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"ARCHAEOLOGY IS NOT NEUTRAL": PRINCE EL HASSAN BIN TALAL INAUGURATES ICHAJ 16 IN ATHENS

The 16th International Conference on the History and Archaeology of Jordan (ICHAJ 16) was inaugurated in Athens under the patronage of HRH Prince El Hassan bin Talal, bringing together hundreds of scholars from across the world to explore Jordan's role in regional history and its future within the global heritage field.

Organised by the Ministry of Tourism and Antiquities and the Department of Antiquities in cooperation with the National and Kapodistrian University of Athens, the five-day conference was under the theme "Archaeology and Sustainability: Learning from the Past for a Safer and More Resilient Future."

In his opening address, Prince El Hassan underscored the importance of bridging the past with present realities, stressing that archaeology must be understood as an active tool in shaping society rather than as a neutral academic pursuit.

"Civilisation is not the product of a single people's effort, but rather the outcome of encounters and cultural exchanges that link different societies across centuries," he said. Holding this edition in Athens, "the birthplace of democracy," he noted, offered more than symbolic value: it highlights the meeting points of cultures and ideas that continue to define the Levant.

The prince drew attention to Jordan's unique position at the crossroads of empires - from the Nabataean Kingdom in Petra to the Greco-Roman and Islamic periods - affirming that these layers of heritage continue to shape the region's identity. He also urged the establishment of reliable databases to transmit knowledge across generations and to anticipate crises by learning from past lessons.

Held every three years since its inaugural session at Oxford University in 1980, ICHAJ has become a vital platform for presenting new archaeological discoveries, methodologies, and debates. This year's programme includes around 265 research papers and workshops delivered by Jordanian, Arab, and international scholars.

The conference's 13 thematic tracks include "Archaeology, Identity, and Human Rights," "Climate Change and Cultural Heritage," and "Sustainable Tourism and World Heritage Sites in Jordan." Sessions will present recent excavation reports, technological innovations in archaeology, and reflections on cultural heritage management.

By hosting ICHAJ 16 in Athens, organisers highlight the enduring cultural ties between Greece and Jordan, reinforcing the broader Euro-Mediterranean context in which Jordan's history has always unfolded.

News Source: The Jordan Times, 23 September 2025
https://jordantimes.com/news/local/archaeology-is-not-neutral-prince-hassan-inaugurates-ichaj-16-in-athens

THE IMPORTANCE OF SCIENTIFIC RESEARCH IN ECONOMIC AND SOCIAL DEVELOPMENT

Adnan Badran FIAS, FAAS
President, Islamic World Academy of Sciences
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Scientific research is considered the cornerstone of progress for nations and peoples in the modern era, playing a pivotal role in driving economic and social development. In light of contemporary challenges facing Islamic societies in general and the Arab world in particular, there is an increasing need for a deep understanding of the importance of scientific research and its role in achieving sustainable development.

Scientific Research and Economic Development

Scientific research plays a fundamental role in stimulating economic growth through several key areas, including technological innovation, increased productivity, the creation of new industries, and the enhancement of the national economy's competitiveness.

Main Pillars of Economic Contribution

- Technological innovation: Developing new technologies that improve production efficiency.
- Increased productivity: Improving production processes and reducing costs.
- Industry creation: Establishing new knowledge-based economic sectors.
- Export: Developing exportable products with high added value.
- Attracting investment: Drawing investments into high-tech sectors.

Types of Scientific Research

Type	Description	Objectives
Basic research	Aims to increase scientific knowledge	Understanding natural and social laws
Applied research	Focuses on solving specific problems	Developing scientific solutions to problems
Developmental research	Transforming knowledge into products	Innovation and technological development

Indicators for Measuring the Impact of Scientific Research on the Economy

Indicator	Measurement Method	Importance
R&D expenditure	Percentage of GDP	Measuring public and private commitment
Number of patents	Patents per million inhabitants	Innovation indicator
Scientific publications	Number of papers published annually	Quality of scientific research
Tech startups	Number of companies established annually	Translating research into the economy

Sectors Benefiting from Scientific Research

- Information Technology: Developing software and smart applications.
- Renewable Energy: Research on solar and wind energy.
- Pharmaceutical industries: Developing new medicines and treatments.
- Agriculture: Improving crops and irrigation techniques.
- Mining: Developing techniques for mineral extraction.

Scientific Research and Social Development

Scientific research contributes to social development by studying and understanding complex social problems and providing evidence-based solutions. It also plays an important role in shaping public policy and improving citizens' quality of life.

Areas of Social Impact

- Public health: Developing vaccines and treatments and improving health services.
- Education: Developing teaching methods and improving curricula.
- Environment: Studying pollution and proposing solutions to preserve the environment.
- Food security: Developing agricultural techniques to ensure food security.
- Housing: Developing sustainable and economical construction techniques.
- Transport: Improving transport systems and reducing pollution.

Social Research and Policymaking

Social research provides policymakers with essential information to make informed, evidence-based decisions. This includes:

- Studying social and economic phenomena.
- Evaluating the effectiveness of current policies.
- Predicting the impact of proposed policies.
- Developing indicators to measure social progress.

Examples of the Social Impact of Scientific Research

Field	Research	Social Impact
Medicine	COVID-19 Vaccine development	Saving millions of lives worldwide
Education	E-learning development	Enabling remote education during the pandemic
Environment	Renewable energy technologies	Reducing carbon emissions
Communications	Internet development	A revolution in communication and knowledge transfer

Human-Capacity Solutions in the Islamic World

- Talent attraction programs: Attracting outstanding researchers from abroad.
- Improving salaries and incentives: Providing competitive compensation packages.
- Advanced training programs: Developing the capabilities of local researchers.
- International research networks: Connecting local researchers to global networks.

