



News Letter

PAKISTAN ACADEMY OF SCIENCES

Promoting Science, Technology and Innovation for Socio-economic Development

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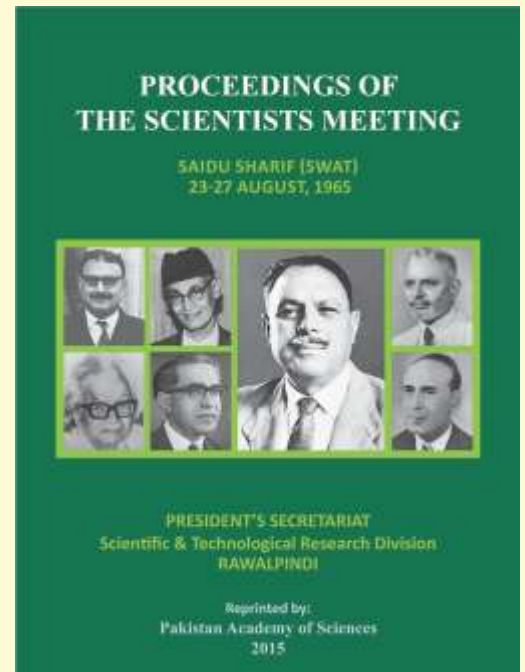
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Science-driven Development in Pakistan: Roadmap for 2016–2030

Harnessing of science and technology (S&T) is pivotal for economic development and human well being. The founding fathers of S&T in Pakistan were fully conscious of this reality; therefore, they did their best to inculcate and promote science in the face of enormous limitations of the newly established country. A historical Meeting of illustrious Pakistani scientists of that time was organized in 1965 in Swat jointly by the *Pakistan Academy of Sciences* and the *National Science Council*, which was chaired by the then President of Pakistan, Field Marshal Mohammad Ayub Khan. This Meeting developed 20 recommendations which provide guidelines for science-driven development in the country. Even after a lapse of 50 years, most of these recommendations remain unattended to resulting in deplorable state of S&T and, hence, of the national economy.

The *Pakistan Academy of Sciences* have re-printed Proceedings of this Meeting to augment science promotion efforts of the Academy by way of inspiring the stakeholders and sensitizing the decision makers about inevitable need and enormous benefits of science, technology and innovation for national development. The re-printed Proceedings have been disseminated to all concerned.

On receiving an encouraging response from the Federal Minister and Deputy Chairman of Planning Commission, Prof. Ahsan Iqbal, the Academy intends to organize a Consultative Workshop *to deliberate upon the state of S&T in the context of 50-year old recommendations and to arrive at a roadmap for effective harnessing of S&T for economic development of the country*. Subject to provision of requisite support, the Consultative Workshop will be organized during March 2016 by involving all stakeholders.



PAS Travel Grants

The following Travel Grants were awarded by PAS to its Fellows:

S. No.	Name of Fellow	Meeting Title, Date and Venue
1	Dr. M. Waheed Akhtar	International Conference on Protein Engineering in Chicago, USA; 26-28 October, 2015
2	Dr. Ikram ul Haq	International Conference on Protein Engineering in Chicago, USA; 26-28 October, 2015
3	Dr. Imtiaz Ahmad	TWAS 13th General Conference and 26th Annual Meeting, November 18-21, 2015, Vienna, Austria.

PAS Research Grants

The following Research Grant was awarded by PAS:

Project Title	Principal Investigator
Biology-oriented Synthesis (BIOS) Based Synthesis of Libraries of Steroids	Prof. Dr. G.A. Miana

PAS Conference Grants

The following Conference Grants were awarded by PAS:

S. No.	Conference Title, Date and Venue	Principal Organizer
1	International Conference on Food and Nutrition Security (ICFANS), November 5-7, 2015 at Forman Christian College, Lahore	Prof. Dr. Kauser A. Malik
2	Regional Workshop on Challenges in Water Security to Meet the Growing Food Requirement, January 18-20, 2016 at Pakistan Academy of Sciences, Islamabad	Dr. Abdul Rashid
3	Promotion of Science and Technology in Balochistan, September 8, 2015, at University of Balochistan, Quetta	Prof. Dr. Masoom Yasinzai
4	14th Regional Conference on Mathematical Physics, November 9 – 14, 2015 at Quaid-i-Azam University and National Centre for Physics, Islamabad	Prof. Dr. Fayyazuddin
5	International Symposium on Light and Life, October 14-16, 2015 at CIIT, Islamabad	Prof. Dr. M. Aslam Khan

Making Pakistan Science Conscious

Science-based Local Solutions Required to Address Local Problems

Dr Junaid Zaidi, Rector, CIIT, Islamabad

The Rector of COMSATS Institute of Information Technology (CIIT), Dr Junaid Zaidi, said that local problems of economic significance for the nation can be addressed by science-based local solutions. This was the key message of 8th monthly brainstorming event on “Making Pakistan Science Conscious” at COMSATS Institute of Information Technology (CIIT), Islamabad organized by the *Pakistan Academy of Sciences* (PAS). Dr Zaidi said that universities are meant to be the source of knowledge and innovation; however, a critical mass of PhD faculty and enabling working environment are prerequisites for optimal functioning of the universities. Thus, the Government must devote adequate attention and resources for promotion of S&T through universities. Earlier in his opening remarks, Coordinator of the this monthly series of brainstorming sessions on “Making Pakistan Science Conscious”, Dr. Hamid Saleem, emphasized for the immense need of openness in academic and scientific domains and the need and benefits of intimate interaction and frank dialogue between experienced and young scientists of the country for promotion of S&T with the ultimate objective of benefit of S&T to the society.

Secretary General of Pakistan Academy of

Sciences, Prof. Dr. Zabta K. Shinwari, apprised the audience about the background and objectives of these brainstorming sessions for promoting S&T in the country. He emphasized that younger generation is the future custodian of Pakistan, and, thus, the Academy is encouraging and motivating young faculty members and postgraduate scientists to work hand-in-hand with the senior scientists. Prof. Dr. Raheel Qamar, who is a Fellow of PAS, stated that we are living through exciting times. He said that as a genetist he is witnessing very exciting revelations of human genetic history, like the genetic linkage of present-day Hazara community, residing in Quetta and Iran, as off springs of the famous ruler Changez Khan.

Dr. Hammad Omer of CIIT gave a highly informative and in-depth talk on “Magnetic resonance imaging (MRI), a climax in science and engineering”. The scientific presentation were followed by lively discussion amongst the budding scientists and senior scientists.

The audience of this important scientific event pertained to almost all the stakeholders, i.e., postgraduate students of CIIT and Quaid-i-Azam University, university professors, senior scientists, heads of academic and scientific organizations, and Fellows of PAS.



Making Pakistan Science Conscious (Contd)

Popularization of Science Stressed in the Interest of Harnessing Benefits of Science to the Society

The key message of 9th monthly brainstorming event on “Making Pakistan Science Conscious” organized at Pakistan Academy of Sciences (PAS), Islamabad was that benefits of science to the society can be realized only by popularizing and promoting science & technology in the country.

In his opening remarks the Coordinator of “Making Pakistan Science Conscious”, Dr. Hamid Saleem, emphasized for the immense need of openness in academic and scientific domains and the need and benefits of intimate interaction and frank dialogue between experienced and young scientists of the country for promotion of S&T with the ultimate objective of benefit of S&T to the society. Two students of Quaid-i-Azam University recited their poems. Dr Mohsin Siddiq of National Center for Physics gave scientific talk on “Solitons”.

The scientific presentation was followed by elaborate discussion amongst the young and senior scientists about the mode of action for effective popularization and promotion of science in the

society. After deliberate discussions it was agreed that benefits of science to the society can be realized only by popularizing and promoting science & technology in the country. Consequently, it was agreed that the university and college students must be made aware of the need and benefits of science by offering lectures on popular science topics, followed by intense discussions.

