Role of Muslim Scientists in the Development of the Sciences (17th century- 21st century)

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ABSTRACT

Science and technology are, although interlinked but have distinctive properties and aspects. Science focuses on observations, discoveries, and empirical data, while technology is its application that stresses inventions that can either be beneficial or harmful. Science itself is the name of experimentation of its inner self because science is bounded in its realm, and technology is the focal part of contemporary evolution. Technology remains advantageous until it remains in natural configurations; whenever the diversion occurs, devastation knocks at the door of humankind. The core subject of the paper is "Role of Muslim Scientists in the Development of the Sciences" (From 17th century- 21st century). In this modern era, it is a general perception that religion cannot satisfy science and technology's rationality and empirical perspectives. Unfortunately, Islam is also considered one of them. Still, the reality is one-eighty degrees opposite because the Quran is the only book with a universal approach and adheres to its followers to seek all answers whose signs are shown in logical development. Misconceptions related to science and religion Islam will be discussed as well, as the work of Muslim scientists in various fields of sciences will remain the epicenter of this paper. The primary scientific inventions by physical scientists and technology have proved their links were already mentioned in the Quran. The world has become a global village. The 21st century has brought the Fourth Industrial Revolution (4IR), the fusion of artificial intelligence (A.I.), Quantum computing, genetic engineering, and modern physics.

Keywords: Muslim Scientists, Scientific Inventions, Scientific development, Research contributions

Introduction:

Science is a system of pursuing knowledge that demands unbiased observations, the study of fundamental laws, and effective integration of cognitive structure. It has multiple branches, like natural sciences, biological sciences, human sciences, social sciences, etc. It is a historical fact that the procurement, achievements, and discoveries of Muslim scientists in the medieval period remained stupendous and worth mentioning in both natural and theoretical sciences. The seventh- fifteenth centuries is considered the Golden

Age of Islamic Civilisation. On parallel grounds, science appeared as ideas encompassing human lives in different directions by covering multiple aspects of their lives. Islamic view of nature and discoveries stimulated Muslims to think, observe and discover the universe as the Quran says(1), " those people who remember Allah while standing, sitting, and laying down on their sides, and keep thinking (concentrate) about the creation of heavens and the earth(and say): " Our Lord! You have not created all this without purpose; glory to You!" Ibn Sina, Al-Biruni, Al-Khwarizmi, Ibn ul Haitham, Jabir ibn Haiyan, Al-Beruni, and Al-Razi, did wonder in multiple fields like medicine, geography, mathematics, astronomy, physics, chemistry, etc.

In contrast, Europe was in the dark age at that time. Gradually the enlightenment period of Europe focused on reasoning, individualism, and skepticism. They started learning from Muslims and worked in science by keeping Muslim scientists in view. The seventeenth and eighteenth centuries are considered the age of enlightenment intellectual, the Renaissance of humanism, and the Scientific Revolution in Europe. The first impression of the collision and dissimilarities between science and religion was enforced by Andrew Dickson White's "A History of the Warfare of Science with Theology in Christendom" in 1897. It took over a century to understand the interactions and correspondence between science and religion. In 1997, Stephen Jay Gould presented the mutual relationship between science and religion (2) under the view of Nonoverlapping magisteria (NOMA). In his view, "science and religion each represent different areas of inquiry, fact vs. values, so there is a difference between the "nets" Over which they have "a legitimate magisterium or domain of teaching authority," and these two areas do not overlap."

Quran is the book of signs that deals with several domains. It is not a religious book only, but 99% of scientific research has been proved in this 21st century. This and research inspire even the West by keeping Quran in front of them, whose evidence can be seen by the link shared in the footnote(3). Evolutionists' view of Modern sciences is reshaped by the western world that contaminated the whole world with chemical and nuclear technology. In initial times, Islamic science and Muslim scientists discovered things with different views and peaceful purposes. Still, gradual evaluation and particle bombardment of technology have created contemporary challenges for Muslim scientists of the modern age. Muslim scientists indeed made significant discoveries and inventions

(1)Dr. Muhammad Taqi-ud-Din Al-Hilali & Dr. Muhammad Muhsin Khan

Islamic University, Al-Madinah Al-Munawwarah (Trans.). (Madinah: King Fahd Complex, 1417.H). The Noble Qurān, 3:191.

(2) Stephen Jay Gould, (Published by: The Random House Publishing,New Yark ,1999) , “Rocks of Ages: Science and Religion in the Fullness of Life” A Ballantine Book.

