

# Pride of Pakistan Dr. Ishfaq Ahmad



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## A personal tribute to Dr. Ishfaq Ahmad, N.I., H.I., S.I.



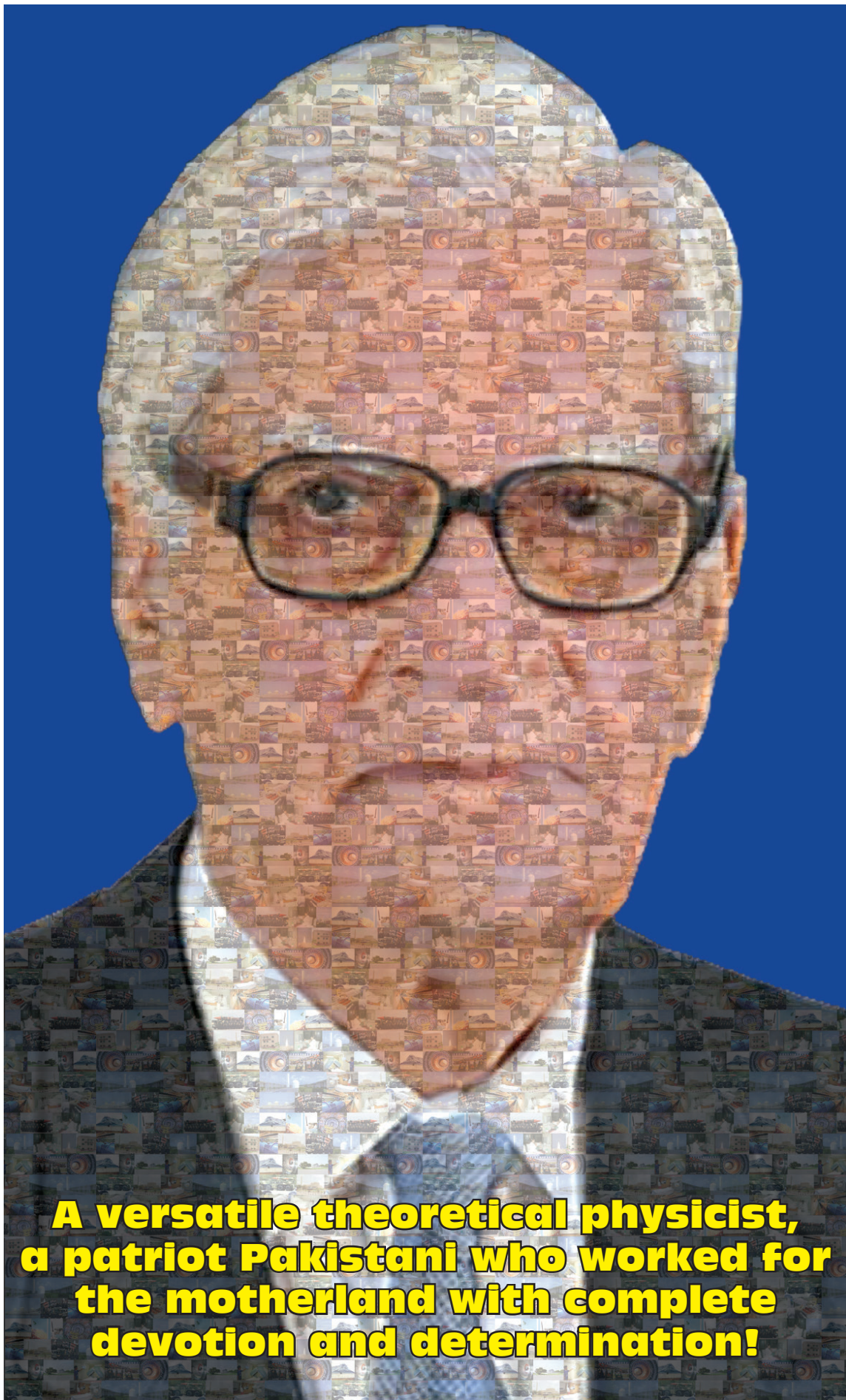
Dr. I. E. Qureshi

**W**ith passing away of Dr. Ishfaq Ahmad on 18th Jan. 2018, Pakistan lost an iconic scientific leader, who had been associated, directly or indirectly, with every significant development on Pakistan's scientific scene for well over half a century. In particular, his name was synonymous with Pakistan Atomic Energy Commission (PAEC), where he served for more than four decades in various positions. Significantly, he started his service in PAEC in 1960 as a 'Group Leader' and subsequently occupied various posts of the rank of directorship or higher. So, it can be safely stated that he played a leadership role throughout his career in PAEC, although he was entrusted with the top-most slot of Chairmanship when he had already crossed 60. His dynamism as Chairman PAEC during a ten years' tenure speaks volumes about his enormous energy and drive. In spite of an absolute lack of inclination for self-projection, his impact on the scientific community of Pakistan has always been conspicuous. Some of the stalwarts of science and technology in Pakistan owe their successful careers to his direct patronage or indirect support.

