



Newsletter

PAKISTAN ACADEMY OF SCIENCES

Promoting Science, Technology and Innovation for Socio-economic Development

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SI

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Inauguration of Pakistan Academy of Sciences Office in the University of Punjab, Lahore December 2, 2021

The inauguration ceremony of the Pakistan Academy of Sciences (PAS) Office at the University of Punjab, was held on December 2, 2021. Prof. Dr. Niaz Ahmad Akhtar, Vice Chancellor, University of the Punjab, Lahore has very kindly allocated space for the Office of the Pakistan Academy of Sciences, in the School of Physical Sciences, Quaid-e-Azam Campus, University of the Punjab, Lahore. Prof. Dr. Niaz Ahmad Akhtar was the Chief Guest at the Inaugural ceremony. Prof. Dr. Khalid Mahmood Khan, President PAS and Prof. Dr. Tasawar Hayat, Secretary General PAS presented the shield to the Chief Guest. Prof. Dr. Fazal A. Khalid, Secretary Punjab Chapter, and other Fellows also attended the inaugural ceremony of the PAS office, Lahore.



Induction of Fellows Elected during 2020

The following candidates were approved by the GB to be inducted as PAS Fellow in the year 2021. They have been formally inducted as PAS Fellow.

Dr. Muhammad Ali, Vice Chancellor, Quaid-e-Azam University, Islamabad was elected as Fellow of the Academy in 2020. The Secretary General introduced him by reading his brief citations and given a medallion and certificate by the President PAS, Dr. Khalid Mahmood Khan, during the GB meeting held in Islamabad on November 27, 2021.



Dr. M. Osman Yusuf, Chief Consultant, The Allergy and Asthma Institute, Islamabad was elected as Fellow of the Academy in 2020. The Secretary General introduced him by reading his brief citations and given a medallion and certificate by the President PAS, Dr. Khalid Mahmood Khan, during the GB meeting held in Islamabad on November 27, 2021.



Dr. M. Raza Shah, Professor, International Center for Chemical and Biological Sciences (ICCBS), University of Karachi, Karachi was elected as Fellow of the Academy in 2020. The Secretary General introduced him by reading his brief citations and given a medallion and certificate by the President PAS, Dr. Khalid Mahmood Khan, during the GB meeting held in Islamabad on November 27, 2021.



The inducted Fellows signed the Charter Book of the PAS

New Fellows of PAS Elected during 2021

The following eminent scientists were elected as Fellows of the PAS during 2021.

Dr. Mushtaq Ahmad

Professor
Department of Plant Sciences
Quaid-i-Azam University, Islamabad

Dr. Muhammad Idrees

Vice Chancellor
University of Peshawar, Peshawar

Dr. Sardar Khan

Vice Chancellor
Kohat University of Science and
Technology, Kohat

Dr. Irshad Hussain

Professor
Department of Chemistry &
Chemical Engineering
Lahore University of Management
Sciences (LUMS), Lahore

Dr. Riffat N. Malik

Professor
Department of Environmental Sciences
Quaid-i-Azam University, Islamabad

New Foreign Fellows of PAS Elected during 2021

The following eminent scientists were elected as Foreign Fellows of the PAS during 2021.

Dr. Shahbaz Khan

Director
UNESCO Regional Science Bureau Asia and the
Pacific
Jakarta, Indonesia

Dr. Kadambot H.M. Siddique

The UWA Institute of Agriculture
The University of Western Australia
Australia

New Members of PAS Elected during 2021

The following eminent scientists were elected as Members of the PAS during 2021.

Dr. Nazir Ahmad Khan

Associate Professor (Tenured)
Department of Animal Nutrition
University of Agriculture, Peshawar

Dr. Muhammad Ishtiaq Ali

Associate Professor
Department of Microbiology
Quaid-i-Azam University, Islamabad

Dr. Javed Iqbal Saggu

Associate Professor
Department of Physics
Quaid-i-Azam University, Islamabad

PAS Gold Medals and Prizes during 2020

Agricultural Sciences

Dr. Mehboob ur Rehman

Plant Biotechnology Division
National Institute for Biotechnology &
Genetic Engineering (NIBGE)
Faisalabad

Biological Sciences

Dr. Rehmat Ali Khan

Department of Biotechnology
University of Science & Technology
Bannu

Chemical Sciences

Dr. Shehnaz Perveen

Pakistan Council of Scientific & Industrial Research
Laboratories Complex
Karachi



PAS Gold Medals and Prizes during 2020

Earth and Environmental Sciences

Dr. Muhammad Afzal

National Institute for Biotechnology & Genetic
Engineering (NIBGE)
Faisalabad



Emerging Technologies

Dr. Amjad Ali

Atta-ur-Rahman School of Applied Biosciences
National University of Sciences and Technology
Islamabad



Engineering Sciences

Dr. Muhammad Zahir Iqbal

GIK Institute of Engineering Sciences
& Technology, Topi, KP



Health Sciences

Dr. Yasir Waheed

Foundation University Medical College
Foundation University
Islamabad



Physics

Dr. Maaz Khan

Physics Division
PINSTECH
Nilore Islamabad



Prof. Zabta K. Shinwari Gold Medal in Biotechnology for scientists under 50

Dr. Abdul Rehman

Department of Microbiology & Molecular Genetics
University of Punjab, Lahore.