(3) ThereIsNoClash, Quantum and light coherence simply explained in Quran –“ There Is No Clash”, retreived from https://www.youtube.com/watch?v=vqLmqZ-0qDo&list=PLB2gAL9wifZQVghJLRTvakKYlxGe3uBF1&index=4.

in science, and it is an obvious truth that Muslims are pioneers of sciences. In this contemporary era, science has reshaped itself due to technology. Twentieth-century is considered the age of artificial intelligence. Modern science creates the urge to renew the concepts of causalities, contemporary mechanisms, and metaphysics. Carl W Ernst states in his book, Following Muhammad [1], "The identification of the West with advanced science and technology confers an intoxicating sense of superiority on its beneficiaries. Even those who find it difficult to program a VCR still consider ourselves the proprietary owners of modern science." Metaphore of Technology has blind the facts that lead the world to a dichotomy because countries with less technological facilities are still contemporaries. Muslim scientists worked hard in science and remained productive for humanity. Let us discuss the work of a few Muslim scientists from the 17th to the 21st century

Hezârfen Ahmed Çelebi(هزارفن أحمد چلبی, 1609-1640)

Hezârfen Ahmed Çelebi was an Ottoman scientist, inventor, chemist, astronomer, physician, Andalusi musician, and Arabic-language poet born in Istanbul. He brought revolutionary changes in the field of astronomy and engineering.

Research Contributions

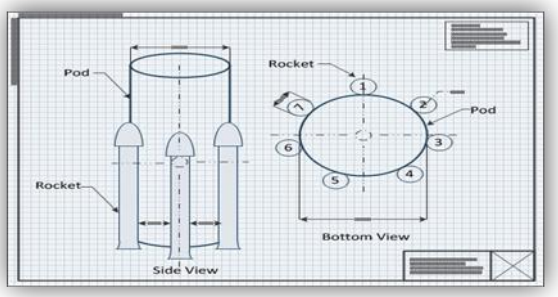
Hezârfen Ahmed Çelebi made a machine to locate the motion of planets and stars and made colorless magnifying lenses to magnify the image of objects. He performed a curious experiment by himself. He noticed the flight of eagles and decided to repeat it experimentally. He wrapped a couple of enormous wings around him and tried to fly with those wings. It was his first solo flight. He performed this experiment in 1638 from Galata tower, which is near the Bosporus in Istanbul. He flew over the sky and successfully landed on the other side.

Lagari Hasan Çelebi (1611 – 1682)

(1) Carl W. Ernst, (The University of North Carolina Press, 2003), Following Muhammad Rethinking Islam in the Contemporary World, ,Chapel Hill & London, Pg-200

Lagari Hasan Çelebi is a Turkish-born scientist, engineer, and aviator. He was the first-ever scientist of the 17th century who made the first successful vertical crewed rocket flight in the reign of Sultan Murad IV in 1633.

Research Contributions



Lagari Hasan Celebi is the first rocketeer who took off a vertical rocket and is known as the ancestor of missilery. He constructed missiles and developed the method to use missiles [(1)]. He and his team launched a Rocket Pod and conducted numerous tests for several years to make a successful flight. They were ready to launch a Rocket Pod along with Human Cargo in an eighteenth test flight. Seven small rockets surrounded this primary rocket pod with 140 pounds of gunpowder. Rocket pod was designed on the pattern that it had fuel for a thirty-second burn for going up and 60 seconds to come back. Within minutes Lagari's team accomplished the experiment and successfully launched a rocket. Lagari's legacy[(2)] is that they designed a metallic Rocket consuming 140 pounds of gunpowder pod and introduced rocket power to achieve human-crewed flight.

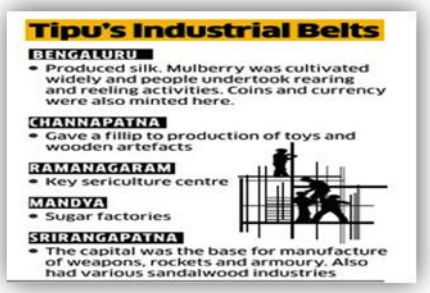
Tipu Sultan (1751 –1799)

Sultan Fateh Ali Khan Shahab is the real name of Tipu Sultan. He was born in Bangalore, Karnataka. He was a warrior, and due to his courageous acts, he is known as the "Tiger of Mysore." Though he is famous for his heroic actions in several wars that he fought to secure his land from foreign invaders, very few know that he was also the pioneer of rocket artillery based in South India. He was an excellent administrator who introduced modern innovations during his reign. The historic words of the tipu sultan are, "The tiger's life of one minute is better than the jackal's life of 1000 years".