Institutional Solutions

- Research centers of excellence: Establish centers specialized in strategic fields.

- Tech incubators: Developing incubators to translate research into products.
- Simplifying procedures: Reducing administrative bureaucracy.
- International collaboration: Building partnerships with global research institutions.

Recommendations at the Institutional Level

Universities and Research Centers

- Develop postgraduate programs to meet global standards.
- Establish research centers of excellence in strategic areas.
- Strengthen research collaboration with prestigious international universities.
- Develop a system to evaluate academics' research performance.
- Provide modern laboratories and research equipment.

The Private Sector

- Encourage companies to establish internal R&D and development units.
- Develop strategic partnerships between universities and companies.
- Create specialized tech incubators in various sectors.
- Fund cooperative training programs for students and researchers.

Recommendations at the Regional and International Levels

International Partnerships

- Join major international research programs.
- Attract prestigious global universities to establish local branches.
- Develop joint PhD programs with global universities.
- Participate in international scientific conferences and exhibitions.

Priority Research Areas for the Future

- Artificial Intelligence and Data Science: Developing AI applications across various sectors.
- Renewable Energy: Research on solar energy and energy storage technologies.
- Biotechnologies: Developing new therapies and sustainable agriculture.
- Materials Science: Developing smart materials and nanotechnology.
- Information Security: Data protection and cybersecurity.
- Environmental Sciences: Addressing climate change and resource management.
- Integrated approaches to Water, Energy, and Food Security.

Conclusion

The importance of scientific research in economic and social development is not limited to being merely an academic activity; rather it is the fundamental pillar for building knowledge societies and transitioning toward advanced economies. International and regional experiences have proven that countries that invested in scientific research and technological development were able to achieve qualitative leaps in living standards and social welfare.

OMAR YAGHI FIAS

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Prof. Omar Yaghi, the Nobel Laureate, addressing the 20th IAS Conference (2015)

Omar M. Yaghi is a Jordanian-American scientist. He received his Ph.D. in Chemistry from the University of Illinois at Urbana-Champaign, and was an NSF Postdoctoral Fellow at Harvard University. He is the James and Neeltje Tretter Chair Professor of Chemistry at University of California, Berkeley. He is the Founding Director of the Berkeley Global Science Institute whose mission is to build centers of research in developing countries and provide opportunities for young scholars to discover and learn, and the Co-Director of the Kavli Energy NanoSciences Institute focusing on the basic science of energy transformation on the molecular level, as well as the California Research Alliance by BASF supporting joint academia-industry innovations.

His work encompasses the synthesis, structure and properties of inorganic and organic compounds and the design and construction of new crystalline materials. He is widely known for pioneering several extensive classes of new materials: Metal-Organic Frameworks (MOFs), Covalent Organic Frameworks (COFs), and Zeolitic Imidazolate Frameworks (ZIFs). These materials have the highest surface areas known to date, making them useful for hydrogen and methane storage, carbon capture and conversion, water harvesting from desert air, and catalysis, to mention a few. The building block approach he developed has led to an exponential growth in the creation of new materials having a diversity and multiplicity previously unknown in chemistry. He termed this field 'Reticular Chemistry' and defines it as 'stitching molecular building blocks into extended structures by strong bonds'.

Yaghi is an elected member of the Islamic World Academy of Sciences (IAS) (2017) and the National Academy of Sciences, and has been honored with many awards for his scientific accomplishments, including the Materials Research Society Medal (2007), the American Chemical Society Award in the Chemistry of Materials (2009), the Mustafa Prize (2017), the King Faisal International Prize in Science (2015), the Royal Society of Chemistry Spiers Memorial Award (2017), the Albert Einstein World Award of Science (2017), the BBVA Foundation Frontiers of Knowledge Award in Basic Sciences (2017), the Wolf Prize in Chemistry (2018), the ENI Award for Excellence in Energy (2018), the Gregori Aminoff Prize by the Royal Swedish Academy of Sciences (2019), and the August-Wilhelm-von-HofmannDenkmünze of the German Chemical Society (2020). He has published over 3000 articles and is listed among the most highly cited chemists worldwide.

PROF. OMAR YAGHI FIAS AWARDED THE NOBEL PRIZE IN CHEMISTRY 2025

His Majesty King Abdullah of Jordan congratulated the Jordanian scientist Omar Yaghi for winning the 2025 Nobel Prize in Chemistry. In a post on X platform, the King wrote, "Proud of Jordanian scientist Professor Omar Yaghi, for winning the 2025 Nobel Prize in Chemistry. His achievement is Jordan's pride, and adds to Jordanians' record of excellence in all fields, at home and abroad, proving they can make a difference wherever they are."

His Royal Highness Prince el Hassan bin Talal, President of the Higher Council for Science and Technology (HCST) and Founding Patron of the Islamic World Academy of Sciences (IAS), also sent a congratulatory letter to Prof. Yaghi in which he wrote, "As a Jordanian, your success brings pride to our country and nation. It will inspire many young people in Jordan and across our region to pursue knowledge with purpose, integrity, and imagination."

His Majesty King Abdullah II honours Jordanian scientist Omar Yaghi in May 2017.