PAS Gold Medals and Prizes during 2021

The following scientists were conferred upon PAS Gold Medals, Cash Prizes and Certificates by the President PAS, Dr. Khalid Mahmood Khan, during the GB meeting held in Islamabad on November 27, 2021 for their rendering services in the field of Science and Technology.

Agricultural Sciences

Dr. Nauman Khalid

Associate Professor/Director
School of Food and Agriculture Sciences
University of Management & Technology, Lahore



Biological Sciences

Dr. Abdul Nasir Khalid

Professor
Department of Botany
University of Punjab, Lahore



Chemical Sciences

Dr. Afzal Shah

Associate Professor
Department of Chemistry,
Quaid-i-Azam University, Islamabad



Earth and Environmental Sciences

Dr. M. Zia-ur-Rehman

Associate Professor
Institute of Soil & Environmental Sciences,
University of Agriculture, Faisalabad



Mathematical Sciences

Dr. Nasir Ali

Associate Professor
Department of Mathematics and Statistics
International Islamic University, Islamabad



Physics

Dr. Saira Riaz

Associate Professor
Centre of excellence in Solid State Physics
University of Punjab, Lahore



Dr. Atta-ur-Rahman Gold Medal in Chemistry for Scientists (under 40)

Dr. Abdul Sadiq

Associate Professor
Department of Pharmacy
University of Malakand
Dir (L), KP



Dr. M. Raziuddin Siddiqi Prize in Chemistry for Scientists (under 40)

Dr. Zahoor Hussain Farooqi

Associate Profesoor
Department of Chemistry
University of Punjab, Lahore



Dr. Shah Jahan Prize for Scientists in Agriculture Sciences (under 40)

Dr. Shah Fahad

Assistant Professor
Department of Agronomy
University of Haripur, KP



Prof. Zabta K. Shinwari Gold Medal in Biotechnology for scientists (under 50)

Dr. Muhammad Zafar

Assistant Professor
Department of Plant Sciences
Quaid-i-Azam University, Islamabad



Abdus Salam Prize in Basic Sciences in Biology for Young Scientists (under 40)

Dr. M. Imran Arshad

Assistant Professor
Institute of Microbiology
University of Agriculture, Faisalabad



Salimuzzaman Siddiqui Prize in Applied Science-Technology in Engineering Sciences for Scientists (under 40)

Dr. Usman Akram

Associate Professor
NUST, Sector H-12, Islamabad



PAS-PNS Joint Seminar on “Afforestation of Global Deserts for Sustainable Future of Earth Environments”

November 24, 2021



Pakistan Academy of Sciences (PAS) and Pakistan Nuclear Society (PNS) jointly organized a One-day Seminar on “Afforestation of Global Deserts for Sustainable Future of Earth Environments”, on November 24, 2021.

Prof. Dr. M. Aslam Baig, Former Secretary General PAS, on behalf of PAS gave the welcome Address. Dr. Yusuf Zafar, Ex Chairman, PARC was the Chief Guest of the Event. Renowned scientists and researchers from academia and relevant governmental organization attended the event.

Ministry of Water Resources Groundwater Data Accumulation for the Country

Ministry of Water Resource requested Pakistan Academy of Sciences, Policy unit for provision of Groundwater Data Accumulation of Pakistan vide letter No. 2(18)/2018-Water dated September 16, 2021. PAS Policy unit submitted a compiled report to Ministry for further submission to Senate Standing Committee on Water Resources. Fellow of Pakistan Academy of Sciences Prof. Dr. M. Qasim Jan (HI. SI. TI), also attended the standing committee meeting on November 4, 2021 on subject matter.

Pakistan Academy of Sciences SAG unit collaborated with the below mentioned departments for “Scientific Advice for Sustainable Implementation of Nation Water Policy”.

