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38th International Nathiagali Summer College opens Investment in Research to generate immediate, specific benefits: Quevedo



Director, ICTP, Dr. Fernando Quevedo Addressing in the Inaugural Ceremony of 38th INSC

There is need to invest in research that is likely to generate immediate and specific benefits, either wealth creation or improvements in the quality of life.

Director, Abdus Salam International Centre for Theoretical Physics (ICTP) Fernando Quevedo said this while addressing as chief guest at the inaugural session of International Nathiagali Summer College (INSC) on "Physics and Contemporary Needs", at NCP.

He said scientific developments in countries like Pakistan, China and Brazil have improved substantially, adding the mission of ICTP is alive today more than ever.

"Scientists should continue working to convince policy makers the obvious relation between investment in Science and technology and level of development", he said.

Addressing on the occasion, Director for CERN Steve Myers said Pakistan is in a better position to achieve stronger links with CERN, than some other countries.

CERN is the topmost particle physics laboratory in the world and the LHC, its brainchild, is the largest and highest-energy particle accelerator, credited with the discovery of the Higgs Boson.

"Countries that apply for associate member status must have scientific infrastructure that is compatible with what we have at CERN," Myers said. "Pakistan has the necessary infrastructure to benefit from associate membership."

He added that though countries like Ukraine and Brazil had applied for associate membership of the science body, Pakistani physicists were more focused towards an improved CERN link.

Local physicists believe that a stronger association with CERN will win Pakistan greater access to experimental data from the LHC and will allow local companies to manufacture electronic equipment for the top research facility.

Earlier, in his welcome address, Dr. Ansar Parvez, Chairman, Pakistan Atomic Energy Commission said that International Nathiagali Summer College has always been inaugurated by Prime Minister or President or a very senior Government official.

"This time we departed from this tradition and invited Director, Abdus Salam International Centre for Theoretical Physics, Italy in recognition of association and collaboration of ICTP and INSC. We have very productive relationship since many years", he said.

PAEC is helping to hold this college regularly since its inception in 1976 and we will continue this tradition. The success of this college would not be possible without the help of international scientific community, he added.

Dr. Ansar Parvez said that we should guide our scientists and connect science to everyday needs. No one can deny that scientific development requires commitment at individual and national level besides financial resources.

"In Pakistan, we have a crop of talented young scientists. We need to strengthen our scientific infrastructure to provide them level playing field. Of course, economic prosperity and reduction in poverty can be achieved through education", he added.

Chairman stated that PAEC itself is committed to utilization of nuclear technology for security and prosperity of the country.



Member (Science) Addressing in the inaugural session



A view of the audience

"Our nuclear medical and agriculture centres are functioning for the betterment of common man. Common man only measures scientific benefits in terms of economic benefits. What PAEC achieved is due to manpower, confidence and commitment of scientists".

While concluding his speech, the Chairman said "we must acknowledge the efforts of organizers of this college as this college is very instrumental to pursue science in this country".

In his introductory remarks Director General National Center for Physics (NCP) Hamid Saleem said the idea of holding INSC was initiated by Pakistan's Nobel Laureate Dr. Abdus Salam for breaking the intellectual isolation of the scientists in the developing countries and to keep pace with rapid progress in the science and contemporary needs by promoting higher science education.

Short Course on Management of Low and Intermediate Level Radioactive Waste at PINSTECH

A Two-Day Short Course on "Management of Low and Intermediate Level Radioactive Waste", first of its kind, was organized by the Radioactive Waste Management Group (RWMG) of Health Physics Division (HPD) on 27-28 May, 2013. The aim of the short course was to provide a platform for discussion among participants and foster cooperative interactions among them. The course was attended by thirty-four participants from various PAEC establishments including seven from PINSTECH. The faculty for the course comprised of two Experts from Directorate General National Repository (DGNR), one from Pakistan Nuclear Regulatory Authority (PNRA) and three from RWMG, HPD/PINSTECH. The topics covered were 'RWM global perspectives and

Status of RWM in Pakistan', 'Regulatory aspects of RWM', 'National Repository Perspective and Progress' and 'RWM practices and facilities at PINSTECH'.

Moreover, 'Management of ILW generated at Molybdenum Production Facility', 'Management of DSRS at PINSTECH' and 'Safety Analysis of PINSTECH Pre-disposal Radioactive Waste Management Facility (PPRWMF)' were also covered during the course.