(1) Al-Hassani, Salim T.S. (2013), "1001 Inventions – The Enduring Legacy of Muslim Civilization", 3rd Edition. Washington D.C.: National Geographic.

(2)Naeem Ali, (Tuesday, 21 April 2015)"Lagari Hasan Celebi – The First Rocketeer", retreived from http://www.forgottenislamichistory.com/2015/04/lagari-hasan-celebi-first-rocketeer.html

Research Contributions



Tipu Sultan fought many wars against invaders, and he is also known as a scientist due to his significant contribution to rocketry. He initially introduced the latest arms and missiles technology in the 17th century(1)and designed a defensive metal rocket whose range was two kilometers. Later on, he introduced tying sharp (sword) blades with the rocket to stabilize the flight. This technique was new as rocket science for the British soldiers too. He also introduced a new coinage system, a new land revenue system, calendar and inaugurated the modern industrial tools, which caused to increase in the growth of the silk industry.

Salimuzzaman Siddiqui (1897- 1994)

Dr. Salimuzzaman Siddiqui was a Pakistani scientist born in Subeha, district Bara Banki, Indi. His field of research was organic chemistry, and he did his specialization in natural products. Dr. Salimuzzaman Siddiqui served as a professor of chemistry at the University of Karachi. He published almost 300 research papers and received 40 patents, mainly in Natural Product Chemistry. He is honored by the Fellowing awards, followed by the Royal Society, M.B.E., Sitara -e-Imtiaz, Tamgha-e-Pakistan, and pride of performance. He is also known as the last Renaissance man in social and natural sciences(2).

Research Contributions

Dr.Salimuzzaman was also an art expert. In 1921, during his stay in Germany, while studying chemistry at the University of Frankfurt, he painted a few

(1) Janaki Nair (2020): Tipu Sultan, "the Power of the Past and the Possibility of a Historical Temper", South Asia: Journal of South Asian Studies, DOI:10.1080/00856401.2020.1791382

(2) Salimuzzaman Siddiqui, M. B. E, (Nov., 1996), "Muhammad Akhtar, Biographical Memoirs of Fellows of the Royal Society", Published By: Royal Society , Vol. 42 pp. 400-417 (40 pages).

paintings and displayed them at Galerie Schames in Frankfurt. His paintings in the exhibition got media coverage with appreciation. In 1927, the second exhibition was held at the Uzielli Gallery, through which he earned a lot. The most famous research of Dr . Siddiqui was on the flowering plant of Asia known as Rauwolfia Serpentina(1). He discovered nine new alkaloids from this plant which manifested amazing healing for cardiovascular problems, blood pressure, and neurological diseases. Pharmaceutical companies used his formula for making medicines. In 1966, he was named "the father of Holarrhena Chemistry" (2)for discovering new chemicals, and his other achievement was the extraction of critical medicinal compounds from a plant. Later on, Holarrhena antidysenterica was used for inflammatory disease of the intestine, causing blood and mucus in the feces. Crystalline triterpenoids are another praiseworthy diagnosis. He is the pioneer of research and development in Pakistan and was appointed as the first chairman in 1961.

Mahmoud Hessabi (1903-1992)

Dr.Mahmoud Hessabi was an Iranian scientist born in Tehran, Iran, in the Markazi province. He completed his degree in Road Engineering from the American University of Beirut. Then for higher studies, he went to Paris, where he received his degree in electrical engineering at Ecole Superieure d'Electricite. After this, he completed his P.hD in 1927. He remained a member of the University of Tehran. Dr. Hessabi was appointed to the three-person provisional board of the Iranian company in June 1951. He served as an education minister of Iran. He served as the representative of a scientific and technical subcommittee of Iran from1961-1969. He was Tehran's recognized, highly influential, and renowned personality. In 1992, his house was later converted into a museum to remember his country's servings and the world.

Research Contributions

Dr. Mahmoud Hessabi was an expert in multiple fields, including technology, space science, astronomy, medicine, and mathematics. He had a curious scientific mind, pursued physics research, and got his Ph.D. degree from Sorbonne University. He was one of the luckiest men who got a chance to attend Einstein's class. He presented a theory

(1) Suhail Yusuf, (October 18, 2013), " Salimuzzaman Siddiqui – A visionary of science", retrieved from https://www.dawn.com/news/1050186, Dawn News.

(2) Muhammad Akhtar M.B.E ,elected F.R.S , Salimuzzaman Siddiqui, M.B.E., Elected F.R.S. 1961, The University, Bassett Crescent East, Southampton S016 7PX, UK.