1. Ministry of Water Resources
2. Ministry of Planning, Development & Special Initiatives (Water Resources Section)
3. Pakistan Council of Research in Water Resources (PCRWR)

Sri Lanka Association for the Advancement of Science (SLAAS) Annual Sessions – 2021

The Annual Sessions of Sri Lanka Association for the Advancement of Science (SLAAS) was scheduled on the December 7, 2021 in Colombo having a Theme Seminar on “Science and Technology for a Better Tomorrow”. Prof. Dr. Tasawar Hayat, Secretary General PAS, participated in the event through the audio-visual message that was read out at the sessions. In his address, he extended his heartfelt thanks to the organizers of the Annual Sessions of SLAAS – 2021 for inviting the Pakistan Academy of Sciences to send an Audio-Visual Message as a token of its virtual participation in this very important event, not only for the scientific community in Sri Lanka but also for the scientific and technical minds in the region. Pakistan Academy of Sciences has been very actively participating in the SLAAS Annual Sessions before COVID-19 and is indeed honored to be a part of this scientific forum on a topic of immense importance for the masses in the region.

Prof. Dr. Tasawar Hayat congratulated SALAAS for choosing a very timely theme of “Science and Technology for a Better Tomorrow” for this forum as the Pandemic COVID-19 has proved that much more work is still required for counter-measures to possible pandemics worldwide. Science and technology make nations strong and secure. The speed of technological changes is fast, and the scientific community world over needs to join hands to streamline the mechanism to invent, innovate, and reinvent continuously in the domain of science and technology. At the same time, this process requires an active and dynamic science and technology policy culture. In the closing remarks, he appreciated the Sri Lanka Association for the Advancement of Science (SLAAS) for spearheading, sponsoring, and facilitating the organization of the SLAAS-2021 forum on Science and Technology for a Better Tomorrow and promoting a knowledge-based economy for sustainable development.

PAS Artificial intelligence (AI) Lecture Series

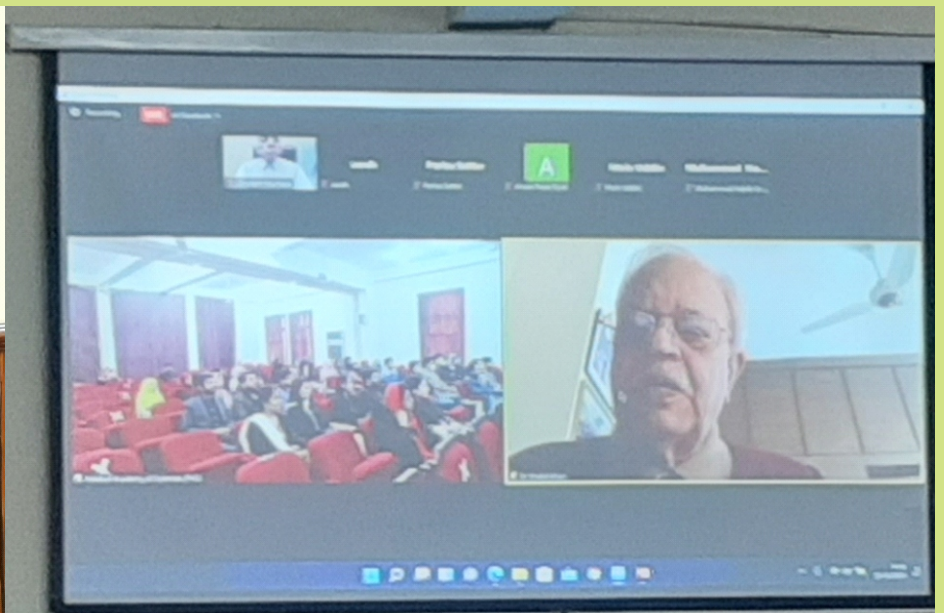
With the aspiration to give a future vision and research direction in Artificial Intelligence (AI) and Internet of Things (IoT) to our young scientists, the Pakistan Academy of Sciences (PAS) is organizing a lecture series on Artificial Intelligence and Internet of Things (AI & IoT 2021-22) from Dec 2021 to June 2022 in collaboration with Quaid-i-Azam University,

Islamabad and Network of Academies of Science in Countries of the Organization of Islamic Conference (NASIC). The lecture series is facilitated by a Member of the Academy, Dr. Muazzam A. Khan Khattak (Tenured Associate Professor at the Department of Computer Science, Quaid-i-Azam University, Islamabad, Pakistan).

