



Newsletter

Pakistan Academy of Sciences

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April 2011

Volume 6, No. 2

President

Prof. Dr. Atta-ur-Rahman,
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Secretary General

Prof. Dr. G. A. Miana, S.I.

Treasurer

Prof. Dr. Shahzad A. Mufti

Editor-in-Chief

Dr. Abdul Rashid



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President's Foreword to Website of the Pakistan Academy of Sciences

In response to a request by the Editor-in-Chief, the 2nd time elected President of Pakistan Academy of Sciences, Prof. Dr. Atta-ur-Rahman, has provided the following Foreword to website of the Pakistan Academy of Sciences (uploaded already):



"I would like to thank the Fellows of Pakistan Academy of Sciences for the confidence they have shown in me by electing me once again as President of the Pakistan Academy of Sciences. I would like to thank Dr. Ishfaq Ahmad from whom I have taken over as the President, and I will be seeking his help and guidance as well as those of other past Presidents and Fellows to help me in the task ahead.

A number of challenges need to be addressed. Firstly, the Academy must serve as a think tank to provide our policy makers with scholarly documents regarding the steps that need to be taken in various critically important sectors such as energy, biotechnology, engineering, water management, etc. This process has already been initiated by me.

Secondly, we need to guide the government so that Pakistan under goes a transition from the trappings of a low value added agricultural economy, with the consequent accompanying poverty, to a knowledge economy. For this, science, technology and innovation have to play a critically important role.

Thirdly, the Academy should develop strong linkages with science Academies in other countries. Our Academy has signed MoUs of collaboration with many other Academies in the past but these have remained cosmetic with little or no follow-up action. I now plan to activate them, as far as possible, so that joint programmes could be initiated with other Academies in various fields of mutual interest.

In these and other such efforts, I will be relying heavily on the guidance and support of the Fellows. I hope that it will be forthcoming, since the work of the Academy reflects the dynamism of its Fellows."

Prof. Atta-ur-Rahman, FRS, N.I., H.I., S.I., T.I.
President
Pakistan Academy of Sciences

Pakistan Academy of Sciences to provide Expert Opinion regarding Critically Important Sectors of National Economy & Human Wellbeing

The Pakistan Academy of Sciences has constituted the following expert committees to arrive at and provide expert opinion and advice to government of Pakistan for improving upon some of the most critical sectors of national economy and human well being:

I. PAS Committee on Agriculture

1. Dr. Iqrar Ahmad Khan, Vice Chancellor, University of Agriculture, Faisalabad
2. Dr. Amir Mohammed, Rector, National University of Computer & Emerging Sciences, Islamabad
3. Dr. Khalid M. Khan, Vice Chancellor, University of Arid Agriculture, Rawalpindi

4. Dr. Kauser Abdulla Malik, Distinguished National Professor, Forman Christian College, Lahore
5. Dr. Riaz Hussain Qureshi, Advisor, Higher Education Commission, Islamabad
6. Dr. M. Ajmal Khan, Distinguished National Professor & Director, Institute of Sustainable Halophyte Utilization, University of Karachi, Karachi

II. PAS Committee on Energy

1. Dr. Akram Sheikh, Former Deputy Chairman, Planning Commission, Government of Pakistan
2. Dr. Samar Mubarakmand, Member (S&T), Planning Commission, Government of Pakistan
3. Dr. Shaukat Hameed Khan, Former Member, Planning Commission, H.No.194, St.69, F-10/3, Islamabad
4. Mr. Shams ul Mulk, Former Chairman, WAPDA, H.No.12, St.42, F-7/1, Islamabad
5. Mr. M. Shakeel Durrani, Chairman, WAPDA, Lahore
6. Mr. Rasul Khan Masood, Managing Director, PEPCO, WAPDA House, Lahore
7. Mr. Farid Ullah Khan, Managing Director, ENERCON, G-5/2, Islamabad
8. Mr. Javed Iqbal, Secretary, Ministry of Water & Power, Government of Pakistan, Islamabad
9. Mr. Ijaz Choudhary, Secretary, Ministry of Petroleum & Natural Resources, Government of Pakistan, Islamabad
10. Mr. Asif Saeed Sandhu, Managing Director/Chief Executive Officer, OGDCL House, Islamabad
11. Mr. Faizullah Abbasi, Managing Director, Sui Southern Gas Ltd., Karachi
12. Mr. Asif Alauddin, Chief Executive Officer, Alternative Energy Development Board, Islamabad
13. Mr. Mohammad Khalid, Director General, Energy Management, PEPCO, WAPDA House, Lahore
14. Mr. Khalid Mahmood, Chief Energy Wing, Planning Commission, Islamabad
15. Mr. Arshad Maqsood Malik, Chief, Energy Wing, Planning Commission, Islamabad
16. Mr. M. Qasim Khan, Member Power, WAPDA, WAPDA House, Lahore
17. Mr. Parviz Butt, Ex-Chairman, Pakistan Atomic Energy Commission