The participants were also provided opportunity to visit HPD laboratories where work related to Radiation Protection is being conducted. The participants took keen interest in Radiation protection routines adapted by HPD for the conduct of safe radiation work at the Institute.

On the second day a visit to RWMG facilities was organized for participants where they were briefed about the routines and facilities available for management of Radwaste in accordance with the International norms and national regulations. The participants appreciated the course and its worth with a comment to increase time for any future Activity on this topic. At the end of the Short Course, D.G. PINSTECH distributed certificates to the participants and the Faculty who delivered quality lectures during the course.



Group Photo of participants with D.G. PINSTECH

Dr Abdul Rashid wins IFA Norman Borlaug Award for excellence in crop nutrition research

A former Member (Bio-Sciences) of PAEC, Dr. Abdul Rashid, has brought laurels to the country and the PAEC by winning the prestigious 2013 IFA (International Fertilizer Industry Association, Paris) Norman Borlaug Award for excellence in crop nutrition research. This Award recognizes R&D that has led to significant progress in crop nutrition and that has been communicated successfully to the farmers as practical recommendations. The nominations are judged on the basis of quality, originality and long-term impact of the work.

Dr Abdul Rashid's 40-year career has been devoted to well-conceived R&D programs for optimizing crop nutrition through balanced and efficient fertilizer use. His micronutrient research is recognized globally. His outstanding contributions include identification, establishment and correction of field-scale boron deficiency in 2 million hectares of rice fields and 3 million hectares of cotton grown in Pakistan. He has published his research widely, locally and globally. His persistent R&D and convincing advocacy have created a "pull force" for the use of micronutrient fertilizers in the country. His farmer-friendly fertilizer use technologies, which have been formally recommended and adapted by farmers, include: (i) boron use in rice; (ii) boron and zinc use in cotton; (iii) zinc-enriched rice nursery; and (iv) 50% fertilizer-saving phosphorus band placement in wheat.



Dr. Abdul Rashid (second from the left)

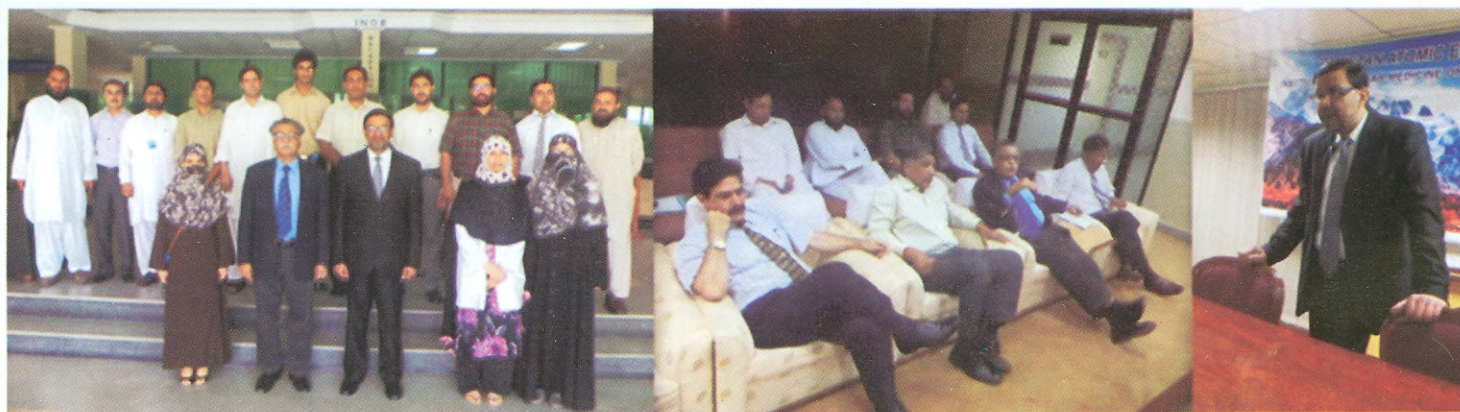
The Award includes a cash prize of € 10,000 and sponsorship for another conference participation anywhere in the world. The Award will be conferred upon him during IFA Crossroads Asia-Pacific Conference in Bali, Indonesia on 6-8 November 2013 for which he and his wife have been invited. Currently, Dr Rashid is Editor-in-Chief at the Pakistan Academy of Sciences.