In his concluding remarks, Secretary General of Pakistan Academy of Sciences, Prof. Zabta K. Shinwari, shared Academy’s vision regarding the initiative on “Making Pakistan Science Conscious” and apprised the audience about some of the intended initiatives of the Academy for promotion of science in the country. The participants of this important scientific event included almost all stakeholders, i.e., postgraduate students of Quaid-i-Azam University, university professors, senior scientists, heads of academic and scientific organizations, and Fellows of PAS – including Prof. Dr. M. Qasim Jan, Prof. Dr. N.M. Butt, Prof. Dr. M. Aslam Baig, Prof. Dr. Khan Bahadur, Prof. Dr. Waseem Ahmad.



Efforts for Biosafety Awareness in the Country Extremely Essential Engr. Baligh-ur-Rahman

Efforts for Biosafety Awareness in the Country are extremely essential. A comprehensive national program must be formulated in consideration of international biosafety strategies and practices. This was stated by Minister of State for Education, Engineer Baligh-ur-Rehman, to the audience while inaugurating three-day Awareness Training Workshop on "Biosafety Awareness and beyond" in Islamabad organized jointly by Pakistan Biological Safety Association, Pakistan Academy of Sciences, International Council for Life Sciences, and Fogarty International Center of the US National Institute of Health. He congratulated the organizers for organizing the Awareness Training Workshop of this important topic, and hoped that the outcomes of this Workshop will be very beneficial to enhance awareness on this subject but also the deliberations and discussion of this event will help in furthering the cause of Biosafety Education and Training in the

country. Speaking on the occasion, Dr. Zeba Rasmussen of Fogarty International Center for the US National Institute of Health and Dr. Phillippe Stroot of Belgium highlighted the importance of biosafety, apprised the audience about biosafety modern research, policies and practices in their respective countries, and emphasized on the need for embarking upon a vigorous campaign in Pakistan. The President of Pakistan Biological Safety Association, Dr. Rumina Hasan, shared the agenda and schedule of activities of Pakistan Biological Safety Association (PBSA); she said that a series of Workshops and Seminars have been planned to impart Biosafety awareness and education to the maximum possible stakeholders. On this occasion, Secretary General of PBSA, Dr. Aamer Ikram, apprised the audience about the program and action plan of the Association. The Workshop is being participated by a large number of relevant professionals and postgraduate students from throughout the country.



Minister of State for Education, Engineer Baligh-ur-Rehman, Dr. Zeba Rasmussen, Dr. Rumina Hasan, Dr. Phillippe Stroot and Dr. Aamer Ikram are addressing the audience.

UNESCO UNISA Africa Chair in Nanosciences & Nanotechnology visits Pakistan Academy of Sciences

On the sidelines of his visit to National Center for Physics, Islamabad, the UNESCO UNISA Africa Chair in Nanosciences & Nanotechnology, based in Pretoria, South Africa, Prof. Malek Maaza, visited the Pakistan Academy of Sciences (PAS) on 25 August, 2015. His meeting with Fellows of the Academy was chaired by Vice President of PAS, Prof. Dr. Khalid Mahmood Khan. Prof. Maaza, an Algerian, holds PhD in Neutron Optics from University of Paris. The areas of his expertise include Nanosciences, nanotechnology, and advanced materials. He has initiated the South African Nanotechnology Initiative (SANi) as well as the Nanosciences African Network supported by ICTP-UNESCO and ICS-UNIDO. Participants of the meeting included Prof. Dr. M.D.

Shami, Prof. Dr. M. Qasim Jan, Prof. Dr. N.M. Butt, Prof. Dr. M. Aslam Baig, Prof. Dr. Anwar-ul-Hasan Gilani, Dr. M. Iqbal, and Dr. Abdul Rashid.