III. PAS Committee on Neglected Diseases

1. Dr. M. Iqbal Choudhary, Director, H.E.J. Research Institute of Chemistry, University of Karachi, Karachi
2. Dr. G.A. Miana, Rector, Riphah International University, Rawalpindi
3. Dr. Anwar-ul-Hassan Gilani, Distinguished National Professor, Aga Khan Medical College, Karachi
4. Dr. Syed Qasim Mehdi, Sindh Institute of Urology & Transplant, Civil Hospital, Karachi
5. Dr. M. Salim Akhter, Former Vice Chancellor, University of South Asia
6. Dr. Ijaz Haider, Former Professor, Punjab Postgraduate Medical Institute, Lahore
7. Dr. Mohammad Perwaiz Iqbal, Aga Khan University Medical College, Karachi
8. Dr. Muhammad Luqman, Head, Departt. of Pathology, Foundation University Medical College, Rawalpindi
9. Dr. Rabia Hussain, Department of Pathology & Microbiology, Aga Khan University, Karachi
10. Dr. Zulfiqar A. Bhutta, Division Head Maternal Child Health, Aga Khan University Hospital, Karachi
11. Dr. Raheel Qamar, Dean, Faculty of Science, COMSATS Institute of Information Technology, Islamabad

A meeting of Convenors of the Committees, chaired by President PAS, Prof. Dr. Atta-ur-Rahman, was held at the Pakistan Academy of Sciences, Islamabad to formulate TORs. The meeting was also participated by Secretary General PAS, Prof. Dr. G.A. Miana, and Associate Secretary General PAS, Prof. Dr. M.D. Shami.

Devolution of Higher Education - A Disaster in the Making!

- Press Conference by Prof. Dr. Atta-ur-Rahman

The President, Pakistan Academy of Sciences, who is a former Federal Minister of Science & Technology and founding Chairman (Federal Minister) of Higher Education Commission (HEC), Prof. Dr. Atta-ur-Rahman, FRS, UNESCO Science Laureate, held a Press Conference on 25 March 2011 at the Pakistan Academy of Sciences calling upon the government to reverse its decision of shredding the Higher Education Commission into pieces. Vice Chancellors of many public and private universities, Fellows of Pakistan Academy of Sciences, eminent scientists and HEC officials were also present.

The landmark achievements of HEC elaborated by Prof. Atta-ur-Rahman included: Establishment of a Digital Library for public sector universities; University enrollment tripled from 135,000 in 2003 to 400,000 during 2004-2008; 59 universities & degree awarding institutions in 2001 grew to 127 by 2008; 18 new campuses of existing universities established in remote localities; 5000 PhD scholarships awarded for study in technologically advanced countries; 3,000 indigenous PhD Scholarships awarded; the number of PhDs produced in 2003-2009 equaled to those produced in 55 previous years; the world's largest Fulbright Scholarship program launched; Pakistan's first educational satellite (PakSat-1) placed in space in 2001; 4-year undergraduate program introduced for recognition of our degrees internationally; steps taken to enforce quality and improve governance in higher education; steps taken to check plagiarism; appointment of Vice Chancellors through Search Committees; PhD thesis evaluation by experts from technologically advanced countries; tenure track system for university Professors to check brain drain; and 105 syllabi / curricula revised thrice during 2003-2008.

Prof. Atta-ur-Rahman said that HEC is an autonomous institution, governed by an 18-member Commission and Prime Minister is its controlling authority. Being the regulatory body of universities and degree awarding institutions, it has representation from all provinces, vice chancellors, eminent citizens and experts. It is understood that an attempt is being made to fragment HEC and give four pieces to the provinces. This is a recipe for disaster; thus, must not be allowed to happen. As President of Pakistan Academy of Sciences, the country's most prestigious science body, comprising of most eminent scientists, he appealed to the government not to touch this critically important sector. The work of HEC drew much international praise. Alas, the intended devolution may destroy this marvelous institution. Therefore, he urged all stakeholders not to be bystanders as the HEC may be shredded into pieces.