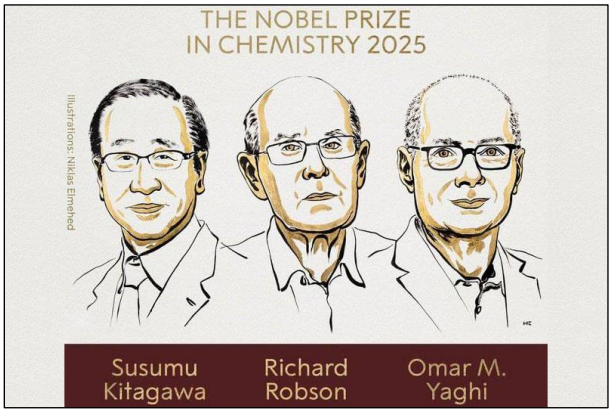
Prof. Adnan Badran, President of the Islamic World Academy of Sciences (IAS), also congratulated Prof. Yaghi and wrote, " Your achievement brings immense pride not only to the global scientific community but also to the future generations, as it stands as a shining example of excellence, innovation, and dedication to advancing human knowledge and brings security and stability to humanity. At the IAS, we take great pride in you being among the distinguished Fellows of the Islamic world Academy of Sciences since 2017, who continue to inspire generations of researchers and innovators. Your success presents the values of science and pursuing science in the service of humanity and contributing to the progress and welfare of society."

Prof. Adana Badran, President of IAS, with Prof. Omar Yaghi, Nobel Laureate at the 20th IAS Conference, Tehran (2015).

Prof. Yaghi at the Mustafa Prize Award Ceremony, Tehran (2015).

Prof. Yaghi was honored as a Jordanian Star of Science by His Majesty King Abdullah II of Jordan during the World Science Forum's opening ceremony in 2017, which was organized by HRH Princess Sumaya bint El Hassan, President of the Royal Scientific Society (RSS). Thirteen other distinguished scientists in physics, biology, mathematics, engineering, medicine, and architecture were also celebrated.

His Majesty King Abdullah II, in the presence of HRH Princess Sumaya bint El Hassan, President of the Royal Scientific Society (RSS) and organizer of the World Science Forum (WSF), honored Prof. Yaghi as a Jordanian Star of Science at the World Science Forum on November 7, 2017.



Yaghi won the 2025 prize together with Susumu Kitagawa of Japan and UK-born Richard Robson for their groundbreaking discoveries on metal-organic frameworks (MOFs), whose uses include capturing carbon dioxide and harvesting water from desert air. After learning he had won the prestigious prize, Yaghi said, during an interview with the Nobel Foundation, "Science is the greatest equalising force in the world." "Smart people, talented people, skilled people exist everywhere. That's why we really should focus on unleashing their potential through providing them with opportunity," AFP reported. His research group succeeded in extracting water from desert air in Arizona. "I started at Arizona State University, my independent career and my dream was to publish at least one paper that receives 100 citations," he recalled.

"Now my students say that our group has garnered over 250,000 citations." "The beauty of chemistry is that if you learn how to control

matter on the atomic and molecular level, well, the potential is great," he said.

"We opened a gold mine in that way and the field grew," he said. Commentators have for years suggested Yaghi, 60, was a strong contender for the prize, with Kitagawa, 74, also often floated alongside.

"Imagine that the tools of chemistry could be used to create entirely new materials with unheard of properties," Hans Ellegren, secretary-general of the Royal Swedish Academy of Sciences, told reporters as the prize winners were announced.

"For example, imagine we could make solid materials full of tiny spaces in which gas molecules can feel at home and with chemical properties that can be adjusted to the specific needs and wishes of different molecules," he added.

In 1989, Robson, 88, tested utilising the properties of atoms in a new way using copper ions. "When they were combined, they bonded to form a well-ordered, spacious crystal. It was like a diamond filled with innumerable cavities," the jury said.

Foundation

Robson realised the potential of his discovery but the molecular contruction was unstable. Kitagawa and Yaghi then provided a "firm foundation" for the building method. Between 1992 and 2003, they separately made a series of revolutionary discoveries. Kitagawa "showed that gases can flow in and out of the constructions and predicted that MOFs could be made flexible", according to the jury.

Meanwhile, Yaghi created "a very stable MOF and showed that it can be modified using rational design, giving it new and desirable properties", it added.

"I'm deeply honored and delighted that my long-standing research has been recognised," Kitagawa said as he was interviewed via phone during the prize announcement press conference.

Last year, the chemistry prize went to Americans David Baker and John Jumper, together with Briton Demis Hassabis, for work on cracking the code of the structure of proteins, the building blocks of life, through computing and artificial intelligence.

The chemistry prize follows the physics prize, which honoured Briton John Clarke, Frenchman Michel Devoret and American John Martinis for work putting quantum mechanics into action - enabling the development of all kinds of digital technology.

The Nobel Prize in Medicine was awarded to a US-Japanese trio for research into the human immune system. Mary Brunkow and Fred Ramsdell, of the United States and Japan's Shimon Sakaguchi were recognised by the Nobel jury for identifying immunological "security guards".

The Nobel consists of a diploma, a gold medal and a $1.2 million cheque, to be shared if there is more than one winner in a discipline.

The laureates will receive their prizes at formal ceremonies in Stockholm and Oslo on December 10, 2025. That date is the anniversary of the death in 1896 of scientist Alfred Nobel, who created the prizes in his will.

Fellows from the Islamic World Academy of Sciences (IAS) also sent congratulatory notes.

Prof. Malik Maaza from South Africa said, "At last our efforts have worked out through scientists mobilized from various countries to nominate Prof. Yaghi for the Nobel Prize".

Prof. Mostefa Khiati from Algeria said, "Congratulations to our Academy and here is the comment I wrote on my Facebook page: Congratulations to my colleague at the Academy of Sciences for the Islamic World since 2017 on receiving the 2025 Nobel Prize in Chemistry. Researcher Omar M. Yaghi is a Jordanian-American chemist of Palestinian origin, renowned for his pioneering work in reticular chemistry and the development of metal-organic frameworks (MOFs). He was awarded the 2025 Nobel Prize in Chemistry jointly with Richard Robson and Susumu Kitagawa for this work. Professor Yaghi serves as a researcher at the University of California, Berkeley."