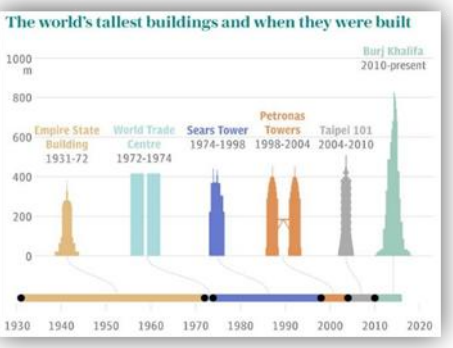
called "Infinitely Extended Particles." He gave a tremendous defense of his thesis to great scientists like Born, Memzi, and Schrodinger, and he was awarded France's most significant scientific medal.

"Professor Hesabi was Professor Albert Einstein's favorite student and an expert in multiple languages like English, French, Arabic, Turkish, and German. In 1989, he was declared the World's Man of the Year in Science. Some of his significant achievements in scientific fields are the manufacturing the first Radio Set in Iran, the structure of the first weather station, operating the radiology center, founding TehranShemshak Railway, establishing the applied optic and lens-making center, founding the Geophysics Society of Iran, latest center for satellite, the Atomic Research Center and Atomic Reactor of Tehran University.

Fazlur Rahman Khan (1929 –1982)

Fazlur Rahman Khan was born in Dhaka, India. He is known as the "Einstein of structural engineering" He is a Computer Aided Designer(CAD) who developed the Systems for Skyscrapers. He did his undergraduate in civil engineering and went to the United States on scholarship. He received the following awards in his life, Aga Khan Award for Architecture, A.I.A. Institute Honor, and the independence Day Award for his remarkable accomplishments. Aga Khan Award for Architecture, Independence Day Award, and A.I.A. Institute Honor for Distinguished Achievement.

Research Contributions



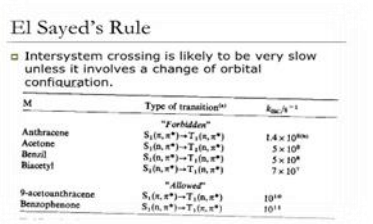
Fazlur Rahman Khan is the "Father of Tubular Designs" for High-Rises. He designed Willis Tower and the 100-story John Hancock Centre. In the second half of the 20th century, Khan was known as the "Greatest Structural Engineer of the 20th Century" due to his tremendous achievements in the structural system and

skyscraper designs. In this regard, the Tall Buildings and Urban Habitat council honored him with one of the best life achievement medals known as the CTBUH skyscraper Award. He also introduced many other stadium structures, McMath–Pierce solar telescope, and the Hajj airport terminal. His Distinguished lecture series has been designed and organized by Dan M. Frangopol [(1)].

MOSTAFA AL-SAYED (May 8, 1933)

Mostafa Al-Sayed (Arabic: مصطفى السيد) was born in Egypt. He is a physical chemist who completed his Ph.D. at Florida State University, U.S.A. He is an expert in Nanotechnology, Spectroscopy, nano-science, biophysical, and El-Sayed rule researcher. In 1990, he was awarded by King Faisal International Award; in 2002, he the Irving Langmuir Award. In 2009 he got Glenn T. Seaborg Medal; in 2016, he acquired Priestley Medal. He remained a member of the National Academy of Sciences and a U.S. National Medal of Science Laureate.

Research Contributions


El Sayed's Rule

- Intersystem crossing is likely to be very slow unless it involves a change of orbital configuration.

M	Type of transition[a]	k_{isc}/s^{-1}
	"Forbidden"	
Anthracene	$S_1(\pi,\pi^*) \rightarrow T_1(\pi,\pi^*)$	$1.4 \times 10^{8[b]}$
Acetone	$S_1(n,\pi^*) \rightarrow T_1(n,\pi^*)$	5×10^8
Benzil	$S_1(n,\pi^*) \rightarrow T_1(n,\pi^*)$	5×10^8
Biacetyl	$S_1(n,\pi^*) \rightarrow T_1(n,\pi^*)$	7×10^7
	"Allowed"	
9-acetoanthracene	$S_1(\pi,\pi^*) \rightarrow T_1(n,\pi^*)$	10^{10}
Benzophenone	$S_1(n,\pi^*) \rightarrow T_1(\pi,\pi^*)$	10^{13}

Mostafa A. El-Sayed is ranked in number four researcher Worldwide in Academic Chemistry. He stated a rule known as the El-Sayed rule [(2)]and formulated formula that a (π,π*) singlet could transition to an (n,π*) triplet state but not to a (π,π*) triplet state and vice versa in the 1960s. The most famous book by Mostafa Al-Sayed is "Photo‑Electrochemical Ammonia Synthesis. Nanocatalyst." he has produced 1200 publications in over 590 peer-reviewed journals in Spectroscopy, Nanoscience, and Molecular Dynamics with over 130,000 citations.