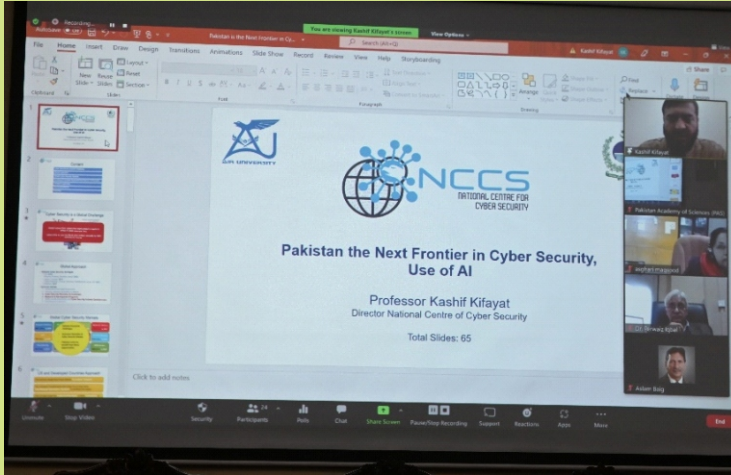
PAS AI Lecture Series 1st Talk AI and Deep Learning in Ophthalmology December 23, 2021

PAS AI Lecture Series 1st Talk was delivered by Dr. Muhammad Usman Akram working as an Associate Professor at the National University of Science and Technology, Islamabad on the topic AI and Deep Learning in Ophthalmology on December 23, 2021. Prof. Dr. Tasawar Hayat, Secretary General PAS introduced the Speaker and thanked all the participants for attending the lecture either virtually and physically. Prof. Khalid Mahmood Khan, President

Pakistan Academy of Sciences presented the welcome address. He emphasized on the importance of Artificial Intelligence (AI) and the Internet of Things (IoT). The Speaker covered Artificial Intelligence (AI) and Machine Learning (ML) applications in the area of ophthalmology and what are the ways forward in this area. Fellows and Members also attended the lecture.



PAS AI Lecture Series 2nd Talk Artificial Intelligence for Cyber Security January 06, 2022



In continuation of PAS AI Lecture Series, Pakistan Academy of Sciences (PAS) in collaboration with Quaid-i-Azam University, Islamabad and Network of Academies of Science in Countries of the Organization of Islamic Conference (NASIC) organized a 2nd Talk on "Artificial Intelligence for Cyber Security" on January 06, 2022. Prof. Dr. Kashif Kifayat, Dean Computing, Air University Islamabad, is invited as a Guest Speaker.

Speaker talked about the Cyber Security as a Global Challenge, and limited technology access to Pakistan. He further added that it is a golden opportunity for Pakistan in terms of technological advancement and economic growth. Pakistan needs to act wisely and strategically with immediate actions. High quality education is the only way which can help us to achieve our goals. Indigenization is the only way forward.

PAS AI Lecture Series 3rd Talk "Significance of Artificial Intelligence in Transforming Businesses" January 20, 2022



In continuation of PAS AI Lecture Series, Pakistan Academy of Sciences (PAS) in collaboration with Quaid-i-Azam University, Islamabad and Network of Academies of Science in Countries of the Organization of Islamic Conference (NASIC) a 3rd Talk on "Significance of Artificial Intelligence in Transforming Businesses" on January 20, 2022. Engr. Umer Saleem is invited as a Guest Speaker, working as a Data Analyst at Calculate Data and currently placed in the University of Oulu, Finland.

Speaker discussed the applications of Artificial Intelligence (AI). Intentionality, Intelligence, Adaptability, Processed Automation and Productivity make AI revolutionary. Prof. Dr. Tasawar Hayat, Secretary General PAS thanked the Speaker for informative talk and all the participants for attending the lecture either virtually.

Stakeholders and Consultative Seminar on World One Health Day November 03, 2021



The Stakeholders and Consultative Seminar on World One Health Day, November 03, 2021, was celebrated at UAF. The aim was to apprise and policy or recommendations to promote One Health in Pakistan. The event was honored by the presence of Prof. Khalid Mahmood Khan, President Pakistan Academy of Sciences (PAS). The VC, UAF, Prof. Iqar Ahmad Khan welcomed the distinguished guests and explained the One Health initiative at UAF back in 2016 and the inclusion of nutrition and agriculture perspectives in this domain. Prof. Khalid from PAS described in detail One Health aspect and its implications in Pakistan. He encouraged to launch a One Health project in Pakistan via PAS. Prof. Anas Sarwar Qureshi, Pro-VC, Dean, FVS apprised about the role of FVS in One Health and the prevention of zoonosis by this One Health approach. Later Prof. Sajjad-ur-Rahman, Director, Microbiology briefed about the seminar program.

The invited speakers talked about the One Health paradigm; Prof. Jaehan Kim from South Korea presented the role of nutrition in One Health. Dr. Mursalin from Pak One Health Alliance briefed about POHA and its collaborations with One Health nationally and internationally. Dr. Shagufta Zareen from PSPU presented the Punjab rabies control model and its relation with One Health. Dr. Asad

Zaheer from UHS presented COVID-19 readiness and resilience in One Health perspectives. Invited panelists (Dr. Mashkoor Mohsin, Dr. Allah Rakkha, Dr. M. Kashif Saleemi, Dr. Nabeel Khan Niazi, and Dr. M. Sohail Sajid) presented the One Health approach to tackle antimicrobial resistance, nutritional diseases, environmental mycotoxins, Zn toxicity and vector-borne diseases of public health.