Physical inspection of INOR Abbottabad by CPSP team for accreditation of Oncology Department

Physical inspection of Institute of Nuclear Medicine, Oncology and Radiotherapy (INOR) Abbottabad was conducted on Saturday, June 29th, 2013 by College of Physicians & Surgeons Pakistan team for accreditation of Oncology Department of the institute, for FCPS Part II training in Radiotherapy. The inspection team comprised of Prof. Dr. Ghulam Asghar Channa, Registrar CPSP, Prof. Dr. Shehryar Muhammad, Head Oncology Department, Mayo Hospital Lahore and Prof. Dr. Muhammad Akbar, Controller Examination, Regional Centre Abbottabad. The objective of the inspection was to evaluate the equipment, faculty and facilities being

extended at the institute for creation of educational atmosphere so that FCPS Part II training can be started at INOR.

Director INOR, Dr. Abbasi introduced the facilities and curriculum in detail to the inspection team of CPSP. The team inspected the institute and concerned department for consideration of starting teaching and training program at INOR leading to the award of FCPS radiotherapy degree. Inspection team appreciated the treatment facilities & empathy of the employees towards the cancer patients.



Physical inspection by CPSP team on 29th June, 2013 of INOR, Abbottabad.

The First School on Nanoplasmonics Held at NILOP

The school on nanoplasmonics was organized by NILOP for the first time in Pakistan from May 06-09, 2013 in collaboration with Universidad Federal de Purnambuco (UFP), Brazil. Experts from Brazil, Prof. Frederico D. Nunes and Mr. Marcel T. Bazerra were invited to deliver their lectures on Nanoplasmonics. Dr. Badar Suleman, Member Science, PAEC inaugurated the school. In his welcome address, he appreciated the efforts of the Brazilian experts for promoting scientific research activities in Pakistan. The school was attended by eighty participants including students, professors, researchers and scientists from twenty prominent public sector universities and R&D organizations. The aim of the school was to introduce the new emerging technology of nanoplasmonics in Pakistan. Nanoplasmonics encompasses the science and engineering of optical interaction with metallic nanostructures. Prospects of subwavelength confinement and enhancement of optical fields near properly designed nanoscale objects has been a motivation to extensively investigate a variety of plasmonic optical phenomena in recent years. During the school, 12 lectures of 22 hours were delivered covering different theoretical aspects of the nanoplasmonics including fundamentals of nanoplasmonics, electromagnetic theory, field matter interaction, surface plasma polaritons (SPP) in

nanoparticles, transmission lines and equivalent circuits of SPP systems. Four sessions of two hours each on the modeling and simulation of nanostructures and metamaterials using MATHCAD software were also organized during the school.

The school provided an excellent opportunity for young researchers to explore this newly emerging area of nanoplasmonics and its applications to chemical sensing, bio-sensing, communication, information technology, diseases treatment and superfast computer chips etc.

Dr. Ansar Parvez, *HI*, Chairman PAEC was the chief guest in the concluding ceremony held on May 09, 2013.

Dr. Mushtaq Ahmed, Director NILOP welcomed the chief guest and presented proceedings of the school. Speaking on the occasion, The Chairman PAEC thanked foreign experts for visiting Pakistan on their own expenses. He hoped that deliberations of this event will certainly help physicists, material scientists and engineers to initiate research in this area of technological importance. He further stressed that this school should be taken as an opportunity to develop long term collaboration between NILOP and UFP in the field of plasmonics research.



Group photo of the participants attended the School on Nanoplasmonics 2013 at NILOP

Achievement of PAEC Engineers from Directorate General of Design

Mr. Nayyer Hussain, DCE and Mr. M. Nasir Khan, SE have been honored by the publication of their equipment design for US Patent titled, "Synchronous Reluctance Motor for Contacting Media" as US Patent application publication document # 2013-0043745 A1, dated February 21, 2013. This achievement cannot be overemphasized considering patents are very rare from Pakistan. The said motor has been developed with large air gap between rotor and stator and its applications include liner motion and in conveying fluidic media without any magnetic coupling or fluidic seals. The motor controller is design on the basis of open loop terminal volts/Hertz (V/f) control principle [17].

Some points mentioned in the news item about CERN, published in the previous issue of PakAtom on page 4 & 5, were not correct. These have been included in the news erroneously. The facts are as under:

- ★ The length of the CERN tunnel is 27km and not 37km.
- ★ Higgs Boson does not travel faster than light.

The Editor seriously feels sorry about any inconvenience created to the readers due to these misleading points/descriptions.