(1) Yasmin S, "Dr. Fazlur R. Khan: Engineering Pioneer of Modern Architecture", Lehigh University: Fazlur Rahman Khan Distinguished Lecture Series". Lehigh.edu.

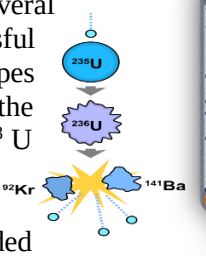
(2) S. E. Braslavsky‡Pure Appl. (© 2007 IUPAC).International Union Of Pure And Applied Chemistry Organic And Biomolecular Chemistry Division*Subcommittee On Photochemistry Chem, Vol. 79, No. 3, pp. 293–465, doi:10.1351/pac200779030293.

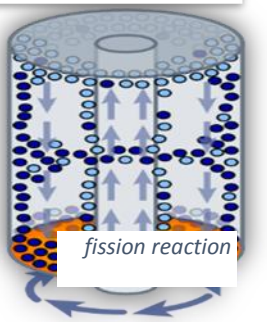
Abdul Qadeer Khan (1936 – 2021)

Dr. Abdul Qadeer Khan is a Pakistani Nuclear Physicist and Metallurgical Engineer. He was born in Bhopal, Indi. He completed his doctoral program in metallurgical engineering. His Title is "Mohsin-e-Pakistan."He is also known as the "Father of Pakistan's Atomic Weapons Program." He is awarded by Nishan-e-Imtiaz, Hilal-i-Imtiaz, and Nishan-i-Imtiaz.

Research Contribution

In 1976, A.Q.Khan joined the enrichment division with Khalil Quraishi (a Physical Chemist). After several experiments, they finally did a successful experiment of separating ^{235}U, and ^{238}U isotopes from raw natural Uranium Diagram of the principles of a Zippe-type gas centrifuge with ^{238}U represented in the dark blue and ^{235}U illustrated in light blue. He prepared a defense nuclear weapon for Pakistan, which Pakistan added to the list of countries having potent defense weapons.

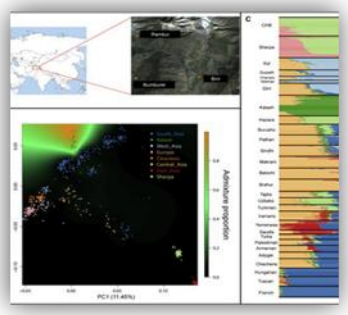


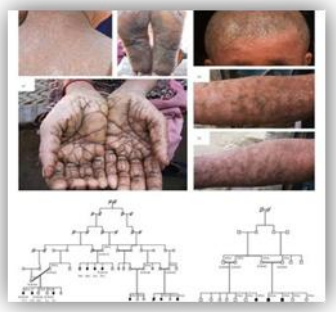


Dr. Syed Qasim Mehdi (1941-2016)

Dr. Qasim Mehdi born in India. He did his M.S.in US from the Massachusetts Institute of Technology (M.I.T.), and from the university of oxford, he completed his degree od D.phil, UK. He is a distinguished professor in Pakistan, awarded by Hilal-e-Imtiaz and Sitara-e- Imtiaz. Mehdi performed duties as a Director in the Dr. A.Q Khan institution of general of Biochemical and Genetic Engineering. He also Supervised the institute of Urology(SIU), the center for human genetics and molecular medicine in Sindh.

Research Contributions





The research expertise of Dr. Qasim Mehdi was Molecular Biology and Genetics, and he worked a lot in Biotechnology. He initiated a human genome diversity project at Stanford University because his primary research interest was in the Molecular Biology of Diseases.