I first saw him when he interviewed me as an applicant for the post of Senior Scientific Officer in PAEC in 1980, resulting in my appointment in PINSTECH1). With his second highest-most status in PAEC and my considerably junior position I could pay my respects to him only from a distance whenever there were occasions to see him in PAEC functions. Many years later, he got to know me personally, perhaps because of some good words that he heard about my work in Theoretical Physics Group at PINSTECH. As my career progressed and I occupied senior positions in PINSTECH, there were more and more occasions at which I could interact with him personally and observe multifarious aspects of his charismatic personality. He too, perhaps became more appreciative of my research work, leading to a mutually respectful bond of mentor and protégé. He encouraged me to play a role in CERN2)-PAEC collaboration programmes, nudged me towards doing computer programming related to a classified project, backed me along with Dr. Aslam Baig3) to get NCP4) going during its nascent phase, confided me with his desire to enhance the presence of Pakistanis at ICTP5) which gave me the confidence to get elected as President ICTP-Pakistan Chapter, welcomed me as a member of International Nathiagali Summer College organizing committee, endorsed my participation in a delegation to China for discussing broader research collaboration, and finally, even long after his retirement from PAEC, played a crucial role in my appointment as Executive Director COMSATS6).

Apart from his tangible patronage, I found out that sometimes his mere words of encouragement were sufficient for someone to get energized. His mildly uttered suggestions starting with, "why don't you....." have made many to spring into action and achieve something substantial. I too had the occasions of being subjected to these