Two-Day Conference on Future of Libraries in the Internet Age at PINSTECH

A Two-Day Conference on Future of Libraries in the Internet Age was held at PINSTECH on June 5-6, 2013. The conference was organized by Scientific Information Division. The basic aim and purpose of this conference was to provide a forum for mutual discussion and sharing of experience in order to transform libraries to serve better in the current digital era. Major General (R), Syed Guftar Shah, Member (Admin) PAEC, inaugurated the conference. He emphasized the importance of libraries whose basic purpose is to manage, store and present the knowledge to the convenience of the readers/researchers. He highlighted the big challenges the librarians have to face and get adjusted in the present Internet age, and stressed that researchers are supposed to spend much of their time in libraries to solve their problems.

The conference was attended by seventy-four participants from various institutions: namely, University of Sargodha, National University FAST, International Islamic University, Sarhad University, University of Peshawar, Punjab University, Islamia University Bahawalpur, Riphah University, Civil Services Academy Lahore, Fatima Jinnah



Member Admin, PAEC, (centre) at the inauguration of conference

Women University, Hamdard University, UET Texila, Arid Agricultural University, Security Exchange Commission of Pakistan, National Center for Physics, KRL, NORI Hospital, NESCOM, ICCS, PIEAS, SUPARCO, KINPOE Karachi, NIAB, CHASCENT, C-1 and others. At the closing of conference Mr. Waqar Ahmad Butt, DG (IA&T) was the chief guest who stressed the need to increase the readership of library material as well as switching to digitization of information.



A group photo of the participants and organizers with D.G. IA & Trg.

NIFA jointly Organizes One-Day Symposium on "Applied Aspects of Food Sciences" at Hazara University

Nuclear Institute for Food & Agriculture (NIFA) in collaboration with Hazara University organized One-Day Symposium on "Applied Aspects of Food Sciences" on 21st May 2013 at Mansehra. Dr. Ihsanullah, Head Food Science Division was the Coordinator from NIFA while Prof. Dr. Mukhtiar Hassan from Hazara University performed duties as local organizer.

Objective of the group activity was to disseminate the teachers and postgraduate students about the benefits of

the technologies developed by NIFA. The symposium was formally inaugurated by Prof. Dr. Sakhawat Shah, the Vice Chancellor of Hazara University, Mansehra. He called for bridging the missing link between the researchers and the academia for maximum utilization of nuclear technology for the benefit of mankind. He lauded PAEC for revolutionizing various sectors of the country through its indigenous research. Prof. Dr. Sakhawat also appreciated the role of NIFA for the application of Nuclear Technology in the food safety at national level.

During the course, the experts from the NIFA included Dr. Ihsanullah, Dr. Aurang Zeb and Dr. Taufiq Ahmad, delivered specialized lectures on 'Status of Food Irradiation in Pacific & Asia Region', 'Low Phytate Wheat A Biofortification Approach Towards Nutritional Deficiencies' and 'Facts and Misconception of Dietary Fats', respectively. The activity might not only help in strengthening the collaboration with M.Phil/Ph.D scholars of the University but the event also provided an opportunity to report the successful holding of the event to IAEA as an activity under RCA project on "Food Irradiation". Prior to the conclusion session, the Vice Chancellor awarded certificates to Director NIFA and his team for making the event a success.

At the end, Mr. Tila Muhammad, Director NIFA thanked local organizers of the symposium for providing him a chance to distribute certificates among the participants and to speak to the galaxy of researchers and academicians during the concluding session. Speaking on the occasion, the Chief Guest hoped that this joint activity would be a landmark success and could pave the way for application of various technologies developed by NIFA. The postgraduate scholars would have taken new ideas for their research from the specialized lectures of experts from NIFA.



Prof. Dr. Sakhawat Shah, Vice Chancellor of Hazara University, Mansehra presenting appreciation certificates to Director NIFA and Experts from NIFA

Farmers day/Workshop at NIFA on “Nutritional Management of Deciduous Fruits Orchards”.

The climatic conditions of Khyber Pakhtunkhwa are very friendly for the growing of deciduous fruits like plum, peach and apricot. In spite of favourable climatic conditions, per acre production and life span of these fruits are decreasing. Imbalance nutrition, improper irrigation and unsuitable cultural practices in these orchards are the major causes of low productivity leading to low income of the fruit growers. The scientists of soil science division in Nuclear Institute for Food and Agriculture (NIFA) are endeavoring to develop technologies for balanced nutrition of nitrogen, phosphorus, potash and micronutrients for such orchards. A Farmers

day/workshop on “Nutritional Management of Deciduous Fruit Orchards” was held on June 12, 2013 at NIFA, Peshawar with the objective to transfer these technologies to fruits growers of the area. A total 73 orchards farmers belonging to different districts of KPK participated in the workshop.