The seminar was concluded by VC, UAF with a take-home message of forming a One Health approach as solution-driven to improve community health, animal health, and environment/agriculture health. The VC, Faisalabad Medical University, Prof. Zafar Ali stressed the incorporation of Medical sciences in One Health and the promotion of fellowships in One Health in Pakistan. Finally, an awareness walk to highlight World One Health Day was observed by the participants.

Outcomes of the Event:

The signing of the MoU between UAF, UHS, PSPU, and POHA was accomplished.

Appraisal of One Health approach & skills by the participants.

Asia and the Pacific Regional Webinar on "Science, Indigenous Knowledge, and the Pandemic" November 18, 2021

Asia and the Pacific Regional Webinar on "Science, Indigenous Knowledge, and the Pandemic" was held on World Philosophy Day on November 18, 2021. World Philosophy Day each year is celebrated on the third Thursday of November, UNESCO underlines the enduring value of philosophy for the development of human thought, for each culture, and each individual. Prof. Dr. Zabta K. Shinwari (Fellow, PAS) was the moderator of the webinar. The following points were discussed in the webinar;

- Poor diet that linked to one in five deaths, obesity is another example.
- Human diet causing 'Catastrophic' Damage to the planet.
- Currently, nearly a billion people are hungry and another two billion are eating too much of the wrong foods, causing epidemics of obesity, heart disease and diabetes.
- At the same time, the global food system is the single largest emitter of greenhouse gases, the biggest driver of biodiversity loss.
- It takes at least five kilos of grain to produce a kilo of meat. And once that steak or lamb chop hits the plate, about 30 percent will wind up in the garbage bin.

So, the solution may be lying in "Old Civilization", which may resolve current issues:



Another issue that we shall be discussing is "Extinction of Indigenous languages leads to loss of exclusive knowledge about medicinal plants and other important information for human civilization", "Every time a language disappears, a speaking voice also disappears, a way to make sense of reality disappears, a way to interact with nature disappears, a way to describe and name animals and plants disappears,".

Doctrine of Avicenna of Preservation of Health; Equilibrium of temperament; Moderation in regard to the movements of the body and the motions of the mind, which may be included "sleep and wakefulness". We may also preach for Contentment – moderate lifestyles. All faiths have taught the spiritual value of a simple life:

...be content with little, and be freed from all inordinate desire.

MEXT Alumni Association of Pakistan Oath taking Ceremony held at the Pakistan Academy of Sciences November 30, 2021

The Oath Taking Ceremony of the MAAP Executive Committee for the year 2021-2023 was held on Tuesday, 30th November 2021 at Pakistan Academy of Sciences. H.E. Mr. WADA Mitushiro, Ambassador of Japan to Pakistan graced the occasion as the chief guest and took oath from the newly elected Executive Body of MAAP. Prof. Dr. Tasawar Secretary General PAS presented the souvenir to the Ambassador of the Japan.

Prof. Dr. Zabta K. Shinwari elected as a President of Monbukagakusho-MEXT Alumni Association of Pakistan (MAAP).



World Soil Day Celebrations at Quaid-i-Azam University Islamabad

December 7, 2021



Soil is one of the four pillars alongside water, air, and light, upon which the structure of life is built. FAO has declared 5th December as World Soil Day. It's celebrated all around the globe to convey a message regarding the importance of soil every year. Being Pakistan's top-ranked university, QAU also gives special attention to this day as soil studies are not only important components of its curricular and co-curricular activities but also to obey a moral obligation.

Keeping in mind the theme of the 2021 Soil Day Celebration "Halt Soil Salinization, Boost Soil Productivity", the Department of Plant Sciences, Quaid-i-Azam University in collaboration with the Office of Research Innovation and Commercialization (ORIC), and PASTIC organized a one-day symposium on December 7, 2021, where Soil Scientists from Pakistan Agriculture Research Council (PARC), PMAS Arid Agriculture University Rawalpindi, Pakistan, and Quaid-i-Azam University Islamabad gave talks to the faculty and students. Students presented various models and posters showing how to Halt Salinization and pollution of soil.

Chief Organizers of the event Dr. Shujaul Mulk Khan, Associate Professor of Plant Sciences gave a brief introduction to the event, history of the World Soil Day, and the importance of Soil in relation to biodiversity. He further explained that the International Union of Soil Sciences (IUSS) 2002 under the leadership of the Kingdom of Thailand and within the framework of the Global Soil Partnership started to celebrate this day. Later on the FAO Conference 2013, unanimously endorsed the 5th December as World Soil Day and then approved by the 68th UN General Assembly in December 2013 by designating 5th December 2014 as the first official WSD. FAO has been supporting the WSD as a global awareness-raising platform for all the stakeholders since then, formally. He also acknowledged the efforts of Dr. Hazirullah Director ORICS and his team and Dr. Maryam PASTIC National Centre for their active collaboration with Plant Sciences to organize the event. He further told that

the event has been registered on the FAO site as well <https://www.fao.org/world-soil-day/worldwide-events/en/>.