Prof. Rabia Hussein from Pakistan wrote, "Congratulations Dr Omar. So happy for you and fully deserved."

Part of the news source: https://jordantimes.com/

GREEN SYNTHESIS OF GOLD NANOPARTICLES USING *MANDRAGORA AUTUMNALIS*: CHARACTERIZATION AND EVALUATION OF ITS ANTIOXIDANT AND ANTICANCER BIOACTIVITIES*

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Abstract

Background: One of the most widely used metal nanoparticles in biological applications is gold, which has unique physicochemical characteristics. Strong localized surface plasmon resonance (LSPR) endows them with exceptional optical properties that facilitate the development of innovative methods for biosensing, bioimaging, and cancer research, particularly in the context of photothermal and photodynamic therapy.
Methods: This study marked the first time that *Mandragora autumnalis* ethanolic extract (MAE) was utilized in the environmentally friendly synthesis of gold nanoparticles (AuNPs). Several characterization methods, including dynamic light scattering analysis (DLS), scanning electron microscopy (SEM), X-ray diffraction (XRD), Fourier transform infrared (FTIR) spectroscopy, thermogravimetric analysis (TGA), and biological methods, were used to emphasize the anti-cancerous activity of the biogenic AuNPs.
Results: MAE-AuNPs showed a surface plasmon resonance band at 570 nm. DLS and SEM demonstrated the synthesis of small, spherical AuNPs with a zeta potential of −19.07 mV. The crystalline nature of the AuNPs was confirmed by the XRD pattern, and data from FTIR and TGA verified that MAE-AuNPs played a part in stabilizing and capping the produced AuNPs. In addition, the MAE-AuNPs demonstrated their potential effectiveness as antioxidant and anticancer therapeutic agents by demonstrating radical scavenging activity and anticancer activity against a number of human cancer cell lines, specifically triple-negative breast cancer cells.
Conclusions: Green synthesis techniques are superior to other synthesis methods because they are simple, economical, energy-efficient, and biocompatible, which reduces the need for hazardous chemicals in the reduction process. This article highlights the significance of characterizing MAE-AuNPs and evaluating their antioxidant and anticancer properties.

Keywords:*Mandragora autumnalis*; gold nanoparticles; biosynthesis; characterization; antioxidant; anti-cancerous bioactivities

* *Link to the whole publication: https://www.mdpi.com/1424-8247/18/9/1294*

MANDRAGORA AUTUMNALIS: PHYTOCHEMICAL COMPOSITION, ANTIOXIDANT AND ANTI-CANCEROUS BIOACTIVITIES ON TRIPLE-NEGATIVE BREAST CANCER CELLS[**]

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Abstract: Breast cancer is a common and chronic condition, and despite improvements in diagnosis, treatment, and prevention, the number of cases of breast cancer is rising annually. New therapeutic drugs that target specific checkpoints should be created to fight breast cancer. *Mandragora autumnalis* possesses substantial cultural value as a herb and is regarded as one of the most significant medicinal plants; however, little is known about its anticancerous biological activity and chemopreventive molecular pathways against the triple-negative breast cancer (MDA-MB-231) cell line. In this study, the antioxidant, anticancer, and underlying molecular mechanisms of the *Mandragora autumnalis* ethanolic leaves extract (MAE) were evaluated, and its phytochemical composition was determined. Results indicated that MAE diminished the viability of MDA-MB-231 cells in a concentration- and time-dependent manner. Although MAE exhibited 55% radical scavenging activity at higher concentrations in the 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay, the attenuation of its cytotoxic effects in MDA-MB-231 cells with N-acetylcysteine (NAC) co-treatment suggests a potential role of oxidative stress. Additionally, MAE caused an increase in the tumor suppressor p53. Moreover, this extract caused a significant decrease in the expression of Ki-67 (a cellular proliferation marker), MMP-9 (matrix metalloproteinase-9, an enzyme involved in extracellular matrix degradation and metastasis), and STAT-3 (a transcription factor regulating cell growth and survival). Also, MAE altered cell cycle, cell migration, angiogenesis, invasion, aggregation, and adhesion to suppress cellular processes linked to metastasis. All of our research points to MAE's potential to function as an anticancer agent and opens up new possibilities for the development of innovative triple-negative breast cancer treatments.

Keywords *Mandragora autumnalis*; phytochemistry; antioxidant; anti-cancerous activity; triple negative breast cancer cells

[**] *Link to the whole publication: https://www.mdpi.com/1422-0067/26/17/8506#*

BIOGENIC SYNTHESIS OF GOLD NANOPARTICLES USING *SCABIOSA PALAESTINA* EXTRACT: CHARACTERIZATION, ANTICANCER AND ANTIOXIDANT ACTIVITIES[***]

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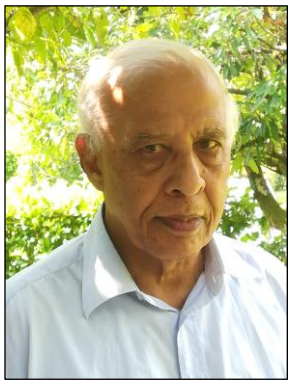
Abstract: Gold nanoparticles (AuNPs) are promising materials for the development of novel anticancer agents, and their green synthesis has become essential because of their numerous advantages. This study aimed to synthesize AuNPs using an ethanolic extract of *Scabiosa palaestina*, characterize their physicochemical properties, and evaluate their anticancer properties and antioxidant potential. AuNPs were successfully synthesized and characterized using UV–visible spectroscopy, scanning electron microscopy (SEM), zeta potential analysis, thermogravimetric analysis (TGA), X-ray diffraction (XRD), and attenuated total reflection Fourier transform infrared spectroscopy (ATR-FTIR). The results indicated that the biosynthesized AuNPs were spherical and well-dispersed, exhibiting an absorption peak at 560 nm and an average size of 9.9 nm. Cytotoxicity assays demonstrated dose- and time-dependent inhibitory effects on MDA-MB-231, Capan-2, HCT116, and 22Rv1 cancer cell lines, with 22Rv1 and MDA-MB-231 cells showing the most potent responses. At the highest concentration tested (100 µg/mL), after 72 h, cell viability was reduced to 16.04 ± 1.8% for 22Rv1 and 17.48 ± 8.3% for MDA-MB-231 cells. Additionally, the AuNPs exhibited concentration-dependent antioxidant activity in both 2,2-diphenyl-1-picrylhydrazyl (DPPH) and hydrogen peroxide (H_2O_2) scavenging assays. In summary, the synthesized AuNPs demonstrated multifunctional properties that make them suitable for a wide range of biomedical and biotechnological applications.