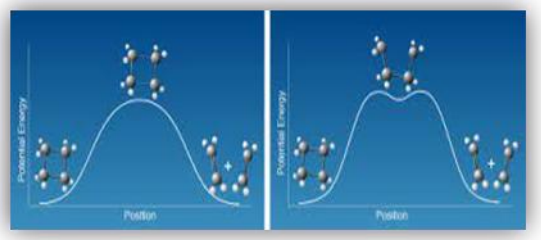
AHMED HASAN ZEWAIL (1946-2016)

Nobel Laureate Professor Ahmed Hasan Zewail was born in Egypt. He was a chemist known as the father of Femtochemistry, whose investigation brought revolutionary changes in chemistry[13]. It was a mystery for scientists to kick the molecules over a barrier that tightly held them together in a chemical bond in the early nineteens. New molecules can be generated under the violent motion of molecules because the velocity of molecules changes with temperature. This reaction occurred so fast that it was almost impossible for the scientists to observe the response of breaking molecules. In the 1980s, Ahmed Zewail, using a sample system of 'Coherent preparation,' performed a chain of experiments with the help of new laser technology called femtosecond.

(13) The Royal Swedish Academy of Sciences.(12 October 1999). "The Nobel Prize in Chemistry 1999 Professor Ahmed H. Zewail", retreived fromhttps://www.nobelprize.org/prizes/chemistry/1999/summary/

Research Contributions

Femtoseconds are the time scale on which chemical reactions are to be measured. In the initial steps, Ahmed Zewail studied unimolecular disintegration [(1)]. Iodine cyanide into iodine atom and cyano radical: ICN → I + C.N



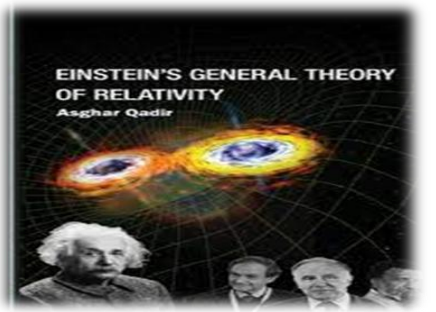
In 1987, he discovered" "real-time Femtosecond probing of "transition states" in Chemical Reactions."With the development of technology, such rapid processes can now be read through ultra-short laser flashes because this study uses the same Time-Scale on which the atoms in the molecules vibrate. His investigation is based on femtoseconds (1 fs = 10-15 seconds), for which he was awarded the Nobel prize in 1999, and he became the first Egyptian scientist who won the Nobel prize. One femtosecond is 10 –15 seconds, that is, 0.000000000000001 seconds, which is to a second as a second is to 32 million years. Following are the Books written by Ahmed Zewail; 4D Visualization of Matter, 4D Electron Microscopy, Imagining in Space And Time, Femtochemistry: Ultrafast Dynamics of the Chemical Bond, Physical Biology: From Atoms To Medicine.

Asghar Qadir(July 1946)

Dr. Asghar Qadir born in Shimla. He is at the age of 75 now, and his nationality is Pakistani; and a renowned mathematician of Pakistan who did lots of work in cosmology introduction to general relativity. He completed his Doctorate in Relativity from London University. Dr. Asghar Qadir contributed significantly to Theoretical Cosmology, Differential Equations, Mathematics, and Physics. At the National University of Sciences and Technology (NUST), he serves as the School of Natural Sciences (S.N.S.) director. He is honored with Hilal -e -Imtiaz, Sitara-e-Imtiaz, Fulbright award, and Pakistan Academy of Sciences Gold medal due to his praise-worthy contributions.

(1) Professor Bengt Nordén, (The Royal Swedish Academy of Sciences.1999), "Nobel Prize in Chemistry to Professor Ahmed H. Zewail", California Institute of Technology, Pasadena, USA.

Research Contributions



Dr.Qadir is the author of twelve books and 140 research papers. His most famous book is "Relativity: an introduction to Special Theory," translated into many languages and highly renowned among physics students. Qadir is a research associate at Rutherford Appleton Laboratory(R.A.L.). He joined Rutherford High Energy Laboratory as a research associate. His accomplishments in advanced computational mathematics helped develop the "Theory of Nuclear fission" at the ISIS neutron source – a Neutron scattering facility that mathematically inspects nuclear materials' behaviorism, formation, and structure in Fission processes. "On Quantum Effects near a Black Hole Singularity" and "Gravitational Wave Source may be 'Further' that we think," "Relativity: An Introduction to the Special Theory" are the significant contributions and worth reading books by Asghar Qadir towards advances mathematics and nuclear physics.

Muhammad Iqbal Choudhary(1959)

Muhammad Iqbal Choudhary is Pakistan's renowned scientist whose specialty is 'Organic Chemistry' born in Pakistan. He performed his duties as a professor at the 'International Centre for Chemical and Biological Sciences(ICCBS).'