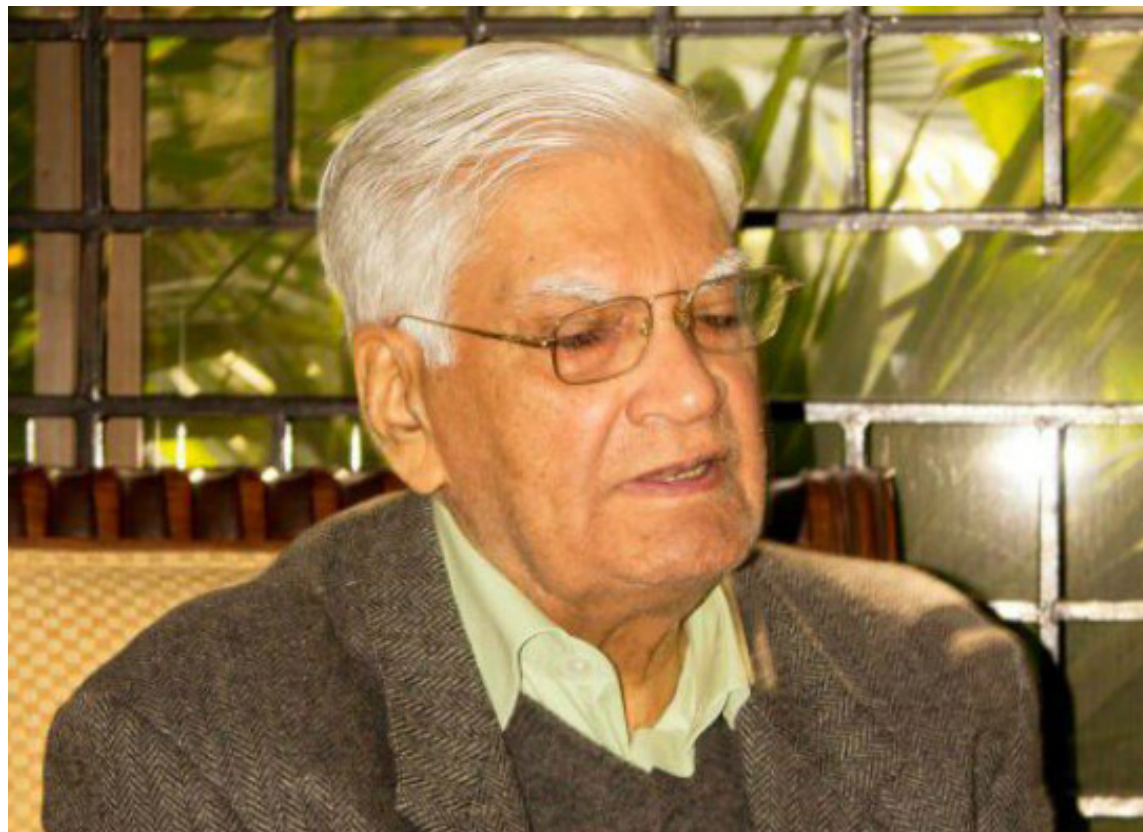
Continued on page 2



**A versatile theoretical physicist,  
a patriot Pakistani who worked for  
the motherland with complete  
devotion and determination!**



From page 1: A personal tribute to Dr. Ishfaq Ahmad, N.I., H.I., S.I.



**Dr. Ishfaq Ahmad played a pivotal role in the creation of NCP on the pattern of The Abdus Salam International Center for Theoretical Physics (ICTP). He served as the Chairman of Board of Governors (BoG) of NCP from 2003 to 2018. His vision of science and wisdom to deal with the science projects were the guiding principles for NCP management**

alluring words, as in the case of organizing a seminar to celebrate the then newly adopted 'World Science Day' for the first time in Pakistan – a day which was included in the calendar of United Nations activities at his behest. During my visit to CERN at a time when major financial contribution by PAEC to CERN was being deliberated, he advised me to consult Dr. Muhammad Afzal, Minister (Technical), at the Permanent Mission of Pakistan to the United Nations in Geneva. Some years later I myself occupied Dr. Afzal's post and played my role in advancing CERN-Pakistan collaboration. There were also occasions when I could not achieve what he desired; one of which was to establish a liaison office for Pakistan-IIASA<sup>7</sup>) collaboration at COMSATS Headquarters. Considering that he influenced the working lives of hundreds of scientists in PAEC and in other organizations during his long and illustrious career, it will be no exaggeration to regard him as the 'Master Mentor' of Pakistan's scientific elite. His uncanny ability of seeing far into the future and indefatigable spirit of getting things done was responsible for remarkable scientific programmes within PAEC and beyond. Perhaps no single person is fully abreast of his entire spectrum of contributions in the progress of science and technology in Pakistan. To get a

glimpse of his far-sightedness imagine that at age 40, as Director Pakistan Atomic Energy Mineral Centre in Lahore, he initiated work on uranium processing that would form the basis of fuel fabrication and uranium enrichment. He strongly believed in acquiring all aspects of nuclear technology, both civil and military, and worked tirelessly to achieve these goals. With remarkable ability to create synergy among teams of workers engaged in diverse projects, he provided critically important leadership for completing required tasks with minimal resources. Pakistan was lucky to have him as Chairman PAEC when in 1998 the ultimate strategic threat to country's survival knocked at its doors. A calm and composed custodian of nuclear deterrent assets did his job without making any 'fatherhood' claims.

Perhaps Dr. Ishfaq had more of a 'motherhood' instinct of caring, providing and protecting, both the 'homes' comprising of scientific institutions and the 'children' constituting scientific manpower. He never seemed to lose interest in listening to what was being done in academics and by whom, while constantly thinking about what could be done more and how. I witnessed him sitting in a restaurant at the foot of Adriatic Sea in Trieste<sup>8</sup>), with the aroma of gourmet food all around, what he was engrossed

with was not the barbequed fish in his plate, but the opportunities of research in the nearby Elettra Synchrotron<sup>9</sup>) that had opened its doors for experimental research work through the good offices of ICTP. He asked the host of the dinner, Dr. Faheem Hussain<sup>10</sup>), to arrange my visit to the facility so that I could disseminate relevant information to researchers at PINSTECH. He was ever ready to meet Pakistani ICTP Associates<sup>11</sup>) when he happened to be in Trieste, and to hear about their research work with keen interest. The easy-going blend of his questions, remarks and advice, would visibly create an aura of confidence among his audience of all age groups. When it came to making speeches in a big gathering or narrating an incident to a few individuals, there was hardly any change in his style. With enviable memory and remarkable ease with words, he would recount long past events in a mellow voice, interjected by caution, stress or comments that would absolutely mesmerise the listeners. With a treasure trove of information locked in his mind, it was not surprising that he was prone to digressing into secondary topics, but never failing to recover his main theme in an effortless manner.

