



News Letter

PAKISTAN ACADEMY OF SCIENCES

Promoting Science, Technology and Innovation for Socio-economic Development

A Delegation of Chinese Academy of Sciences visits Pakistan Academy of Sciences

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President

Prof. Dr. M. Qasim Jan
HI, SI, TI

Secretary General

Prof. Dr. M. Aslam Baig
HI, SI, TI

Treasurer

Prof. Dr. G. A. Miana
SI

Editor

Irum Iqar

Composer

Faria Anwar



A four members delegation of Chinese Academy of Sciences (CAS) visited the Pakistan Academy of Sciences (PAS) Headquarters, Islamabad on March 8, 2018 to show the progress of the establishment of China-Pak Joint Research Center of Earth Sciences in Pakistan. Prof. Dr. Qasim Jan (President, PAS) and Prof. Dr. Aslam Baig (Secretary General, PAS) led the PAS side; the Fellow present on the occasion included Prof. Dr. Asif Khan. On behalf of the Pakistan Academy of Sciences, Dr. Qasim Jan warmly welcomed the Chinese delegation.

The Chinese Delegation thanked the President for brief introduction about the Academy and collaboration between PAS and CAS. CAS member presented a slide show on progress of the establishment of China-Pak Joint Research Center of Earth Sciences in Pakistan. They further added that CAS is bound to strengthen the cooperation between CAS and PAS. They briefed the PAS leadership about the aims and objectives of the China-Pak Joint Research Center that will deal with earth sciences issues in the dry range areas of mountains, i.e. Himalayas, Hindu Kush and Karakorum. The Center will provide a security support for China-Pakistan Economic Corridor (CPEC) by developing navigation for its course and technologies on natural hazards and providing sustainable capability by technology development of eco-environment protecting and recovery.

Dr. Asif Khan stated that PC1 is the requirement from the Planning Commission of Pakistan which will include objective and mission of the Center, plan of construction, number of labs, instruments, and design of center. HEC has the expertise so they will help in making PC1 for the Center. Dr. Qasim Jan complimented CAS members on the comprehensive presentation. He added that HEC has already taken the initiative in this regard. He suggested some places for the Center and also emphasized that the Center should be given an autonomous status. In the end, the President PAS thanked the participants of the meeting and assured lasting support of PAS for scientific collaboration between China and Pakistan.

**Fellows of PAS may
submit news and
views to:**

**Editor
Pakistan Academy
of Sciences
3-Constitution Avenue,
G-5/2, Islamabad,
Pakistan**

Email: editor@paspk.org
Tel: (+92 51) 920-7140
Web: www.paspk.org

International Forum on Science Education

The International Forum on Science Education was held in Islamabad on 9 April 2018 in conjunction with the 2018 meeting of the Global Council of the InterAcademy Partnership Science Education Programme (IAP SEP) and a workshop on “Fusion of OBOR Civilizations School Curriculum Design” on 9-10 April 2018. The three events were mainly hosted by the ECO Science Foundation (ECOSF) in strong partnership with Higher Education Commission (HEC) of Pakistan, Pakistan Academy of Sciences and Alif Ailaan. The International Forum was themed; “Quality Science Education at Schools- A Must for Quality Higher Education and Economic Development”. The Forum attracted more than 200 speakers including 20 international participants from 12 countries as well as some diplomats from Pakistan based Embassies of various countries. The International Forum engendered animated and constructive deliberations, culminating in the recommendations and outcomes in an “Islamabad Declaration”.

The Forum included a series of panel discussions on a number of thematic areas of science education and explored the ideas around the challenges, implementation of effective science teaching and policy measures by expert panelists on science education around the globe. The International Forum deliberated in depth the interaction of digital & development revolution, non-formal science education, science museums, women in science, role of media in promoting science education and linkages between science & sustainable development and the STEM education following IBSE methods at various levels from preschool through primary, secondary and tertiary/higher

education to lifelong learning. The International Forum concluded that stakeholders need to put in more efforts and beef up the Science, Technology and Innovation infrastructure and through their expert use of social media and mobile communication, IBSE/STEM savvy children and youth can be the agents of change to lead humanity towards sustainability.

Earlier, President Pakistan Academy of Sciences, Prof. Dr. Qasim Jan opened the Forum and welcomed all the international guests, delegates and local participants. He also spoke about the role of Pakistan Academy of Sciences for promotion of science education in the national development of the country and endorsed the initiative of ECOSF for promotion of science education in Pakistan and neighbouring countries. He also appreciated the IAP-SEP for promoting Science Education in Pakistan.