Keywords: *Scabiosa palaestina*; green synthesis; gold nanoparticles; cancer cell lines; antioxidant activity

*** *Link to the whole publication:* https://www.mdpi.com/2079-4991/15/17/1368

NEUTRON ELECTRIC DIPOLE MOMENT

Mohammed Asghar[1] *FIAS*



Abstract: This text defines the concept of neutron electric dipole moment d_n, its properties, the method to measure it experimentally and the results of seventy years effort.

1. Introduction.

The electric dipole moment of a particle expressed as $\mathbf{d_n}$, measures the distribution of the positive and negative charge inside the particle. A nonzero value of d_n can only exist, if the centers of the positive and negative charge distributions inside the particle do not coincide. The internal positive charge of a neutron consists of one "up quark" of charge + (2/3) e, and the negative charge consists of two "down quarks" of charge – (1/3) e.

The electric dipole moment of a particle is expressed as:

$$\mathbf{d_n = \sigma . E} \qquad \mathbf{(1),}$$

where σ is the spin of the particle and E, the electric field. As σ goes over to - **σ** under the time T operation, and E changes to – **E** (= - derivative of potential V), under the parity P operation, the existence of d_n of a particle violates both the parity and time operations simultaneously. If both the parity and time operations are not violated, the value of dn will be zero.

The magnetic moment of a particle with spin σ is expressed as:

$$\mathbf{\mu = g\sigma . \sigma} \qquad \mathbf{(2),}$$

where g_σ is the Landé factor. The μ like the spin σ, goes over to – μ under the time T operation. The combination **μ d**, where d represents the position of a particle, goes over to -d under the parity P operation, violates like the d_n, both the time T and parity P operations simultaneously (Figure 1).

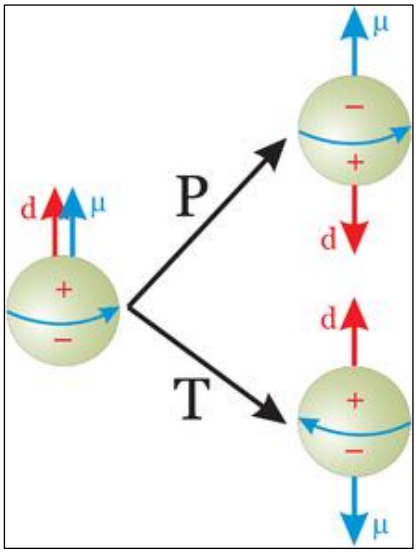


Figure 1. The behavior of d and μ in the combination μ d, under the time T and parity P operations (1).

2. Experimental method.

Figure 2 presents the experimental setup used to measure the neutron d_n at PSI, Switzerland. The setup is well-shielded against the external magnetic fields.

To get the neutron d_n, one measures the Larmor precession of the neutron in the presence of parallel and antiparallel magnetic and electric fields. The precession frequency for each of the two cases is given by:

$$\mathbf{h\nu = 2\,\mu_n\, B + \backslash - d_n\, E} \qquad \mathbf{(3).}$$

Here, the addition or subtraction of the frequencies results from the precession of the magnetic moment around the magnetic field and the precession of the d_n around the electric field. From the difference of those frequencies Δν, one gets the measure of d_n:

$$\mathbf{d_n = h\,\Delta\,\nu\,/\,4\,E} \qquad \mathbf{(4).}$$

Here, the biggest challenge for the experiment and at the same time, the source of the biggest false effects, is to ensure that the magnetic field does not change during these two measurements (1).

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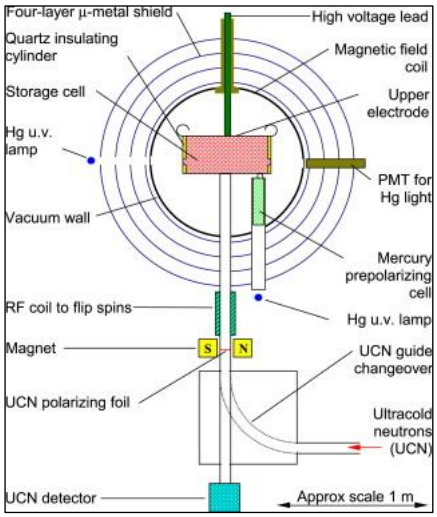


Figure 2. Experimental setup to measure the neutron electric dipole moment at PSI, Switzerland. The experimental set up is well-shielded against the external magnetic fields (2).

The latest best limit of $|d_n| < 1.8\times10^{-26}$ e cm has been published in 2020 by the nEDM collaboration at Paul Scherrer Institute (PSI), (2).

However, experimental work on the neutron electric dipole moment d_n was initiated in the 1950s. Figure 2 shows a gain of six orders in the upper limit value of d_n over the next seventy years. Currently, there is no definite sign of d_n, but the curve tends to flatten for the more recent d_n data. Currently, several new experimental setups are being prepared to improve upon the existing DN upper limit (1).