In 1987, he completed his Ph.D. from the H.E.J. Institute – in Organic Chemistry. He has more than 1016 publications,13,000 Citations, and 44 indexes in organic and bioorganic chemistry. He wrote 59 books, and he is the author of 40 chapters in books published by international presses. In 2015, he was recognized as the second most prolific person as the scientist in Pakistan due to his exploration and innovations in numerous areas relating to 'Natural Product Chemistry. He received Awards, the Mustafa Prize Award (2021), Hilal-e-Imtiaz in (2007), Sitara-e-Imtiaz (Star of Excellence2001), Tamnga-e-Imtiaz in (1998). He was currently working in the H.E.J research institution: International Centre for Chemical and Biological Sciences(ICCBS), and serving in DR. Panjwani's Centre for Molecular Medicine and Drug Research.

Research Contributions


DEPARTMENT OF ENVIRONMENTAL HEALTH

EH SPECIAL SEMINAR
June 20th, 2014
FXB G-13
12:00 p.m. noon

"New Paradigms in Drug Discovery"
Muhammad Iqbal Choudhary, PhD

Distinguished National Professor
International Center for Chemical and Biological Sciences
University of Karachi

Prof. Professor Dr. Muhammad Iqbal Choudhary has contributed to multiple projects of academic nature, including Bio-Organic Chemistry and Natural Products is highly remarkable. He has started numerous national projects like the 'Survey of Medical Plants,' 'capacity building in science and technology,' and 'Environmental Monitoring' in Pakistan. Presently, he is heading the largest "Industrial Analytical Centre" in Pakistan. He is also working as the Project Director(1) of the newly established "Dr. Panjwani Centre for Molecular Medicines and Drug Development." Since 2017, he has been a member of the National Commission for Science and Technology (NCST). He is also a member(2) of the 'Royal Society of Chemistry in London, 'international Union of Pure and Applied Chemistry (IUPAC),' 'American Chemical Society,' 'Federation of Asian Chemical Societies(FACS),' 'American Society Of Pharmacology' and 'A Member of Executive Boards of Asian Network of Research on Anti-Diabetic Plants(ANRAP).'

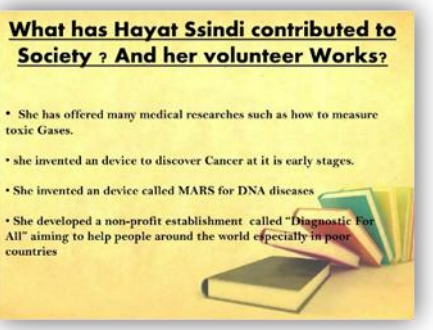
HAYAT SINDI (November 6, 1967)

Hayat Sindi born in Saudia Arabia. She is a medical scientist who did her Ph.D. in biotechnology at Newnham College, Cambridge. She is the first female member of 'The Consultative Assembly of Saudi. She has also been appointed as UNESCO Ambassador. She is a renowned woman of Saudia Arabia, ranking in 19th most influential Arab. Her significant achievement is 'Point of Care' Medical Testing and Biotechnology, and she received Award from Prince Khalid Bin Faisal Saud for her Remarkable Scientific Innovations.

(1) Dawn news, Published (October 13, 2021), 'KU professor Dr Iqbal Choudhary honoured with top Muslim world science award, Screengrab: Mustafa Prize website.

(2) International center for chemical and bilogical sciences, retreived from https://iccs.edu/page-hej-faculty?faculty-page=6 .

Research Contributions



Hayat Sindi is a founder of three major companies, Diagnostic for All (D.F.A), i2(The Institute for Imagination and Ingenuity), and Sonoptix. She is working for 'mentoring young entrepreneurs.' Her entrepreneurial philosophy [1] is straightforward: *"A true scientist should focus on affordable, simple solutions to reach everyone globally."* All inventions are developmental, and her primary purpose is to design low-cost diagnostic tools for humankind to provide them ease on a mini-budget.