Workshop on “Fusion of OBOR Civilizations School Curriculum Design” in Islamabad on 9 -10 April 2018

The ECO Science Foundation (ECOSF) in collaboration with InterAcademy Partnership Science Education Programme (IAP SEP) and Higher Education Commission of Pakistan (HEC) organized the Workshop on “Fusion of OBOR Civilizations School Curriculum Design” in Islamabad on 9 - 10 April 2018 hosted by Pakistan Academy of Sciences. The Forum on Fusion of Civilization deliberated on development of science curriculum based Fusion of Civilization. They believed that the strategic partnership between ECOSF and PAS would serve as an effective

platform to promote and highlight the role of science education for making a meaningful impact in society and constructive development not only for Pakistan but for the entire region. The idea of development of such a curriculum for school kids is to inculcate peace and harmony through evidence based science education for children in the light of the current conflict and increase in violence in societies, and terrorism resulting in atrocities and displaced persons.



Commemorative Ceremony for Prof. Dr. Stephen Hawking at HEC, Islamabad

It was a Joint Venture between Higher Education Commission (HEC) and Pakistan Academy of Sciences (PAS) held at HEC auditorium held on April 2, 2018. Chairman, HEC Dr. Mukhtar Ahmed gave welcome address about Dr. Stephen Hawking's scientific contribution. It was followed by remarks from Dr. Shaukat Hameed Khan, Coordinator General COMSTECH and by Dr. Arshad Bhatti, Dean Faculty of Natural Sciences, CIIT. President PAS, Prof. Dr. M. Qasim Jan gave his inaugural lecture.

The key note address was given by Prof. Dr. Khalid Saifullah, dept. of Mathematics, Quaid-i-Azam University (QAU). Mr. Ahsan Iqbal, Federal Minister for Interior and Planning Development & Reforms inaugurated the event as Chief Guest. Apart from highlighting the contribution of Dr. Stephen Hawking, he also emphasize on Muslim scientist and our glory. He stressed to make Stephen Hawking an

ideal and work with commitment and dedication as Dr. Stephen has done despite of his extreme level disability and very restricted movement. He emphasized that our Nation can only flourish if our young scientists and educationists work for scientific achievement and socio-economic development of the country.



Global Council Meeting of InterAcademy Partnership Science Education Programme (IAP SEP)

The ECO Science Foundation (ECOSF) hosted the Global Council (GC) of InterAcademy Partnership Science Education Programme (IAP SEP) on 10 April 2018 at Marriott Hotel Islamabad, Pakistan under the auspices of Pakistan Academy of Sciences (PAS). The main focus IAP SEP is to promote Inquiry Based Science Education (IBSE) and to improve science literacy among the general population through national academies of sciences. The Senior Academician Dato Ir. Lee Yee Cheong of Malaysia who is also the Chairman of Academy of Engineering and Technology of Developing World (AETDEW) chaired the meeting and welcomed all the participants. The meeting was attended by GC Members viz., Mustafa El-Tayeb (Sudan), Manzoor H. Soomro (Pakistan), Indarjani (Indonesia), Aphiya Hathayatham (Thailand), He Zhu (China), Nurhanani Zainuddin (ASM Malaysia representing Hazami Habib), Ex-officio Members (Mooha Lee (AASA- South Korea), Jacqueline Olang Kado (NASAC- Kenya) and Invited Guests (Abdul Rashid of Pakistan Academy of Sciences, Tasneem Anwar (Fusion of OBOR Civilizations School Curriculum Design - Pakistan).

During the meeting, various administrative and strategic decisions including adoption of the agenda of last meeting, the progress of the programmes, and future plans were made. Prof. Mustafa El-Tayeb of Sudan was also elected as the new Chair of the GC for three years as tenure of the current chair (Dato Lee) has completed this year (2018). The Chairman gave an overview of the Zika Disease Curriculum Design project undertaken by the Smithsonian Science Education Centre, with funding support from Moore Foundation and the Smithsonian Institute.



PAS played a pivotal role in IAP Meeting on Implementation of the Biological Weapons Convention

The Meeting of States Parties of the Biological Weapons Convention (BWC) took place from 4-8 December 2017.