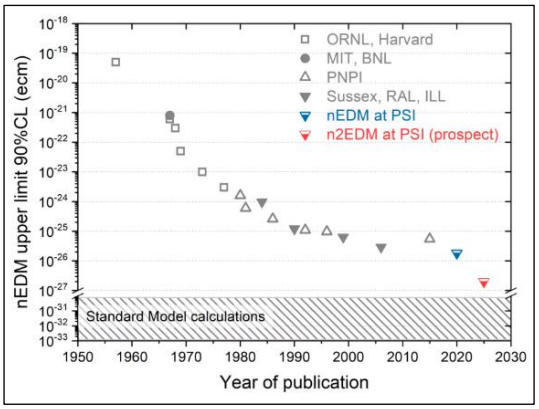


Figure 3. History of neutron EDM upper limits, including the latest best result by the nEDM collaboration at PSI. The prediction stemming from the Standard Model is also indicated (1).

References

1. Courtesy Google Wikipedia.

2. Abel C. et al. (2020). "Measurement of the permanent electric dipole moment of the neutron". Phys. Rev. Lett. 124 (8) 081803.

3. "The search for the neutron electric dipole moment at PSI", G. Pignol and Schmidt-Wellenburg, on behalf of the nDM collaboration, March 3, 2021, Review of Particle Physics at PSI.

PROF. EROL GELENBE HONORARY FIAS ELECTED A FOREIGN FELLOW OF THE INDIAN NATIONAL SCIENCE ACADEMY (INSA, NEW DELHI)

Professor Gelenbe is a pioneering researcher in Computer Systems and Networks. Using Markovian and semi-Markov methods he obtained several seminal analytical results regarding the page fault rates in large classes of memory management algorithms, he derived the stability and optimal control of the ALOHA communication system, and the load dependent optimal values of checkpoints for databases.

He invented new modeling and analysis methods, including the G-Network model. He invented the spiking random neural network and its deep learning, auto-associative and reinforcement algorithms. His technological contributions include a patented optimal architecture for many-to-many communications, patented reinforcement learning routing for edge networks and the Internet, and the industrial simulation tool Flexsim.

Prof. Gelenbe is an Honorary Fellow of the Islamic World Academy of Science and a recipient of the Prestigious Mustafa Prize, 2017.

News Source:
https://insaindia.res.in/scroll_news_pdf/f-felcit25.pdf

PROF. BADRAN RECEIVES WORLD PUBLIC RECOGNITION AWARD "FOR SERVICE TO HUMANITY" AT THE WORLD PUBLIC ASSEMBLY

IAS President and Chairman of the Board of Trustees of the University of Jordan (JU) and former Prime Minister of Jordan Prof. Adnan Badran was honoured with the World Public Recognition Award "For Service to Humanity" Award at the closing ceremony of the World Public Assembly, held at the Congress Center of the World Trade Center in Moscow during 20-21 September 2025 under the theme "A New World of Conscious Unity."

This award, the Assembly's highest distinction, recognises individuals who have made exceptional contributions to promoting peace, advancing humanitarian cooperation and serving humanity with dedication and vision.

Badran, a distinguished statesman and academic, was recognised for a lifetime of public service and leadership in higher education, where his efforts have consistently underscored the role of knowledge in fostering tolerance, coexistence and progress.

The 2025 laureates of the "For Service to Humanity" Award included:

- Dr. Alexandra Ochirova (Russia), scientist, poet, public figure, UNESCO Goodwill Ambassador, and Co-Chair of the Assembly's Higher Advisory Council.
- Prof. Adnan Badran (Jordan), Chairman of the Board of Trustees of the University of Jordan and former Prime Minister of Jordan.
- Dr. Rashid Alimov (Tajikistan), former Foreign Minister of Tajikistan and former Secretary-General of the Shanghai Cooperation Organisation.
- Dr. Tolegen Mukhamedzhanov (Kazakhstan), composer and public figure.
- Sabena Yohannes (Angola), founder and Chief Executive Officer of Afritrack Angola.
- Igor Khalevinsky (Russia), diplomat and Chairman of the Council of the Association of Russian Diplomats.
- Dalvir Singh (India), Secretary-General of the Indian National Congress Party and Chairman of the Political Decisions and Governance Foundation.
- Mohinder Singh Ahluwalia (United Kingdom), recipient of the Order of the British Empire and one of the world's most influential Sikhs.

The World Public Assembly, held on 20–21 September with the participation of more than 2,500 delegates from 150 countries, brought together leaders from across the globe in cultural, political and academic fields. The award ceremony was widely regarded as one of the defining moments of the event.

News Source:
https://news.ju.edu.jo/en/english/Lists/News/Disp_FormNewsAqaba.aspx?id=731

THE IAS HOLDS ITS 26TH SCIENTIFIC CONFERENCE ON ARTIFICIAL INTELLIGENCE AND NANOTECHNOLOGY NEXUS ONLINE ON 30 OCTOBER 2025

The Islamic World Academy of Sciences (IAS)
in partnership with
The Higher Council for Science and Technology (HCST)

is pleased to invite you to attend its
26th Scientific Conference on

ARTIFICIAL INTELLIGENCE AND NANOTECHNOLOGY NEXUS

Thursday
30 October 2025 at 10:00 AM Amman, Jordan time
Online on Zoom

Kindly register in advance for this meeting:
https://us06web.zoom.us/meeting/register/tfplT40xTSCP5FP8ob8v_A

AI & Nanotechnology Nexus
26th IAS Conference

CONFERENCE PROGRAM

THURSDAY 30 OCTOBER 2025	
INAUGURAL SESSION	
10:00 - 10:10	Address of **H.E. Prof. Adnan Badran**, President, Islamic World Academy of Sciences (IAS), Jordan.
10:10 - 10:20	Message of **H.E. President of the Islamic Republic of Pakistan** and Patron of the Islamic World Academy of Sciences (IAS), Pakistan.
10:20 - 10:30	Message of **H.R.H. Prince El-Hassan bin Talal**, Founding Patron of the Islamic World Academy of Sciences (IAS), Jordan.