Director NIFA, welcomed the participants and briefed the farmers about research activities and different technologies developed at NIFA. He was of the view that “Fertilizers and Irrigation Water” are the costly production inputs and there is



Group photo of participants of farmers' day on “Nutritional Management of Deciduous Fruit Orchards” with Director NIFA

dire need to improve their use efficiencies. The scientists of Soil Science Division have the expertise to develop such technologies and now are ready for transfer to the end users. Today's event is a step forward in this direction to practically demonstrate and disseminate the technologies to farmers he added.

Expert lectures and practical demonstration were arranged for the growers on "Integrated Management of Nutrients and Irrigation for Deciduous Fruits Orchards". In these lectures important aspects of the orchards production technologies such as role of essential plant nutrients, sources of different nutrients, proper timing and method of fertilizers application along with the integrated application of nutrients from organic and mineral fertilizers sources were delivered. A

group discussion was also held after these lectures with the farmers to share the problems and factors associated with low yield and their possible solution. The participants visited the NIFA experimental orchards where methods of fertilizers and irrigation application were demonstrated practically.

The information about the developed technology and recommendations were reproduced in form of urdu brochures and were distributed among the participants. All the farmers took keen interest in this workshop and appreciated the efforts of Soil Science group. The event was concluded with vote of thanks by Dr. Wisal Mohammad, DCS/Head soil science division, NIFA.

Chairman's Assignments Abroad

- ★ Dr. Ansar Parvez, Chairman, Pakistan Atomic Energy Commission attended 2013 Biennial General Meeting of the World Association of Nuclear Operators (WANO) held in Moscow, Russia from May 19-21, 2013.

Member's Assignments Abroad

- ★ Dr. Badar Suleman Member (Science) attended 22nd Meeting of SESAME Council held in Vienna, Austria from 27-30 May, 2013.

Assignments of PAEC Experts Abroad

- ★ Mr. Najmus Saqib, Director, DPSA, KNPC, Karachi participated as an IAEA Expert in IAEA consultancy Meeting on Safty Performance Indicators for NPPs held at Vienna (Austria) from 13-16 May, 2013.

- ★ Mr. Ijaz Ahmad, PE, ASAD undertook assignment as IAEA lecturer for National Training Course on IAEA's Energy Supply Model MESSAGE held at Phnom Penh, Cambodia from 20-31 May, 2013.

- ★ Dr. Jamshed Hussain Zaidi, Advisor to Member (Science), PAEC attended Second Meeting of the Sixth Standing Advisory Group on Technical Assistance and Cooperation held at IAEA HQ. Vienna from 21-24 May, 2013.

- ★ Mr. Zia ul Hasan Siddiqui, Member (CAC), PAEC participated as IAEA Expert in the Workshop about Pro-Active Management of Operational Safety as Busher NPP, Iran from 25-29 May, 2013.

Visits of IAEA Official to Pakistan

- ★ Dr. James Sasanya (Uganda National) Technical officer, IAEA, Vienna (Austria) visited Pakistan from 20-24 May, 2013 under a TC Project on Strengthening Capabilities to Monitor and Control Veterinary Drug Residues in Food Stuffs. He visited NIAB, NIBGE and PINUM.

INMOL Hosts Workshop on "Quality Assurance in Medical Imaging"

Workshop on Quality Assurance in Medical Imaging was arranged in INMOL Hospital, Lahore from 20-24 May 2013 in collaboration with Pakistan Nuclear Regularity Authority, (PNRA) School for Nuclear and Radiation Safety (SNRS).

Dr. Abu Baker Shahid, Director INMOL inaugurated the workshop. Thirty Participants from all over the country attended the workshop. The basic purpose of the workshop was to acquaint the medical physicists with different dosimetric and quality control techniques used in Nuclear Medicine, PET/CT and Radiology. The learned faculty from INMOL and PNRA delivered the series of lectures and practical demonstrations on various equipments. The workshop provided the platform for sharing knowledge and experience among the medical physicists. Mr. Areesha Zaman, DCS was Workshop Coordinator from INMOL.