Nanotechnology: From Fantasy to Reality

- A Seminar at Pakistan Academy of Sciences

In accordance with its tradition of organizing seminars on emerging areas of science, the **Pakistan Academy of Sciences** organized a special seminar at its campus in Islamabad on 15 April 2011 on "**Nanotechnology: From Fantasy to Reality**". The invited speaker was **Prof. Dr. Arshad Saleem Bhatti**, Dean, Faculty of Science, COMSATS Institute of Information Technology (CIIT), Islamabad.

The talk by Dr. Bhatti reviewed the recent developments of nanotechnology and highlighted the role of fantasy in achieving some mind boggling uses of nanotechnology in the present world. A movie "The Fantastic Voyage", made in 1960s, actually exhibited the human fantasy. It gave an idea of miniaturized machines swimming through human blood vessels for removal of blood clot. This was quite imaginative at that time. In 1959 Prof. Feynman delivered his famous speech "There is plenty of room at the bottom" at the American Physical Society's Annual meeting in California Institute of Technology in which he presented an idea of writing all volumes of Encyclopedia Britannica on the head of a paper pin. Only 30 years later, one scientist at the IBM Research labs managed to write "IBM" using Xe atoms on Ni surface using scanning tunneling microscope (STM), the first demonstration of matter manipulation at the atomic scale. The invention of STM and later of AFM has opened new horizons for scientists and engineers at the atomic and molecular scales.

The talk then demonstrated the working of STM and AFM for manipulation of matter and their uses in different applications like biology. It highlighted that the unprecedented developments in last two decades are due to the tools developed for microelectronics industry. Applications of nanotechnology in biosciences, particularly targeted drug deliveries and targeted killing of cancerous cells, and in energy and environment were elaborated. The talk summed up by presenting the efforts made by different countries to strive ahead in nanotechnology. Dr. Bhatti also presented efforts made by various Universities in Pakistan to establish research in nanoscience and nanotechnology. He also praised the efforts of **Prof. Dr. Atta-ur-Rehman** in establishing these facilities through Higher Education Commission.

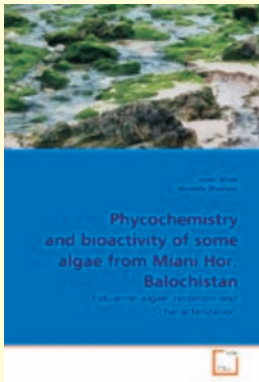
Largest University in Malaysia to name Science Center after Prof. Atta-ur-Rahman

The University of Technology Mara, Malaysia has decided to name a large research center in the field of Natural Product Chemistry after **Prof. Atta-ur-Rahman**, *FRS*, President, Pakistan Academy of Sciences. This was announced by Prof. Dr. Ir Sahol Hamid Abu Baker, Vice-Chancellor of the University of Technology Mara during his recent visit to Pakistan. The University of Technology Mara is the largest University in Malaysia with 189,000 students and annual budget of over US \$ 1 billion (~Rs. 86 billion). The University will also confer an honorary degree of Doctor of Science upon Prof. Atta-ur-Rahman in recognition of his tremendous contributions in the field of Natural Product Chemistry and his efforts to uplift the higher education sector.

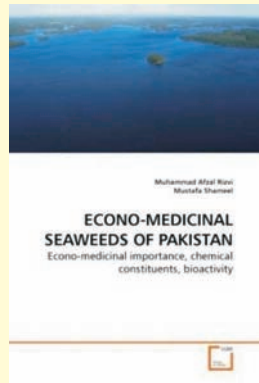
Prof. Atta-ur-Rahman, *FRS* has contributed 843 research publications at international level which include 103 books, largely published by major US and European publishers, and 17 international patents. The Austrian government has also honoured him with its highest civil award (Grosse Goldene Ehrenzeischen am Bande" (2007) in recognition of his eminent contributions.