SESSION 1: KEYNOTES CHAIR: PROF. ELIAS BAYDOUN	
10:30 - 11:00	**The Nexus of Artificial Intelligence and Nanotechnology: Driving Industrial Transformation** **Atta-Ur-Rahman** FRS FIAS, International Centre for Chemical and Biological Sciences, University of Karachi, Pakistan.
11:00 - 11:30	**When Artificial Intelligence and Quantum Computing Team-up with Nanotechnology, a New Revolution breaks out** **Munir H. Nayfeh** FIAS, Professor of Physics, University of Illinois at Urbana-Champaign, USA.
11:30 - 12:00	**Human versus Robots' Perspectives on the Emergence and Future Challenges of Artificial Intelligence** **Dhiya AL-Jumeily** Chair in Artificial Intelligence/Senior Member, IEEE, Faculty of Engineering and Technology Liverpool John Moores University, United Kingdom.

SESSION 2 CHAIR: PROF. SHAHER MOMANI	
12:00 - 12:15	**Higher Education in the Generative AI Era** **Adnan Badran** FIAS, President, IAS & Chairman of the Board of Trustees of the University of Jordan & Former Assistant Director-General for Science and Former Deputy Director-General of UNESCO - Paris, Jordan.

12:15 - 12:30	**Bridging the Global Divide: Ensuring Equitable and Inclusive Ethical Governance of AI and Nanotechnology in Low- and Middle-Income Countries (LMICs)** **Zabta Shinwari** FIAS, UNESCO Laureate, Vice President, IAS & Distinguished National Professor / Professor Emeritus, Vice Chancellor, Federal Urdu University of Arts, Science & Technology (FUUAST), Islamabad, Pakistan.
12:30 - 12:45	**Nanotechnology and its Nexus to Artificial Intelligence and their Necessary Inter-dependence** **Noor M Butt** FIAS, Preston Professor of Nano Science & Technology & Chairman and Dean, Preston Institute of Nano Science & Technology (PINSAT), Preston University, Islamabad, Pakistan.
12:45 - 13:00	**(AI) and machine learning (ML) for materials discovery while speeding up the process beyond conventional trial-and-error techniques** **Malik Maaza** FIAS, UNESCO-UNISA Africa Chair in Nanosciences-Nanotechnology, College of Graduate Studies, University of South Africa, Muckleneuk ridge, Pretoria, South Africa.
13:00 - 13:15	**Comprehensive Assessment of on-Grid Hybrid Renewable Energy Integration for Sustainable Electrification in the Gaza Strip** **Hala El-Khozondar** FIAS, Electrical Engineering and Smart Systems Departments, Islamic University of Gaza, Palestine & Department of Materials and London Centre for Nanotechnology, Imperial College London, UK.
13:15 - 13:30	**Nanotechnology Interventions for Ocular Therapeutics** **Farhan Jalees Ahmad** FIAS, Vice President, JH Centre of Innovation, Incubation & Entrepreneurship, Chairman, Centre of Nanomedicine and Nanobiotechnology, Immediate Past Dean, School of Pharmaceutical Education & Research, Professor, Department of Pharmaceutics, Jamia Hamdard, New Delhi, India.
13:30 - 13:45	**The NEH (Nawaz, Enscore, Ham) Algorithm and its Applications** **Muhammad Nawaz** Program Director/ RMIT University, (Retired), Melbourne, Australia.

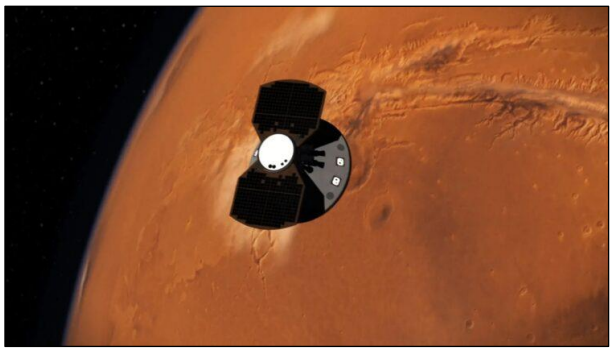
13:45 - 14:45	**SESSION 3:** **ROUND TABLE DISCUSSION** Chairs: Prof. Adnan Badran, President, IAS & Prof. Elias Baydoun, Treasurer, IAS & Prof. Shaher Momani FIAS
IAS 2025 Amman Declaration on AI and Nanotechnology Nexus	

THE SCHEDULE IS IN AMMAN, JORDAN TIME.

PICKS OF THE CHIEF EDITOR

NASA VALIDATES A MARTIAN "MESSAGE" A LIVING DNA ANIMATION AND THE SHOCKING TAKEAWAY*

NASA has spent decades trying to answer one of the most compelling questions in space exploration: Did life ever exist on Mars, and could it still exist there today? Recently, a signal from the Red Planet **added a new twist to that story**, one that has scientists and volunteers alike reconsidering what we know about our neighboring world. Nothing was said directly, and scientists couldn't crack what it meant. On the other hand, one group of regular people understands the message's pattern and is sharing what they know with the rest of the world.



NASA has been trying to get to the Red Planet

Mars is the most Earth-like planet in our solar system. It has a rocky terrain, recognizable weather patterns, and a relatively predictable environment. Unlike Venus, which destroys anything that lands on it, Mars allows exploration without immediate disaster. Over the years, rovers have been sent to investigate the soil, rocks, and atmosphere, preparing the groundwork for human missions. These machines have collected valuable evidence, but none of it has made the journey back to Earth - there simply isn't enough fuel for a return trip with current technology.