I have very little knowledge of how he interacted with his sen-

iors but I guess he must have been very respectful to Mr. Munir Ahmad Khan<sup>12</sup>). Speaking at the farewell function of Mr. Khan, organized in PINSTECH auditorium, he paid rich tributes to the departing Chairman and added that he would always be "our Chairman". However, what he expressed most openly was his admiration and regard for Prof. Abdus Salam. He also shared with me a couple of incidents in which Salam admonished him for some reasons, but he recalled these occasions with full understanding and respect for Salam's feelings. He took strong exception to the much touted narrative that Salam is denigrated in Pakistan because of his faith. In a lounge conversation, Dr. Ishfaq noted that the actions of a few fanatics or the opinions of a relatively small group of people cannot be construed to define the attitude of the entire nation. Pakistan has conferred its highest civil award on Salam, issued commemorative stamp with his portrait, awarded honoris causa degrees, his birthday is celebrated every year, and there is hardly any scientific activity in Pakistan which is not accompanied by eulogizing his colossal status in the world of science. With an air of satisfaction, he added that Prof. Salam had four major wishes with respect to scientific progress in Pakistan, and all four have been materialized. First, he wanted that renowned scientists from across the world should be invited in an annual summer college. That came to be in the form of International Nathiagali Summer College, which has been held with great regulatory, with ever new themes, since 1976. Second, he wanted a permanent ICTP-like institution in Pakistan that could provide the physicists of Pakistan a base for training and research at the cutting edge of science and emerging technologies. This advice was realized in the form of National Centre for Physics located in the vicinity of Quaid-i-Azam University in Islamabad. Third, he wished that a prize be given annually to outstanding physicists out of the proceeds of his Nobel Prize money. Thus 'Salam Prize' for physics and mathematics was instituted and is given to Pakistani scientists every year. Finally, he wanted Pakistan to play a leadership role for the promotion of science and technology in developing countries. Pakistan lived up to his expectations and successfully launched COMSATS. The Secretariat of this international organization focussing on sustainable development in the South is hosted by the Government of Pakistan, which also bears its recurring establishment expenses. These are the most significant and enduring tributes paid to Salam by Pakistani scientific community, and these are the ones that should define Salam's status in Pakistan. With characteristic modesty, Dr. Ishfaq Ahmad did not mention that he played a significant role in all these achievements.

In general, Pakistanis lack the psyche of glorifying individuals who make exceptional intellectual and scientific contributions. Dr. Ishfaq Ahmad has to his credit an unmatched array of outstanding achievements in his different roles as Chairman PAEC, Advisor to the Chief Executive, Advisor to the Prime Minister, Senior Advisor to the Planning Commission of Pakistan, President of the Pakistani Academy of Sciences, and he is the recipient of numerous honours and awards including the highest civil award of Pakistan, Nishan-i-Imtiaz, but his unassuming nature and shyness of media exposure had prevented him to be idolized as a scientific hero. May be, now that he is no more, his contributions to Pakistan would be adequately highlighted; thereby, projecting him as a role-model par excellence, for younger generations.

#### Footnotes:

- 1) Pakistan Institute of Nuclear Science and Technology at Nilore near Islamabad, is the R&D flagship facility of PAEC.
- 2) European Organization for Nuclear Research, with its French acronym CERN is located at the Franco-Swiss border near Geneva, Switzerland.
- 3) Dr. Baig has been the Chairman, Physics Department in Quaid-i-Azam University.
- 4) National Centre for Physics, Quaid-i-Azam University campus, Islamabad.
- 5) The 'International Centre for Theoretical Physics' founded by Pakistani Nobel laureate, Prof. Abdus Salam. Now it has been named after him as 'AS-ICTP'.
- 6) COMSATS is the acronym of 'Commission on Science and Technology for Sustainable development in the South'. It is an international organization with 24 developing countries as its Member States.
- 7) The 'International Institute for Applied Systems Analysis' (IIASA) is a non-governmental research organizations based in Austria.
- 8) The Italian City of Trieste in northern Italy is the home of AS-ICTP.
- 9) Elettra is an Italian third-generation synchrotron radiation facility located on the outskirts of Trieste, which has been operational since 1993.
- 10) Professor Fahim Hussain served as staff scientist at AS-ICTP from 1990 to 2004. He was initially associated with Diploma Programme and later became Head of ICTP's Office of External Activities.
- 11) 'Associate' is a designation used for a scientist who has been selected to visit ICTP periodically for a certain number of years.
- 12) Mr. Munir Ahmad Khan was appointed as Chairman PAEC in 1972 and served in this capacity for 19 years.