The 2015 Nobel Laureates

Nobel Prize in Physics

The Nobel Prize in Physics 2015 was awarded jointly to Takaaki Kajita and Arthur B. McDonald "for the discovery of neutrino oscillations, which shows that neutrinos have mass"



Arthur B. McDonald



Takaaki Kajita

Nobel Prize in Chemistry

The Nobel Prize in Chemistry 2015 was awarded jointly to Tomas Lindahl, Paul Modrich and Aziz Sancar "for mechanistic studies of DNA repair".



Tomas Lindahl



Paul Modrich



Aziz Sancar

The Nobel Prize in Physiology or Medicine

The Nobel Prize in Physiology or Medicine 2015 was divided, one half jointly to William C. Campbell and Satoshi mura "for their discoveries concerning a novel therapy against infections caused by roundworm parasites" and the other half to Youyou Tu "for her discoveries concerning a novel therapy against Malaria".



Youyou Tu



Satoshi mura



William C. Campbell

The Sveriges Riksbank Prize in Economic Sciences

The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2015 was awarded to Angus Deaton "for his analysis of consumption, poverty, and welfare".



Angus Deaton

Pakistani Young Scientists Participate in 1st Pakistan-Belarus Joint Forum in Belarus

As a follow up of the recently signed MoU between the Pakistan Academy of Sciences (PAS) and the National Academy of Sciences of Belarus (NASB), the NASB invited young scientists of Pakistan to participate in the "First Joint Pakistan-Belarus Young Scientists Forum" on 5-7 October, 2015 at Minsk Belarus. Consequently, an 18-member delegation of young scientists of Pakistan, led by a Fellow of PAS, Prof. Dr. Amin Badshah, participated in this Forum. These young scientists (mostly Assistant Professors) were nominated by University of the Punjab, Lahore; National University of Science and Technology (NUST), Islamabad; University of Health Sciences, Lahore; Sindh Madressatul Islam University, Karachi; and COMSATS Institute of IT (CIIT), Islamabad. The young Pakistani scientists pertained to a variety of science subject, i.e., Chemistry, Earth & Environmental Sciences, Geophysics, Robotics and Machine Intelligence, Plant Biotechnology, Oral Pathology, Plant Biotechnology, Anatomy, Information Systems, Computer Sciences, Electrical

Engineering, Physics, Biosciences, and Chemical Engineering. Local hospitality to the Pakistani participants was provided by NASB and travel expenses were borne by the nominating Universities. Travel expenses of leader of the delegation were borne by PAS.



Obituary

Prof. Dr. Abdul Ghaffar

We are grieved to report the sad demise of an eminent scientist and a senior Fellow of the Pakistan Academy of Sciences, Prof. Dr. Abdul Ghaffar, who breathed his last in Karachi on Monday, 10th August, 2015. He was born in Allahabad, British India on 23rd August, 1932. He obtained his M.Sc. degree from University of Karachi, Pakistan, in 1955 and received his Ph.D. from University of Birmingham, UK in 1960.

Prof. Abdul Ghaffar spent major period of his career at University of Karachi, Karachi. He served as Professor and Chairman, Department of Botany, 1975-77, 1986-1992, University of Karachi, Karachi; Director, M.A.H. Qadri Biological Research Centre, 1990-1992; Director, National Nematological Research Centre, 1987-1989; Professor, (Botany), 1979-1992;

Prof. Abdul Ghaffar won many prestigious honors and recognitions including National Award of Republic of Brazil "Ordem Nacional do Merito Educado--Classe Comendador", 2000; "Ordem Nacional do Merito Cientifico--Classe Gra Cruz, 1997;

Doctor Honoris Causa, Universidade de Buenos Aires, Argentina, 1997 and Universite Catholique de Louvain, Belgium, 1995.

May Allah Almighty bless the departed soul with eternal peace. Aameen.