Books authored by PAS Fellows

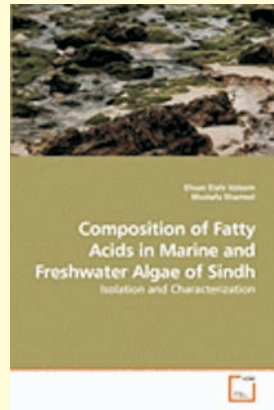
An eminent marine biologist and PAS Fellow, **Prof. Dr. Mustafa Shameel**, Department of Botany, University of Karachi, has co-authored the following three books during the year 2010.



Aftab, Javed and **Mustafa Shameel** (2010) *Phycochemistry and Bioactivity of Some Algae from Miani Hor, Balochistan: Estuarine Algae, isolation and Characterization* VDM Verlag Dr. Muller Aktiengesellschaft and Co. KG Country, Germany

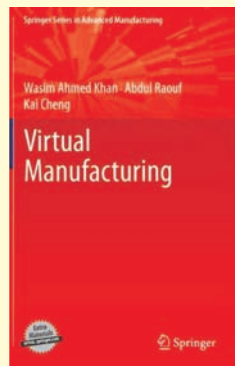


Rizvi, M. Afzal and **Mustafa Shameel** (2010) *Econo-Medical Seaweeds of Pakistan: Econo-medicinal Importance, Chemical Constituents, Bioactivity*. VDM Verlag Dr. Muller Aktiengesellschaft and Co. KG Country, Germany



Valeem, Ehsan Elahi and **Mustafa Shameel** (2010) *Composition of Fatty Acids in Marine and Freshwater Algae of Sindh: Isolation and Characterization* Blues Kids of Amer.

Another PAS Fellow, **Prof. Dr. Abdul Raouf**, has also co-authored the following book published by Springer. Prof. Dr. A. Raouf is Distinguished National Professor and Chairman of the Quality Assurance Committee of HEC & former Rector of the Ghulam Ishaq Khan Institute, Topi. Currently, he is associated with the University of Management and Technology, Lahore.



Khan, Wasim A., **Abdul Raouf**, and Kai Cheng (2011) *Virtual Manufacturing*. Springer series in Advanced Manufacturing. Springer

The Academy congratulates the distinguished authors of their marvelous professional contributions.

Conference on Recent Advances in Mathematical Methods, Models and Applications organised by LUMS, Lahore

The Centre for Advanced Studies in Mathematics, Lahore University of Management Sciences (LUMS) Lahore organised a Conference on "**Recent Advances in Mathematical Methods, Models and Applications**" on April 16-17, 2011. Goal of the Conference was to bring together mathematicians and users of mathematics to talk to each other and to transfer problems, ideas and methods from one community to the other. The Conference was organized by three distinguished Fellows of the Pakistan Academy of Sciences, i.e., **Prof. Dr. Asghar Qadir**, NUST, Rawalpindi; **Prof. Dr. Saleem Asghar**, CIIT, Islamabad; and **Prof. Dr. Ismat Beg**; LUMS, Lahore. More details can be seen at <http://casm.lums.edu.pk/RAMMA2011.pdf>

3rd International Conference on Assessing Quality in Higher Education

The **3rd International Conference on Assessing Quality in Higher Education** was jointly organized by Institute of Quality & Technology Management, University of the Punjab; National Textile University, Faisalabad; University of Management & Technology, Lahore; and Mehran University of Engineering &

Technology, Jamshoro was held at Lahore on 6-8 December, 2010. Theme of the Conference was "Quality Modeling in Higher Education". A distinguished Fellow of PAS, **Prof. Dr. Abdul Raouf**, was Chairman of its Organizing Committee. The Conference, focused on critical issues in higher education in the region and on understanding concepts of higher education, its needs and trends in the global context. The Conference was participated by local and international academicians, researchers and practitioners. Details are available online: <http://www.icaqhe2010.org/index.html>

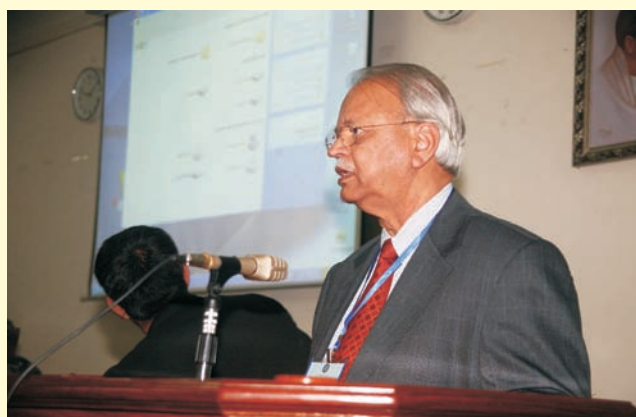
Poverty Alleviation through Sustainable Resource Management