The author is Ex- Chief Scientist PAEC, and Ex- Executive Director COMSATS.





## Scientific activities of Dr. Ahmad

Ishfaq Ahmad, D.Sc., Minister of State, SI, HI, NI, FPAS, was a Pakistani nuclear physicist, emeritus professor of high-energy physics at the National Center for Physics, and former science advisor to the Government of Pakistan. A versatile theoretical physicist, Dr. Ahmad made significant contributions in the theoretical .....



Yousuf Mehmood

## Love of science for Pakistan

Dr. Ishfaq Ahmed's contributions to Pakistan are dotted with firsts. He, as the president of the Pakistan Atomic Energy Commission, laid the foundations for co-operation between Pakistan and CERN in the Large Hadron Collider. He was instrumental in conducting the Pakistani Nuclear tests in 1998 as a reply to India's Pokhran-II tests. He .....

# Scientific activities of Dr. Ahmad

Ishfaq Ahmad, D.Sc., Minister of State, SI, HI, NI, FPAS, was a Pakistani nuclear physicist, emeritus professor of high-energy physics at the National Center for Physics, and former science advisor to the Government of Pakistan.

A versatile theoretical physicist, Dr. Ahmad made significant contributions in the theoretical development of the applications and concepts involving the particle physics, and its relative extension to the quantum electrodynamics, while working as senior research scientist at the CERN in 1960s and 1970s. Joining the PAEC in late 1950s, Dr. Ahmad served as the director of the Nuclear Physics Division at the Pinstech Institute which developed the first designs of atomic bombs, a clandestine project during the post-1971 war. There, he played an influential role in leading the physics and mathematical calculations in the critical mass of the weapons, and did theoretical work on the implosion method used in the weapons.

Since 1960s and onwards, he has been a high-ranking of-

ficial at the IAEA as part of the Pakistan Government's official mission, working to make the peaceful use of nuclear power for the industrial development. Having chaired the PAEC from 1991 until 2001, he has been affiliated with the Pakistan Government as a Science adviser to the Prime minister on strategic and scientific programs, with the status of Minister of State. A vehement supporter for the peaceful use of nuclear energy, he earned public and international fame in May 1998 when he oversaw and directed PAEC to perform country's first public atomic tests in Balochistan Province of Pakistan. He died on 18 January 2018, aged 87 in Lahore.

In the 1990s, Dr. Ahmad played a pivotal role in building closer relations with the CERN, and lobbied tirelessly for PAEC to reach an agreement with CERN.

In 1997, Dr. Ahmad, as chair of PAEC, signed an agreement with CERN in the up gradation of the CMS detector and the financial contribution worth one million SFr for the construction of eight magnetic rings for the detector.

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In 2000, another treaty between PAEC and CERN was signed that covered the construction of the resistive plate chambers required for the CMS muon system.

In 1960, Dr. Ahmad joined the Pakistan Atomic Energy Commission (PAEC) as senior scientist and was allowed to proceed abroad for post-doctoral work at several of the world's most renowned research institutions.

Dr. Ahmad became Chairman of the PAEC in 1991 and remained its Chairman from 13 March 1991 to 19 December 2001.

While he was Chairman PAEC, he has been heading the country's delegation at the International Atomic Energy Agency (IAEA) in Vienna, Austria. At IAEA, he was always very keen for getting technical support and the breaking of the isolation of scientists from third world. On his persuasion IAEA's technical assistance program was adapted

to cater for special needs of the developing countries. In this regard a Standing Advisory Group on Technical Assistance and Co-operation (SAGTAC) was established; Dr. Ahmad served as the first Chairman of the Group.

After his retirement from PAEC, Dr. Ahmad developed keen scientific interest in the science of climate change. This interest led to the creation of 2 new centre viz Global Change Impact Studies Centre (GCISC) and Center for Earthquake Studies (CES), both initially attached to the National Center for Physics (NCP) in Islamabad.

Dr. Ahmad served as elected President of the Pakistan Academy of Sciences and is the lifetime Chairman of the Board of Governors of the National Center for Physics (NCP) — a research institute established on the pattern of International Center for Theoretical Physics (ICTP) at Trieste, Italy.