The Interacademy Partnership (IAP) was represented throughout the proceedings, but especially visible at a side event that aimed to highlight different activities that various academies are undertaking which are helping in the implementation of the BWC. On 7 December, the IAP hosted a side event on 'Implementation in Action: IAP's experience in engaging scientists in biosecurity'.

Among the speakers were:

1. Nisreen Al-Hmoud, director, Bio-Safety and Bio-Security Centre, Royal Scientific Society, Jordan, who spoke on "Effective practices in addressing bio-risks in the area of research and development: A perspective from the MENA region.
2. Prof. Dr. Zabta Shinwari *SI TI*, former Secretary General, Pakistan Academy of Sciences, spoke on "Pakistan's experience in engaging scientists in biosecurity.
3. Iqbal Parker, professor of medical biochemistry and structural biology, Faculty of Health Sciences, University of Cape Town, South Africa, and also chair of the Academy of Science of South Africa's (ASSAf) Biosafety and Biosecurity Committee, who presented "The state of biosafety and biosecurity in southern Africa.
4. Ursula Jenal, Forum for Genetic Research, Swiss Academy of Sciences, and Jenal & Partners

Biosafety Consulting, who spoke on 'Awareness raising and education regarding the misuse potential of biological research in Switzerland'

From the presentations, it became clear that academies are helping to implement the articles of the BWC in a number of ways, including: public outreach and awareness-raising activities (such as the 'Making Pakistan science conscious' campaign and the Swiss Academy of Sciences report 'Misuse potential and biosecurity in life sciences research'); reports, policy advice and feedback to government (as in the case of ASSAf's 'Consensus Report on the State of Biosafety and Biosecurity in South Africa'); and by bringing the scientific community together, as exemplified in Jordan and Pakistan, in particular.



15th NATIONAL SYMPOSIUM ON FRONTIERS IN PHYSICS

The 15th National Symposium on Frontiers in Physics was jointly organized by the GC University Lahore and the Pakistan Physical Society. The Symposium aimed at bringing together the Physics Community of Pakistan to share recent developments in the field opening the possibility of collaboration/interaction amongst various active groups.

More than 250 physicists from Pakistan's leading universities and R&D organizations participated in this three day event which had 25 technical sessions on different topics including a wide spectrum of Physics including important fields of Condensed Matter Physics, Materials Science/Nano Technology, High Energy Physics, Nuclear Physics, Atomic, Molecular & Laser Physics, Cosmology, Plasma Physics and Controlled Fusion, and Computational Physics. About 66 physicists presented talks and papers at the symposium highlighting the recent important developments in physics and the impact of these developments on various aspects of our lives.

The Following review talks were also delivered on the topics:

1. Some Recent Developments in the World of Physics
2. Neutron Stars: From Birth to Death
3. Origin of Mass in the Universe
4. Graphene and beyond etc etc.

A special session was also held on Professor Abdus Salam highlighting his important legacies of scientific work on the creation of the ICTP. The Symposium provided an opportunity to Pakistani scientists to know the latest trends in the field and to know each other's work opening the possibility of collaboration/interaction amongst various active groups. Prof. Dr. Aslam Baig, Secretary General, Pakistan Academy of Sciences (PAS), was invited as a keynote speaker.



Dr. A. Q. Khan declared Distinguished Alumnus of Three World Famous Universities

Famous Nuclear Scientist, Former President & Fellow, Pakistan Academy of Sciences, Dr. A. Q. Khan NI & HI has been declared distinguished alumnus of three world famous universities, i.e., The University of Leuven, Belgium; Technical University of Berlin, Germany; and Delft University of Technology, Holland, where he had studied before coming to Pakistan to head the nuclear weapons program. This information is available on the website of the three universities under "Notable Alumni". This is not only a great honor for the Academy but also for the country.



Prof. Dr. Zabta Khan Shinwari awarded Civil Award, Sitara-e-Imtiaz

Prof. Dr. Zabta Khan Shinwari was awarded Sitara-e-Imtiaz for his valuable work on medicinal plants. Earlier He was awarded Tamghae Imtiaz for his work in introducing drought tolerance genes in plants in 2011. He was also acknowledged internationally by winning the UNESCO Avicenna Prize in 2015 and declared best scientist of the world promoting ethics in science.

This time, the Committee appreciated the interdisciplinary work of the project “From Bench to Bed” which included basic research on medicinal plants coupled with nanotechnology and role of endophytic organisms in plant growth promotion and biocontrol of plant pathogens beside metagenomics.