His residential Phone Number is: (021) 3438 7867



Obituary

Prof. Dr. M. Ataur Rahman

We are grieved to report the sad demise of an eminent scientist and a senior Fellow of the Pakistan Academy of Sciences, Prof. Dr. M. Ataur Rahman, who breathed his last in Karachi on Saturday, 26th September, 2015. He was born in British India on 24 June, 1929. He obtained his M.Sc. (Hons) in Chemistry, Government College, Punjab University Institute of Chemistry, Lahore; Ph.D. in Biochemistry, University College, London University and D.Sc. (H.C.) the Open International University for Complementary Medicine, Colombo.

Prof. Ataur Rahman spent major period of his career at Jinnah Postgraduate Medical Center, Karachi. He served as Professor of Clinical Biochemistry, Institute of Biochemistry and Genetic Engineering (KIBGE), University of Karachi, Karachi; Assistant Professor of Biochemistry, Jinnah Postgraduate Medical Center, Karachi; Professor and Chairman, Department of Biochemistry, Jinnah Postgraduate Medical Center, Karachi.

Prof. Ataur Rahman won many prestigious honors and recognitions including President of Pakistan's Award "Pride of Performance in the field of Medicine" and "Hilal-i-Imtiaz" in Medical Sciences.

May Allah Almighty bless the departed soul with eternal peace. Aameen.

His residential Phone Number is: (021) 34521010



Obituary

Dr. Mahboob Ali

A highly accomplished and decorated scientist and a senior Fellow of the Pakistan Academy of Sciences, Dr. Mahboob Ali, expired in Multan on Saturday, 14th October, 2015. He was born in Gurdaspur, British India on 13 August 1923. He obtained his M.Sc. in 1951 from Punjab Agricultural College, Faisalabad and PhD in 1955 from Agricultural and Mechanical College, Texas, USA.

Dr. Mahboob Ali spent major period of his professional career as Scientist Emeritus at Pakistan Central Cotton Committee, Federal Ministry of Food & Agriculture. He served as Managing Director, Punjab Seed Corporation, Govt. of Punjab, 1979-1985. Prior to that he was Director, Central Cotton Research Institute, Multan, 1970-1979 and Cotton Botanist, Cotton Research Section, Multan, 1958-1970.

Dr. Mahboob Ali had earned many national and international honors and awards, including Open Gold Medal, Pakistan Academy of Sciences, 1980; President of Pakistan's Award, Pride of Performance,

1971; Shield of Distinction, University of Agriculture, Faisalabad, Pakistan, 1981.

May Allah Almighty bless his soul with eternal peace. Aameen.

His residential Phone Number is: (061) 4510013



“Institute of Microbial Culture Collection of Pakistan” established at National Agricultural Research Centre