He also put Pakistan on the governing Council of the International Institute for Applied Systems Analysis (IIASA), Austria.

Dr. Ishfaq Ahmad is internationally known for his

long-standing public advocacy for the nuclear power plants for the industrial and socio-economic growth.

On international forums, Dr. Ahmad deterred the international pressure mounted on Pakistan after conducting its tests, instead highlighted the achievements gained by Pakistan on its nuclear power infrastructure in the country as well as the need of Pakistan's usage of nuclear power for its economical growth.

In 2012, Dr. Ahmad lobbied for the HMC-3 consortium to be listed as first commercial nuclear power corporation and helped the consortium to acquire its first license to manufacture nuclear materials for industrial power plants.

In 1989, Dr. Ishfaq Ahmad was bestowed with state honour, Sitara-e-Imtiaz; and Hilal-e-Imtiaz in 1995. In 1998, Dr. Ahmad received the highest state honour, Nishan-e-Imtiaz, for his services to the country.

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# Love of science for Pakistan

Yousuf Mehmood

Dr. Ishfaq Ahmed's contributions to Pakistan are dotted with firsts. He, as the president of the Pakistan Atomic Energy Commission, laid the foundations for co-operation between Pakistan and CERN in the Large Hadron Collider. He was instrumental in conducting the Pakistani Nuclear tests in 1998 as a reply to India's Pokhran-II tests. He also created the first centre for Experimental Physics in Pakistan, the National Centre of Physics, in 1998. He has also been

honoured with the Sitara-e-Imtiaz, the Hilal-e-Imtiaz and the Nishan-e-Imtiaz. All in all, it's a wonderful career to have had. What comes across strongest in his career however, is not a drive due to the love of science, but due to a love of Pakistan.

Dr. Ishfaq Ahmed's achievements all seem to point towards bettering Pakistan, strengthening Pakistan and preparing Pakistan for the world stage. His involvement in CERN wasn't merely due to its international repute; though that was definitely a major factor; it was due to his inspiration: Dr. Abdus Salam.

Under Dr. Abdus Salam, Dr. Ahmed saw Pakistan gain access to nuclear emulsions from CERN to study subatomic particles such as pions and kaons for the first time. He also saw Abdus Salam's theories being verified at CERN and him eventually winning the Nobel Prize in Physics. When he visited CERN in 1994 as the head of the Pakistan Atomic Energy Commission he saw that the world was moving fast in the fields of science and that Pakistan could not be left behind.

Another surge of patriotism overtook him when he heard of the Pokhran-II tests. He was in Canada at the time, giving lectures on quantum radiation (did I forget to mention he has written papers on quantum electrodynamics?). He left for Pakistan immediately and ended up personally supervising and naming the Chagai Nuclear tests.

If that wasn't enough, after the Kashmir Earthquake of 2005 he founded the Centre for Earthquake Studies to better prepare for the natural disaster if it occurred again.

**"I had only one wish – that my own country, Pakistan, should somehow become involved in scientific collaboration with CERN." CERN and Pakistan: a personal perspective (October 5th, 2003)**



In light of the recent floods and droughts that have hit Pakistan, it would be foolish to disregard Dr. Ishfaq Ahmed's creation of the Global Change Impact Studies Centre. The centre studies climate change and global warming and works in collaboration with the National Met. Department, WAPDA, the National Agricultural Centre etc.

We Pakistanis tend to have a very specific definition of the

word "hero" in our minds. It's either a soldier going in to the field of battle or a pilot swerving around enemy jets in a secluded air field and taking them out. Well I think a scientist who has done all he can to make sure Pakistan is prepared to face the world head on in the field of knowledge deserves no less recognition from us.

Courtesy: nustscienceblog.wordpress.com





Dr. Ishfaq Ahmad

## CERN & Pakistan: a personal perspective

The informal scientific co-operation between CERN and Pakistan dates back to the 1960s, when Pakistan was introduced to CERN through Abdus Salam, the country's only Nobel Laureate. Salam had a desire that a group of Pakistani scientists commit themselves to both theoretical and experimental high-energy physics.....



Zainab Khawaja

## So I met the scientist

The seminar started off with the customary introduction of our guest, and his many achievements. Dr. Ishfaq proved to be relaxed and down-to-earth, preferring to sit instead of stand at the podium, and shared with the students his journey, from Punjab University in the 1950s, to the honor of being awarded first the Sitara Imtiaz.....