Key Note Speakers of the event Dr. Tariq Sultan and Dr. Shahzada Sohail Ijaz emphasized the motive of the day to raise awareness about maintaining healthy ecosystems and human well-being, by pointing out the dangers of soil salinity. Soil salinization and sodification are major soil deterioration processes threatening ecosystems and are recognized as among the most important problems at a global level for agricultural production, food security, and sustainability in arid and semi-arid regions. Prof. Dr. Safia Ahmed, Dean, Faculty of Biological Sciences, and Prof. Dr. Mushtaq Ahmad Chairman Department of Plant Sciences asked the participants to raise awareness about the importance of mother soil by addressing the growing challenges in soil management, fighting soil salinization, and encouraging masses of the society to improve soil health and productivity.

Prof. Dr. Muhammad Ali Vice Chancellor focused his address on the importance of the day as well as overall co-curricular activities of the No. 1 University in the country, the QAU. He gave resemblance of a teacher and researcher with Tower of light who enlighten the youngster with knowledge and wisdom to accept the modern world's challenges and bring positivity to the society. He said that without soil, the ever-growing population will remain underfed since plants won't have any space to grow. World Soil Day demands recognition and support for the management of soil along with its sustainable utilization. The day aims for proper maintenance and care of soil all over the globe.

The event ended with the distribution of shields among the position holders of posters competition, speakers, and organizers followed by an awareness walk. More than 300 participants attended the ceremony.

Indus River System Webinar Series

First Talk: Pakistan water issues and the way forward

January 26, 2022

National Centre of Excellence in Geology, University of Peshawar organizing Indus River System Webinar series. The inaugural talk of the series was delivered by Dr. Muhammad Ashraf (Chairman, Pakistan Council of Research in Water Resources – PCRWR and Country Head, Upper Indus Basin Network) entitled "The Water Issues of Pakistan and the way forward" on January 26, 2022. Prof. Dr. Qasim Jan (Former President, PAS and Professor Emeritus, NCE in Geology, UoP) was the moderator of the webinar. The talk highlighted the country's water resources, and current issues and proposed the way forward. Internationally and nationally renowned scientists and researchers from academia and relevant governmental organization attended the event.

There would be over a dozen webinars for one hour each on every Wednesday. The webinars shall cover the scientific research and practices related to Indus River System and discussion on water issues, climate change, challenges, opportunities, and recommendations. The webinars will target the researchers, organizations, practitioners, and postgraduate students involved in water-related activities. The link is as follows.

https://teams.microsoft.com/j/1/meetup-join/19%3ameeting_ODY2MDQyYTMtOWI2Zi00NjA4LWlzM0MtNmVmMTcwZTk1ZWRI%40thread.v2/0?context=%7b%22Tid%22%3a%2275df096c-8b72-48e4-9b91-cbf79d87ee3a%22%2c%22Oid%22%3a%221e2eb751-19ae-4781-ad01-f9a64a6cad0e%22%7d



Islamic World Academy of Sciences (IAS) & Pakistan Academy of Sciences (PAS) Webinar Series on Climate Change

Session 1: Climate Change and Plants Biodiversity

January 29, 2022

Islamic World Academy of Sciences (IAS) & Pakistan Academy of Sciences (PAS) are jointly organizing a series of webinars on climate change. Prof. Dr. Khan Bahadar Marwat was the first Speaker of the Webinar Series and gave the first talk on the topic "Climate Change and Plants Biodiversity" on January 29, 2022. Dr. Abdullah Al-Musa, Director General, Islamic World Academy of Sciences (IAS) welcomed the participants and introduced the Speaker. The talk focused mainly on plant biodiversity related to agriculture in the wake of changing and fragile climate. With the change in Climate, visible shifts in the wild, as well as cultivated plants, are more prominent than ever before. Cropping times and types have been on its way to change. New crops/ varieties are to be the candidates in the high flood areas as the melting of glaciers will affect the flow of rivers. Some of the plants found at higher altitudes have drifted to plains and vice versa. He further

discussed that the Farmers' perception of the changing climate has been altered and looking for new options.

Prof. Dr. Tasawar Hayat, Secretary General PAS, and other fellows also participated in the webinar.