Dr. Tayyab Husnain has won SATHA (South Asia Triple Helix Association) Award, 2018 for Innovation

Dr. Tayyab Husnain, Director Centre of Excellence in Molecular Biology(CEMB), has won the SATHA (South Asia Triple Helix Association) Award, 2018 for Innovation. It is worth mentioning that the Centre of Excellence in Molecular Biology has also won two technology awards along with three poster awards at the 7th Invention to Innovation summit held at University of the Punjab, Lahore from 7-8 March, 2018. Technology awards were awarded to two innovative projects on “Transgenic Cotton” and “Edible Vaccines”. Poster awards were granted for “Edible Vaccines against the Bird Flu” by Sana Shakoor and Tahir Samiullah, “Development of sucking Insect resistant Cotton” by Ambreen Gul and “Population based in-silico epitope prediction of HCV 3a” by Abida Shahzadi.



Developing Sustainable Agriculture in Pakistan by Dr. Iqrar A. Khan

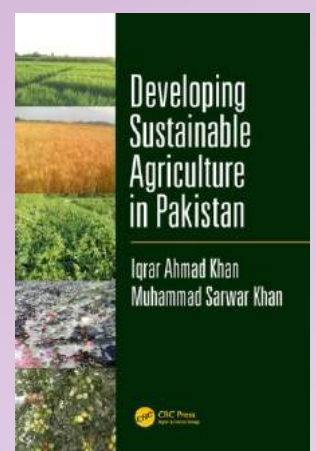
Dr. Iqrar Ahmad Khan (Fellow, PAS) and Dr. Muhammad Sarwar Khan authored a book “Developing Sustainable Agriculture in Pakistan” published by CRC Press in April 2018. Agriculture is Pakistan’s main factor in economic growth, but fixed cropping patterns, reliance on few major crops, narrow genetic pools, poor seed quality and changing climate have compromised production. This book identifies problems in the industry, and provides remedies to these problems and ways of moving forward towards improvement.

Key features of the book are;

- Discusses several steps to improve production practice and farmer livelihoods in Pakistan.
- Explains how biotechnology plays a pivotal role in developing GM crops to improve livelihood of smallholder farmers by addressing problems of insects and diseases under changing climatic conditions.
- Highlights precision agriculture techniques for increased farm productivity and decreased adverse

environmental impacts.

- Provides a comprehensive account on climate change and its effects on agriculture while suggesting changes in policies for significant improvement and sustainability.
- Explains developments and issues related to livestock and poultry industry while proposing value addition to the products.
- Relays future perspectives



Elsevier Publishes Three Books of Prof. Atta-Ur-Rahman, *FRS*

Three volumes of “Studies in Natural Product Discovery” have been published by Elsevier Science Publishers (Volumes 54-56). The series was initiated under the editorship of Prof. Atta-ur Rahman, (FRS) 30 years ago and now has become a most comprehensive encyclopedic series in the world which covers the chemistry and biological activities of natural products derived from terrestrial and marine sources.



Professor Jinde Cao (Foreign Fellow of PAS) Elected as Member of the European Academy of Sciences and Arts

Recently, a Foreign Fellow of PAS, Professor Jinde Cao from Southeast University received a congratulatory letter from President H. C. Felix Unger of the European Academy of Sciences and Arts for Professor Cao's election as member of the European Academy of Sciences and Arts. The Academy is located in the ancient St. Peter's Abbey in Salzburg. New members are received formally at the annual Festive Session of the Academy, which takes place always on the first Saturday of March. The next Festive Session takes place on March 2, 2019.



Pakistan Academy of Sciences Suggestions on 15 Years Development Platform of the Chinese Academy of Sciences

Pakistan Academy of Sciences and many academic institutions and science organizations in Pakistan are engaged in a number of collaborations in different areas of Science and Technology with their Chinese counterparts. Research areas range from agriculture to energy production, communication, natural disasters, biotechnology, physical sciences, trade and business. The scope and extent of collaboration will further increase in view of the implementation of the CPEC. The PAS provided suggestions on the CAS Mid and Long term (2021-2035) S & T development plan, including the strategies and approaches, to be adopted by China.