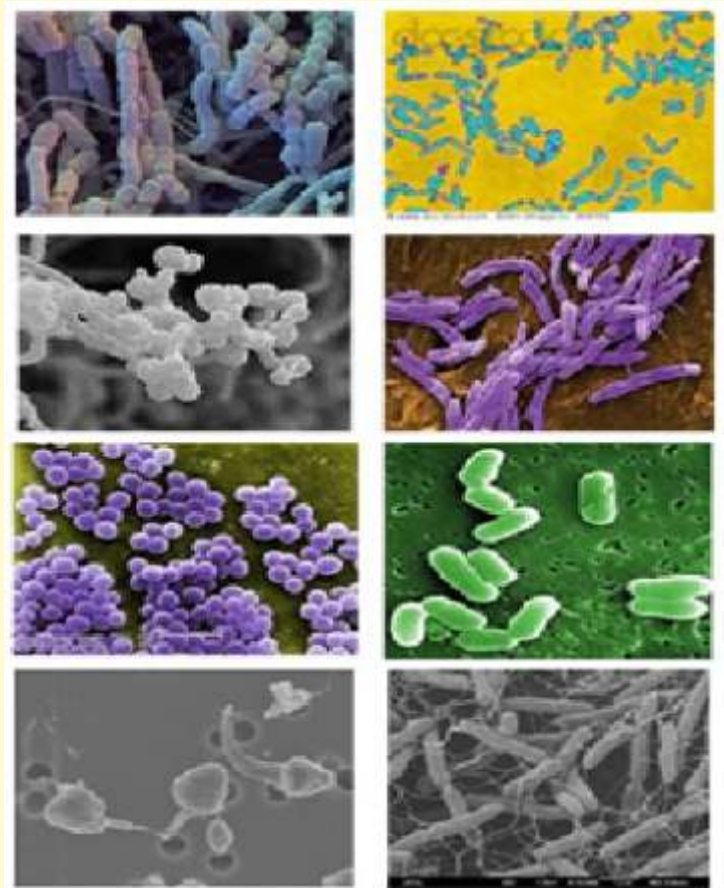
In consideration of importance of microbes in biotechnological, agricultural and industrial applications, many Institutes of the country collect the indigenous beneficial microbes from various ecological zones of Pakistan. However, most of the strains collected by various labs were either stocked in glycerol as un-identified strains or abolished with time due to contamination or loss of interest of researchers at end of the project. Recently, Pakistan Agricultural Research Council (PARC) took an initiative to identify and preserve economically important bacterial strains from Pakistani ecology. Consequently, PARC has established “Institute for Microbial Culture Collection of Pakistan (IMCCP)” for preservation of microbial bio-asset of Pakistan (www.parc.gov.pk/index.php/en/imccp-home).

This Institute aims at managing a repository of microorganisms as “National Culture Collection of Pakistan (NCCP)”. It is first time in the history of Pakistan that PARC scientists identified several novel species of bacteria, which are available for distribution to scientific community under Material Transfer Agreement (MTA) with our Institute:

- 1) *Cellulomonas pakistanensis* sp. nov. (validated – 2014);
- 2) *Sphingobacterium pakistanensis* sp. nov., (validated – 2014);
- 3) *Bacillus pakistanensis* sp. nov. (validated – 2014);
- 4) *Lysinibacillus pakistanensis* sp. nov. (validated – 2014);
- 5) *Lysinibacillus composti* sp. nov. (validated – 2014);
- 6) *Deinococcus citri* sp. nov. (validated – 2014);
- 7) *Acinetobacter pakistanensis* sp. nov. (validated – 2015);
- 8) *Kushneria pakistanensis* sp. nov. (validated – 2015);
- 9) *Alcaligenes pakistanensis* sp. nov. (validated – 2015);
- 10) *Bacillus maliki* sp. nov. (published – 2015).

The NCCP will serve as a microbial gene bank and will play an important role in offering services not only to preserve microorganisms using techniques that maintain viability, purity, and important characteristics of microorganisms, but also to supply high quality microorganisms for use in teaching, research and industrial applications. The

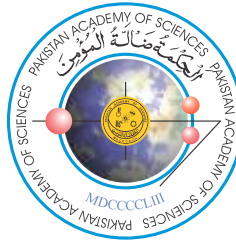
facility for preservation of microbial strains can be availed by various scientists working in teaching, research and industry following the Best Practice Guidelines of the OECD (2007)* and information exchange taking into account national and international requirements. [NCCP](#) will provide services on commercial basis for identification of microbes using 16S rRNA gene sequence of unknown strains to all stakeholders working in the fields of microbiology, pathology, biotechnology and industries related to these areas by following national and international laws and regulations. The NCCP will also characterize any potential candidate novel strains which can be delineated as a novel species from Pakistani ecology using polyphasic taxonomic approach.



*OECD (2007) *OECD Best Practice Guidelines for Biological Resource Centers*. Organization for Economic Co-operation and Development
(<http://www.oecd.org/sti/biotech/38777417.pdf>)

AASSA Regional Workshop on “Challenges in Water Security to Meet the Growing Food Requirement”

Islamabad, Pakistan
January 19-21, 2016



To be organized jointly by:

Association of Academies and Societies
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and

Pakistan Academy of Sciences (PAS)

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