Prof. Dr. Amin Badshah (Treasurer, PAS) Elected as a Fellow of the World Academy of Sciences (TWAS)

Prof. Dr. Amin Badshah (Treasurer PAS & Vice-Chancellor, University of Buner) has been elected as a Fellow of The World Academy of Sciences (TWAS) for the advancement of science in developing Countries. He has been the only Pakistani scientist selected in this round of fellowship. Acknowledging the meritorious services with a stupendous research career, TWAS chooses Prof. Dr. Amin Badshah among the few distinguished educationists and scholars of Pakistan. His membership in such a high-profile international organization will bring about a wave of innovations, discoveries, research, and advancements in Pakistan that will contribute to long-term sustainable development and put Pakistan at par with the international standards of education and research.

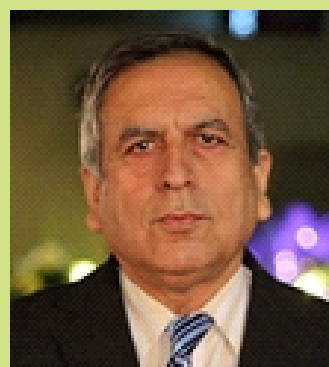


Pakistan Academy of Sciences extends heartfelt felicitations to Prof. Dr. Amin Badshah on such a prestigious occasion and were pleased to see you accomplish great things and wish you more success.

Prof. Dr. Ismat Beg (Fellow, PAS) won International Chebyshev Grant

Prof. Dr. Ismat Beg FPAS FIMA won the international Chebyshev grant (named after Pafnuty Chebyshev). The selection is based on the achievements of the researcher. The grant will cover air travel, hotel, registration fee, visa fee and full local hospitality to participate in the International Congress of Mathematicians 2022, Saint Petersburg (July 6-14, 2022).

Pakistan Academy of Sciences congratulates Prof. Dr. Ismat Beg for receiving Chebyshev grant.



Dr Mohammad Perwaiz Iqbal, FPAS was awarded the "Prof. Dr. Muzaffar Ahmad LifeTime Achievement Award 2021"

Prof. Dr. Mohammad Perwaiz Iqbal, FPAS was awarded the "Prof. Dr. Muzaffar Ahmad LifeTime Achievement Award 2021" by The Zoological Society of Pakistan during the 40th Pakistan Congress of Zoology International, at the Sindh Agricultural University, Tandojam on December 14, 2021. Prof. Dr. Muhammad Iqbal Chaudhry, Coordinator General of COMSTECH & FPAS was the special guest in the event.

Pakistan Academy of Sciences congratulates Prof. Dr. Perwaiz Iqbal for receiving Prof. Dr. Muzaffar Ahmad LifeTime Achievement Award 2021.



Genetic Variation Map to Enhance Chickpea Breeding

An international team of scientists, including researchers from The University of Western Australia's Institute of Agriculture, has successfully cataloged the genomic diversity of chickpea – which will lead to breeding new high-yielding and more resilient varieties. A research article, published in the prestigious [Nature](#) journal, outlined how 57 scientists from 41 organizations and 11 countries used genomic sequencing to map the variation in 3,171 cultivated and 195 wild chickpea accessions (unique seed samples). It is the world's largest plant genome sequencing effort of its kind.

The resulting 'chickpea pan-genome' is now a publicly available resource for genomics researchers and plant breeders to enhance chickpea breeding strategies for greater crop productivity, climate resilience, and human health benefits. Chickpea (*Cicer arietinum* L.) is an important pulse crop for nutritional security and human health as it provides a source of protein, dietary fibre and micronutrients. As the third most-produced pulse in the world, it is cultivated in more than 50 countries including Australia and particularly in South Asia and sub-Saharan Africa. However, worldwide chickpea productivity has been stagnant for the past five decades, contributing to reduced availability and higher levels of malnutrition in developing countries.

Leader of the research, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Research Program Director Professor Rajeev Varshney, said it provided a complete picture of genetic variation within chickpea and a validated roadmap for using the information and genomic resources to improve the crop. “By employing whole-genome sequencing, we have been able to affirm the history of chickpea's origin in the Mediterranean region, its migration to the rest of the world and how the domesticated species evolved and diverged from its wild progenitor over time,” Professor Varshney said.

Co-author of the study, The UWA Institute of Agriculture Director Hackett Professor Kadambot Siddique, said effective conservation, characterization and utilization of germplasm resources was essential to achieve the United Nations' goal of Zero Hunger by 2030.

“Mapping the genetic diversity is a significant and important step forward for the future of chickpea,” Professor Siddique said.



“Although more than 80,000 chickpea germplasm accessions are conserved in gene banks worldwide, very few have been characterized at the genome sequence level up until now.

“Through this research, we have created a divergence tree (using genes present in around 80 percent of individuals in one species) to estimate the divergence of chickpea over the last 21 million years.