# CERN & Pakistan: a personal perspective

Dr. Ishfaq Ahmad (Late), N.I., H.I., S.I.

The informal scientific co-operation between CERN and Pakistan dates back to the 1960s, when Pakistan was introduced to CERN through Abdus Salam, the country's only Nobel Laureate. Salam had a desire that a group of Pakistani scientists commit themselves to both theoretical and experimental high-energy physics. On the suggestion of Salam, stacks of nuclear emulsion exposed at CERN were provided to Pakistan for the study of pions, kaons and antiprotons. In this informal co-operation, Owen Lock from CERN and the newly created Pakistan Atomic Energy Commission (PAEC) played an important role. Nuclear emulsions were later superseded by newer particle-detection techniques, and gradually this activity faded away. Meanwhile, some theoretical physicists from Pakistan had the opportunity to work at CERN through short visits. During the 1980s, some of the experimental physicists from Pakistan, specializing in the technique of Solid State Nuclear Track Detectors (SSNTD), also benefited from CERN by exposing the stacks in the beam at the Super Proton Synchrotron (SPS).

In 1994 I visited CERN as chairman of PAEC. The visit took place on the initiative of Pakistani physicist Ahmed Ali, who works at DESY. It brought back good memories of my earlier visits, which date back to 1962 when I came to CERN as a young post-doctoral fellow working at the University

Institute of Theoretical Physics in Copenhagen (now the Niels Bohr Institute) to perform a nuclear emulsion experiment. During my visit in 1994, I was fascinated to see the exciting developments in physics that were taking place at CERN, and I had only one wish - that my own country, Pakistan, should somehow become involved in scientific collaboration with CERN, and that our physicists and engineers could also become part of the most advanced, challenging and rewarding scientific endeavour: the Large Hadron Collider (LHC).

On my return to Pakistan, I kept my contacts with CERN, and a few months later a co-operation agreement was approved by the government of Pakistan, which was signed by me, as chairman of PAEC, and the then director-general of CERN, Chris Llewellyn Smith, who has now been appointed as director of the UK Atomic Energy Authority's fusion programme (CERN Courier September 2003 p39). In 1997, PAEC signed an agreement for an in-kind contribution worth one million Swiss francs for the construction of eight magnet supports for the CMS detector. The signing of the agreement was followed by the visit of Llewellyn Smith to Pakistan in 1998. The agreement provided an entry point for Pakistani scientists and engineers into the CMS collaboration.

In 2000, CERN's new director-general, Luciano Maiani, visited Pakistan, and during this visit another agreement was signed, which doubled the Pakistani con-

tribution from one to two million Swiss francs. This new agreement covered the construction of the resistive plate chambers required for the CMS muon system. Recently, a protocol has been signed enhancing Pakistan's total contribution to the LHC programme to \$10 million. I very much hope and wish that these developments may eventually lead to Pakistan becoming an observer state at CERN.

### A source of inspiration

One of the inspirations for scientific co-operation with CERN was Salam's theories, which were always at the forefront of CERN's scientific programme. Salam, Sheldon Glashow and Steven Weinberg formulated the theory that unified the electromagnetic and weak interaction and predicted the existence of weak neutral currents. In 1973, neutral currents were observed at CERN, verifying the theory. The discovery created quite a lot of excitement in Pakistan because of Salam. A later important breakthrough was the discovery of the intermediate vector bosons, W and Z, at CERN's SPS in 1983. This provided yet another verification of the theory of Glashow, Salam and Weinberg (CERN Courier May 2003 p26).

### The importance of the Grid

The amount and size of experimental data generated at the LHC will pose the greatest challenge to the physicists. The collection, storage, retrieval and analysis of LHC data will require novel techniques in the field of information technology. The physicists working in different institutions around

the globe will access LHC data; this implies a need for distributed computing. In recent years, a new approach in computing is emerging, called the Grid. The Grid is a natural evolution of the World Wide Web, which was invented at CERN in 1991. While the Web made information retrieval via the Internet extremely easy and simple, the proper implementation of the Grid will allow information processing and the solving of complex problems that would otherwise require supercomputers, in a very simple manner. Grid computing will be particularly useful for developing countries, where the cost of a supercomputer is prohibitive and there are also political difficulties in their purchase. It is very important for Pakistan to establish the proper infrastructure for Grid computing to acquire the full benefits of its investment in the LHC.