PAS suggested that areas such as artificial intelligences, big data handling and cyber security, material science and Nano-Sciences and Technology need hot pursuits. A good balance between fundamental and applied (technological) research, research and innovation-oriented university structure and faculties, and rapid adaptation of new technologies may be adopted if China wants to be at the forefront of the world science and become innovation powerhouse. STI have strong impact on sustainable development and socio-economic

prosperity of nations. Through effective multinational collaborations, STI can play a pivotal role in solving global issues and problems behind abject poverty and under-development in various regions of the world.

The CAS knows that the pursuit of S&T is becoming highly competitive on the global scale, hence emphasis needs to be laid on quality manpower. The imminent threats of energy crisis, global warming and climate change, fresh water scarcity, dual use of science, food insecurity and infectious diseases need immediate attention. The CAS may continue with the present policy of investment in human resource development and frontier areas of fundamental Science. Youth involvement and gender equality are important for future development in STI.

Prof. Dr. Atta-ur-Rehman, who is a Fellow of CAS, separately sent suggestions to CAS. He also identified important strategic areas, including new and emerging technologies on which China should focus, including Artificial Intelligence, Genomics, New materials, Regenerative medicine and other fast emerging fields.

Conference on “Safe and Secure Science” (5-9 February 2018) at Sunway University, Kuala Lumpur, Malaysia

Dr. Zabta Khan Shinwari presented a key note on “National and International Challenges in relation to biodiversity; environment & Frontier Technologies” and on “Ethics and Responsible Conduct of Research” in International Conference on “Safe and Secure Science” (5-9 February 2018) at Sunway University, Kuala Lumpur, Malaysia. This was a joint event of Pakistan Academy of Sciences & US National Academy of Sciences (NAS). Forty-eight young Pakistani scientists were facilitated to participate in the event.



Obituary

Prof. Dr. Abdul Raouf

On 26th March, 2018, an eminent industrial engineer and educationist, Prof. Dr. Abdul Raouf, passed away peacefully in Lahore. Professor Abdul Raouf was PhD from University of Windsor, Ontario, Canada. He was Distinguished National Professor of Higher Education Commission (HEC). He had served as Advisor & Professor at University of Management and Technology (UMT), Lahore. Earlier he was Rector of Ghulam Ishaq Khan (GIK) Institute of Engineering Sciences & Technology, Swabi, Pakistan, 1994-2000; King Fahd University of Petroleum & Minerals (KFUPM), Dhahran, Saudi Arabia; Professor Department of Systems Engineering, 1984-1994; University of Windsor, Canada: Professor of Industrial Engineering, 1983-1984; Professor & Head Department of Industrial Engineering, 1976-1982; OECD Visiting Professor at Middle East Technical University, Ankara, Turkey, 1975-1976; Associate Professor, Industrial Engineering University of Windsor, Canada, 1968-1974; Assistant Professor, Industrial Engineering University of Windsor, Canada, 1966-1968; Teaching Fellow, University of Toledo, USA, 1965-1966; Quality-Method Engineer, Canadian Acme Screw & Gear, Toronto, Canada, 1962-1964.

Professor Abdul Raouf was an accomplished industrial engineer. His research areas were Maintenance Engineering and Control Prediction of Human Performance in Man-machine System; and Occupational Safety Application of Operations Research in Optimizing Man-machine System and Total Quality Management.

Prof. Abdul Raouf had earned many honors and awards. The salient ones were Long Life Scholarship Award by University of Management and Technology, 2011; Best Book on Quality Award by Pakistan Institute of Quality Control, 2011; Best Research Paper Award by HEC, 2011; Sitara-i-

Imtiaz by Government of Pakistan, 1997; and Agha Hasan Abedi Prize (Best Engineer of the Year Award) by Pakistan Academy of Sciences, 1998.

Professor Raouf was Fellow, Pakistan Academy of Sciences (PAS); Fellow, Institute of Engineers (Pakistan); Fellow, Institute of Management Services; Fellow, Ergonomics Society (UK); Senior Member, American Institute of Industrial Engineers; Member, Human Factors Society; Member, Human Factors Association of Canada; Professional Engineer, Pakistan Engineering Council; Professional Engineer in the Province of Ontario Canada; Member, National Productivity Council, Government of Pakistan; Member, Executive Committee, Pakistan Engineering Council, 1996-99; and Member Vice Chancellors Committee, Engineering Universities / Institutions Government of Pakistan, 1996-99.

May Allah Almighty rest his soul in eternal peace and give fortitude to his family to bear this irreparable loss; Aameen.