“For the first time, we can see the far-reaching genomic diversity across cultivated chickpea and its wild progenitor accessions.”

Professor Siddique said the chickpea pan-genome would provide insights into the global distribution of genetic variation and show how this diversity had been shaped by domestication and selective breeding. “We can then link this genetic variation to phenotypic (characteristic) diversity for improved breeding applications,” he said.

Based on the genomic prediction, the research team proposed three crop breeding strategies to enhance crop productivity and maintain genetic diversity. Using 'optimal contribution selection' pre-breeding, the predicted performance for the 100-seed weight (an important trait to improve crop yield), increased by up to 23 percent.

Prof. Kadambot Siddique
Foreign Fellow, PAS
Hackett Professor of Agriculture Chair and Director
The UWA Institute of Agriculture
Australia

Prof. Cui Peng published a Chapter on "Landslide Risk along the Sichuan-Tibet Railway" in a Monograph

Prof. Cui Peng was elected as an academican of the Pakistan Academy of Sciences in 2021. Prof. Cui Peng's team completed writing the relevant chapter "Landslide Risk along the Sichuan-Tibet Railway" in a monograph entitled "Impact of Climate Change, Land Use and Land Cover, and Socio-economic Dynamics on Landslides" and proposed qualitative methods of the mountain disaster risk for railways, including hazard vulnerability indicator system and risk assessment model. The evaluation results provide the scientific support for route selection optimization and disaster avoidance in the Sichuan-Tibet Railway. The monograph was published in January 2022.



Dr. Zaffar Hashmi (Member PAS) Elected as a Fellow of the Society for Environmental Geochemistry and Health (SEGH)

Dr. Zaffar Hashmi, Member PAS has been elected a Fellow of the International Society: Society for Environmental Geochemistry and Health (SEGH). SEGH provides a forum for scientists to work together in understanding environmental geochemistry and health.



Pakistan Academy of Sciences congratulates Dr. Zaffar Hashmi for being elected as a Fellow of the International Society.

Future Activities

PAS Artificial intelligence (AI) Lecture Series


Pakistan Academy of Sciences (PAS) is organizing a lecture series on Artificial Intelligence and Internet of Things (AI & IoTs 2021-22) from Dec 2021 to June 2022 in collaboration with Quaid-i-Azam University, Islamabad and Network of Academies of Science in Countries of the Organization of Islamic Conference (NASIC).

PAS Lecture Series on Climate Change and Environmental Sciences

Pakistan Academy of Sciences is organizing an online lecture series on Climate Change and Environmental Sciences starting from February 2022. Internationally and nationally renowned scientists and researchers from academia and relevant governmental organizations are invited as Resource Persons.

Islamic World Academy of Sciences (IAS) & Pakistan Academy of Sciences (PAS) Webinar Series on Climate Change

Islamic World Academy of Sciences (IAS) & Pakistan Academy of Sciences (PAS) are jointly organizing a series of webinars on climate change.

 ISLAMIC WORLD ACADEMY OF SCIENCES (IAS) & PAKISTAN ACADEMY OF SCIENCES (PAS) INVITE YOU TO A SERIES OF WEBINARS ON CLIMATE CHANGE		
SESSION 1 Prof. Dr. Khan Bahadur Marwat Climate Change and Plants Biodiversity Saturday: 29 January 2022 11:00 Amman, Jordan  Watch webinar: https://www.youtube.com/watch?v=QOIR1IqPw&t=559s	SESSION 2 Prof. Dr. Zabta Khan Shinwari Ethics: Ensuring Food Security in the Era of Climate Change Saturday: 26 February 2022 11:00 Amman, Jordan  Register in advance: https://us06web.zoom.us/j/zoom/register/17cft-CfrTqoRt_BtYvW5RI6SqrN0Y6HksUv	SESSION 3 Prof. Dr. Shahid Mansoor Climate Change and Sustainable Agriculture Saturday: 26 March 2022 11:00 Amman, Jordan  Register in advance: https://us06web.zoom.us/j/zoom/register/17zwpd-misp2MaG7YC0ScHQTfSC9IAFAN5ZfxPL
SESSION 4 Prof. Dr. Shaoukat Hameed Khan How Green is Renewable Energy Saturday: 16 April 2022 11:00 Amman, Jordan  Register in advance: https://us06web.zoom.us/j/zoom/register/17GkcChpZdrEP93vFXv8YACrfICc-Jc1Aq	SESSION 5 Prof. Dr. Zulfiqar A. Bhutta Climate Change and Nutrition in Pakistan, on the downstream effects and solutions Saturday: 7 May 2022 Time will be determined in due time  Register in advance: https://us06web.zoom.us/j/zoom/register/17EGcOZltarwGdTh5i8rAg0WgKfAVgRQbkCu	