International Workshop on 2D Materials and Quantum Effect Devices was held at PIEAS lyceum from July 19-21, 2022. The objective of the workshop was to provide an interactive platform where young researchers and students can discuss the key aspects in growth & characterization of 2D materials and Quantum effect devices with the leaders in the subject.

Dr. Masood Iqbal, Member Science PAEC was the chief guest for the opening ceremony. Dr. Nasir Majid Mirza, Rector PIEAS, Dr. Naseem Irfan, Pro-Rector PIEAS, and senior faculty members of PIEAS were also present on this occasion. Dr. Aftab Rafiq, Head Department of Physics and Applied Mathematics welcomed the chief guest, international speakers, and participants of the course. He also briefed the audience about the objectives of workshop.

Rector PIEAS in his address apprised the audience about the research culture of PIEAS, and its commitment towards promoting research in emerging areas of science and technology. The chief guest appreciated the role of PIEAS and organizers in arranging the workshop. He emphasized the importance of 2D materials and quantum effect devices and how it is changing the landscape due to their promising physical, electrical, chemical, and optical properties.

Prof. Dr. Shahid Mahmood Baig, Chairman PSF was the chief guest at the closing ceremony. Speaking on the occasion, he appreciated the timeliness and depth of topics covered in this workshop. He also congratulated the workshop organizers. In the end chief guest distributed certificates among the participants and speakers.



*Dr. Shahid Mahmood Baig Chairman PSF giving away certificate to a participant*



*Dr. Nasir Majid Mirza, Rector PIEAS presented shield to Dr. Masood Iqbal, Member Science PAEC*