Dr. Abu Baker Shahid, Director INMOL inaugurated the workshop

Maintenance Facility at ICCC for Faulty Linear Accelerators of Medical Centers

Linear Accelerator (LINAC) is state of the art machine being used to treat cancer patients all over the world. PAEC is running 18 medical centers throughout Pakistan, where 11 Linear Accelerators and 16 Cobalt-60 machines are installed for cancer treatment. It's a very expensive and delicate machine, and requires specialized expertise for maintenance. PAEC is spending huge amount in foreign exchange for maintenance of costly equipment at different medical centers. Vendors/suppliers do not share maintenance expertise with end user (PAEC). Moreover, cost and non-availability of spares is also a big issue.

PAEC Management entrusted Instrumentation Control and Computer Complex (ICCC) with challenging task of maintenance of these equipment.

➤ GE Saturne-41 (multi energies LINAC) at NIMRA, Jamshoro was out of order since 2007. ICCC successfully made the machine functional by cannibalizing major parts and spares of same model (out of service) LINAC at NORI, Islamabad. The detail of maintenance is available with ICCC as separate report. Third party cost for the repair of this machine was over Rs. 15 Million but ICCC managed this task in Rs. 250,000/- only, thus saving huge amount. Machine is fully functional and cancer patients are being treated after break of six long years. Doctors at NIMRA highly appreciated this success.

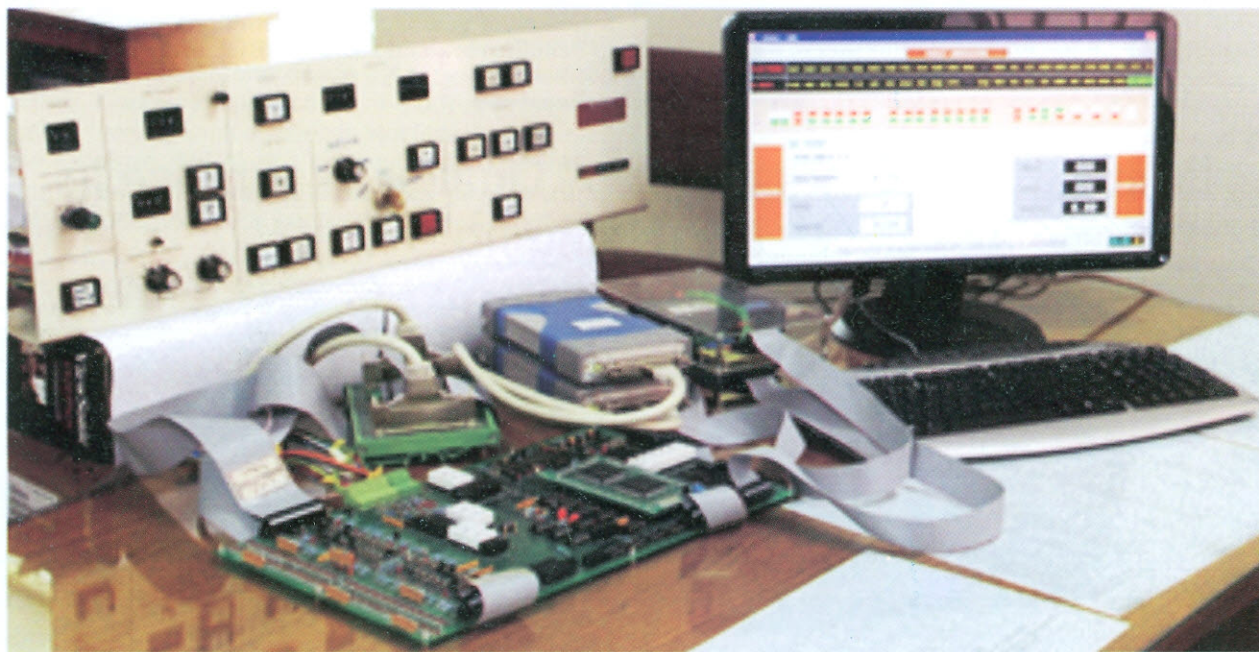
➤ ICCC is also working on retrofitting of Control Console of Varian CLINAC-1800 at IRNUM Peshawar; which is out of



LINAC GE-Saturne-41 at NIMRA, Jamshoro

order since 2007. Generic Computerized Control Console for Medical Linear Accelerator has been designed and developed at ICCC. Final testing with CLINAC-1800 is in progress.

ICCC is grateful to PAEC Management for providing opportunities, support and showing confidence in its abilities.



Control Console of CLINAC-1800 for IRNUM, Peshawar