- An International Seminar organized by NASIC

The Network of Academies of Sciences in Islamic Countries (NASIC) organized an international seminar on "Poverty alleviation through sustainable resource management" on 8-10 March 2011 at Pakistan Academy of Sciences, Islamabad, Pakistan. Co-organizers of the Seminar were **Pakistan Academy of Sciences**, OIC Standing Committee on Scientific & Technological Cooperation (COMSTECH), the Academy of Sciences for the Developing World (TWAS), and the Global Network of Science Academies (IAP). The Seminar was inaugurated by the President NASIC, **Prof. Dr. Atta-ur-Rahman**. Keynote address was delivered by Dr. Samar Mubarakmand.



President, PAS, Prof. Dr. Atta-ur-Rahman, inaugurating the Seminar



Secretary General, NASIC,
Prof. Dr. Khalid M. Khan, delivering welcome address



Dr. Samar Mubarakmand delivering keynote address

The purpose of this Seminar was to: bring NASIC member Academies at one forum to discuss issues, difficulties and solutions relevant to the theme; stimulate partnerships; share and exchange experiences of successful technologies, innovations and strategies to alleviate poverty through sustainable resource management; discuss prospects and options where National Academies can play a role to enhance Science & Technology for poverty alleviation; and create more vision among National Academies within and outside NASIC member countries.



Delegates to the Conference with President PAS/NASIC, Prof. Dr. Atta-ur-Rahman, & Secretary General, NASIC, Prof. Dr. Khalid Mahmood Khan

The Seminar participants deliberated upon introduction of new technologies; technical education; industrial development; promotion of small and large scale firms; taxation policy and Engendering growth and Improving human development and governance. The Seminar was participated by 130 eminent scientists including delegates from Malaysia, Indonesia, Senegal, Bangladesh, Afghanistan and Uganda. Secretary General NASIC, **Prof. Dr. Khalid M. Khan**, chaired concluding session of the seminar.

12th National Symposium on Frontiers in Physics

The **12th National Symposium on Frontiers in Physics**, held on February 2-4, 2011 at Govt. College University, Lahore, was jointly organized by the National Centre for Physics, Islamabad and the GC University, Lahore. The Symposium was inaugurated by **Dr. Ansar Parvez**, Chairman, Pakistan Atomic Energy Commission, while Dr. Khalid Aftab, Vice Chancellor, GC University, Lahore presided over the ceremony. **Prof. Dr. Riazuddin**, an eminent physicist and a Fellow of PAS, delivered the inaugural lecture on "Dirac equation and its implications in physics and technology". The Symposium was attended by 250 participants from all over Pakistan. More than 45 invited lectures and contributed papers were presented covering a wide range of topics - in Physics. The Symposium was sponsored by the National Centre for Physics, **Pakistan Academy of Sciences**, Pakistan Atomic Energy Commission, Pakistan Science Foundation, and COMSATS, Islamabad .

National Symposium on Quantum Information Processing at CIIT, Islamabad

Quantum Information theory deals with storage, transmission and processing of information using quantum systems such as photons, electrons and other microscopic particles moving and interacting with each other. A "**National Symposium on Quantum information Processing**" was organized on 9 April 2011 by COMSATS Institute of Information Technology (CIIT), Islamabad. Executive Director COMSATS, Dr. Imtihan Elahi Qureshi, inaugurated the Symposium. There were 10 invited speakers and six poster presentations from various universities and R&D institutions. Objectives of the Symposium were to explore and educate young talent and to link together the experts; to generate lab-based experimental activity to enhance the conceptual base for teaching and research; realize the importance of setting up of a quantum information processing lab; and to call for pooling national resources and inter-institution collaborations to offset paucity of resources. The Symposium Organizing Committee was headed by a PAS Fellow, **Prof. Dr. Kamaluddin Ahmed**. The Symposium was sponsored by **Pakistan Academy of Sciences/HEC**, COMSATS Headquarters, and the National Center for Physics.

The Fellows of the Pakistan Academy of Sciences are requested to forward news and views for next issue of the **Newsletter** to: **Editor-in-Chief, Pakistan Academy of Sciences**, Islamabad. **E-mail:** pas.editor@gmail.com