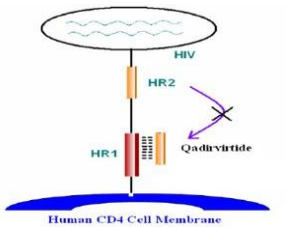
Muhammad Imran Qadir (1978),

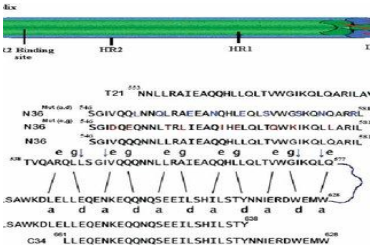
Dr.Muhammad Imran Qadir Born in Shujabad, Multan, Pakistan. He is a renowned scientist of Pakistan who received his B.Pharm degree from Bahauddin Zakariya University, Multan, and achieved his Ph.D. degree in biochemistry and molecular biology from Quaid e Azam university Pakistan. He received awards such as 'Best Young Research Scholar,' PAS-GOLD Medal, and Research Productivity Award. His significant field of research in Molecular Biology and Biochemistry. He is a well-known Pakistani Pharmaceutical Scientist who is also known as M.I.Qadir. He is the one who conducted a research project [2] with his students in the 'Institute of Molecular Biology and Biotechnology in Bahudin Zakriya University, Pakitan, to prevail awareness about the Symptoms, Prevention, and Treatment of the Lyme Disease. He is serving as the head of "The Phage Therapy and Drug Design Laboratory" in Molecular Biology and Biotechnology.

(1) Tamara Pupic, (November 26, 2018), Leading The Way: Saudi Arabia's Dr. Hayat Sindi , Saudi Arabia's Dr. Hayat Sindi on why the field of science needs female forerunners.

(2) Muhammad Imran Qadir and Tayyaba Majeed, " Awareness about Prevention Symptoms and Treatment of the Lyme Diseases", ,Institute of Molecular Biology and Biotechnology, Bahauddin Zakariya University, Multan, Immunology: Current Research,Immunol Curr Res 2019, 3:1 , Pakistan

Research Contributions





Muhammad Imran Qadir has written 15 medical books, and his published articles are more than 600. His specialty is Cancer Diagnostic Test known as 'Qadir Test,' A Theory of Cancer Etiology known as 'Qadir Theory,' anti-HIV Drug known as 'Qadirvirtide,' and he also made a drug for corona known as 'QadirVID-19'. Qadir test: it is a medical test for the diagnosis of four types of cancer sarcomas, lymphomas, carcinomas, and leukemias. In this test, plasma lipids are analyzed in laboratories, a cancer diagnostic test to find the changes in lipid profile. Qadirvirtide and Qadir-C30: this invention was done to develop anti-HIV drugs. These are fusion inhibitors and synthetic peptides composed of 30 and 36 amino acids. They are used to treat AIDS because these peptides block the entry of the genome into a human cell called CD4 by tiding to the HR1 region spike protein of H.I.V. This virus does not come near to the human cell membrane and remains protected. Qadir Theory of cancer Etiology: According to Qadir, "Viruses are the causative agents of cancer: 100% of cancer patients contain virus/es in their body responsible for cancer." Qadirphages: It is a local Bacteriophage used as an antibacterial product. M Qadir isolated the local phages discovered and characterized them to find their antibacterial activities. Their propagation was usually visual at 37 degrees, making him realize that it will work best at human body temperature. QadirVID-19: this is a fusion inhibitor for specific treatment of COVID-19, which is composed of 30 amino acids.

Conclusion

History describes that Muslims were the pioneers of science. Muslim scientists made the majority of scientific contributions in the early centuries. Later on, in the enlightenment period of Europe, the West progressed so well and made discoveries and inventions in all fields. Science and technology made this world a global village, and technological aspects and their power in the hand of the West made them rigorous towards Muslims. The seventeenth till the twenty-first century resulted from enormous scientific development and technological bombardment. Muslim scientists are also participating in this development, and their struggle is praiseworthy. Islam stresses discoveries, and the Quran and Sunnah are the brightenings of the paths of Muslims and non-Muslims. There are precise shreds of evidence in the Quran mentioned hundreds of centuries ago, proven in this twenty-first century. Islam motivates the Muslims to go side by side with this world and find the signs of Allah almighty. The early centuries present the whole scenario of Muslim scientists' dedication and discoveries, which later remained

beneficial for the West. West proceeded to take up those inventions and explore them. Being Muslims, we need to increase the scientific work and research to achieve the lost treasure of science back into our hands. Muslim scientists all across the globe need to join hands to make a robust research frame network to support Muslim science students in developing scientific research and uncovering discoveries.

Suggestions

In a nutshell, Muslim scientists and their work are admirable, but if we compare it with the West, we find very few scientists compared to the early centuries. To compete with the western world, we need to produce more laboratories, and the government needs to allocate more funding for research. Metaphore of Technology has blind the facts that lead the world to a dichotomy because the Muslim countries with fewer technological facilities are still contemporaries. Serious endeavors, hard work, and round-the-clock efforts may bring changes in science for the development and progress of the Muslim Ummah.

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