Coming back to Pakistan, it is important to note that due to the influence of Salam, a number of high-calibre Pakistani theoretical particle physicists were trained in the latter part of the 20th century. On the other hand, Pakistan has always lagged behind in experimental particle physics due to a lack of resources. It was strongly felt by the scientists of Pakistan that a national centre for physics of very high international standards was needed. In 1994, I led a group of physicists to meet the president of Pakistan to discuss this issue, and the president very kindly approved the concept of such a centre. So in 1998, during the inauguration ceremony of the

23rd International Nathiagali Summer College on Physics and Contemporary Needs, I announced the creation of the National Centre of Physics (NCP) and invited the well-known Pakistani theoretical physicist Riazuddin to head the centre, which he kindly accepted.

The NCP is the cradle and the focal point for all CERN-related activities in Pakistan. At present, the centre is involved in a number of LHC-related activities such as detector construction, detector simulation, physics analysis and Grid computing. Several other Pakistani institutes are also collaborating with CERN indirectly through the NCP. The activities of these institutes cover areas such as software development, manufacturing of mechanical equipment, alignment of the CMS tracker using lasers, and the testing of electronic equipment.

Former CERN director-general Victor Weisskopf wrote in his book *The Joy of Insight* that anybody who enters CERN should be regarded as European and no longer a citizen of any nation. Now CERN is open to any scientist from anywhere in the world. Moreover, beyond its 20 European member states, CERN currently has co-operation agreements with 30 countries. Had Weisskopf been alive today, he would probably have rephrased his remark by saying that "anybody who enters CERN is a citizen of the world".

Ishfaq Ahmad, special advisor to the prime minister of Pakistan and former chairman of the Pakistan Atomic Energy Commission. Extracts from the article published in CERN COURIER on Oct 6, 2003.

# So I met the scientist

The seminar started off with the customary introduction of our guest, and his many achievements. Dr. Ishfaq proved to be relaxed and down-to-earth, preferring to sit instead of stand at the podium, and shared with the students his journey, from Punjab University in the 1950s, to the honor of being awarded first the Sitara Imtiaz, then then the Hilal-i-Imtiaz and finally, the Nishan-i-Imtiaz, Pakistan's highest civilian decoration. Stressing that the future of science in Pakistan, and around the world, rested in the hands of today's youth, he spoke of the passion for and dedication to one's work. His speech was peppered

with entertaining anecdotes of his life – everything from how he had to learn French in Montreal, to how he keeps in touch with his children through Skype.

Dr. Ishfaq encouraged the students to pursue both practical and theoretical work in their studies, emphasizing that it was only a mixture of both that led to a proper understanding of the subject at hand. He spoke of his experience in studying nuclear particle and quantum electrodynamics, of working on the Pakistani atomic bomb, along with nuclear weapons research programs, his experience with the IAEA, and with the Planning Commission of Pakistan.

An important issue he addressed was the stagnation of innovation in Pakistan. The de-

velopment of nuclear technology was a landmark achievement in our history, one that was by no means easy. The level of hard work and determination that went into that initial project was one that has rarely been seen in Pakistan since. It is just one example of what we can do if we put our hearts and minds to it. Too often, Pakistani youth are faced with stories of failure, or inability, or incompetence.

Studying at NUST, the country's premier engineering university, each student must be aware of the immense potential they hold within themselves. There is a world of possibility. If necessity breeds invention, there is no lack of necessity here. It is time that the youth took a serious stance on the

role they play in this country. Not just to show up at political rallies, and drop some votes in a ballot box – but to supplement the weak infrastructure of the country. Innovations, patents, breakthroughs in technology – these are the things that build a country from the ground up. As a privileged few who were accepted into NUST, indeed as the privileged few who can afford a university education, it should be every student's goal to bring a change.

NUST is dedicated, both as a university, and as a center for on-going scientific research, to strengthening Pakistan's education sector, by providing high-quality education, and opportunities for research work, career advancement, and training

seminars, conferences, and student-activity programs. Saying that the university that has made remarkable progress in the last ten years, Dr. Ishfaq congratulated the Rector, on steering the university on a path of success.

The hall was packed with students from all across NUST – the business school, EME, as well as from the engineering schools in H-12 – eager to learn from someone who has contributed so significantly to Pakistan and to the field of physics at large. The seminar ended with a strong round of applause and refreshments – and over 300 students determined to achieve.

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