NASA has relied on robotic missions, often spaced years apart, to slowly peel back the mysteries of the Red Planet. Each rover arrives, gathers data, and stays permanently on the surface. The Perseverance rover, for example, **carries built-in compartments to store Martian soil samples**, keeping them ready for potential retrieval in the future. But that retrieval depends on rockets and fuel systems that don't exist yet. Using a robot, they discovered the hidden message.

Mars is trying to tell us something: What is it?

The European Space Agency's ExoMars Trace Gas Orbiter sent a curious signal back to Earth. This was part of 'A Sign in Space', an international art and science project led by Daniela de Paulis in collaboration with the SETI Institute and the Green Bank Observatory. NASA's goal was to simulate how we might react if humanity ever received a genuine alien signal. More than 5,000 volunteers contributed to cleaning the raw radio data in just 10 days. Decoding the message proved far more challenging.

Months passed, and many attempts by NASA ended in dead ends. A father-and-daughter team, Ken and Keli Chaffin, spent countless hours analyzing the data until they found a pattern. The transmission didn't reveal words or images. Instead, it displayed flickering clusters of white dots against a dark background. For a fraction of a second, five distinct shapes appeared - shapes that mirrored the chemical structures of amino acids, the basic building blocks of life.

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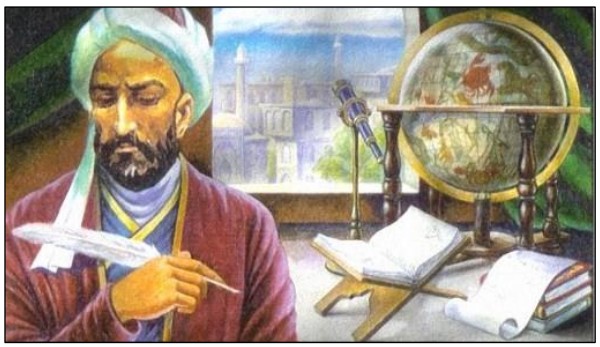
* *Full article: https://www.ecoportal.net/en/nasa-validates-martian-message-dna/13353/*

NASIR AL-DIN AL-TUSI*
(1201 - 1274 AD)



Abu Ja'afar Muhammad Ibn Muhammad Ibn al-Hassan Nasir al-Din al-Tusi was born in Tus (Khurasan) in 1201 AD. He learnt sciences and philosophy from Kamal al-Din Ibn Yunus and others. He was one of those who were kidnapped by Hassan bin Sabah's agents and sent to Almut, Hassan's stronghold. In 1256 when Almut was conquered by the Mongols, Nasir al-Din joined Hulegu's service. Hulegu Khan (Holako) was deeply impressed by his knowledge, including his astrological competency; appointed him as one of his ministers, and, later on, as administrator of *Awqaf*. He was instrumental in the establishment and progress of the observatory at Maragha. He died in Baghdad.

Nasir al-Din was one of the greatest scientists, philosophers, mathematicians, astronomers, theologians and physicians of the time and was a prolific writer. He made significant contributions to a large number of subjects, and it is indeed difficult to present his work in a few words. He wrote one or several treatises on different sciences and subjects including those on geometry, algebra, arithmetic, trigonometry, medicine, metaphysics, logic, ethics and theology. In addition, he wrote poetry in Persian.

In mathematics, his major contribution would seem to be in trigonometry, which was compiled by him as a new subject in its own right for the first time. In addition, he developed the subject of spherical trigonometry, including six fundamental formulae for the solution of spherical right-angled triangles.

As the chief scientist at the observatory established under his supervision at Maragha, he made significant contributions to astronomy. The observatory was equipped with the best possible instruments, including those collected by the Mongol armies from Baghdad and other Islamic centres. The instruments included astrolabes, representations of constellations, epicycles, shapes of spheres, etc. He himself invented an instrument 'turquet' that contained two planes. After the devoted work of 12 years at the observatory and with the assistance of his group, he produced new astronomical tables called "*al-Zij-Ilkhani*" dedicated to Ilkhan (Hulegu Khan). Although Tusi had contemplated completing the tables in 30 years, the time required for the completion of planetary cycles, but he had to complete them in 12 years on orders from Hulegu Khan. The tables were largely based on original observations, but also drew upon the then-existing knowledge on the subject. The '*Zij Ilkhani*' became the most popular tables among astronomers and remained so till the fifteenth century. Nasir al-Din pointed out several serious shortcomings in Ptolemy's astronomy and foreshadowed the later dissatisfaction with the system that culminated in the Copernican reforms.

In philosophy, apart from his contribution in logic and metaphysics, his work on ethics entitled *Akhlaq-I-Nasri* became the most important book on the subject, and remained popular for centuries. His book *Tajrid-al-'Aqai'd* was a major work on *al-Kalam* (Islamic scholastic philosophy) and enjoyed widespread popularity. Several commentaries were written on this book and even several super commentaries on the major commentaries, *Sharh Qadim* and *Sharh Jadid*.

The list of his known treatises is exhaustive. Brockelmann lists 56 and Sarton 64. About one-fourth of these concern mathematics, another fourth astronomy, another fourth philosophy and religion, and the remainder other subjects. The books, though originally written in Arabic and Persian, were translated into Latin and other European languages in the Middle Ages.

Tusi's influence has been significant in the development of science, notably in mathematics and astronomy. His books were widely consulted for centuries and he has been held in high repute for his rich contributions.

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* *Source: Personalities Noble, 2nd Edition, 2000, Edited by Hakim Mohammed Said, published by IAS with permission of Hamdard Foundation Pakistan.*

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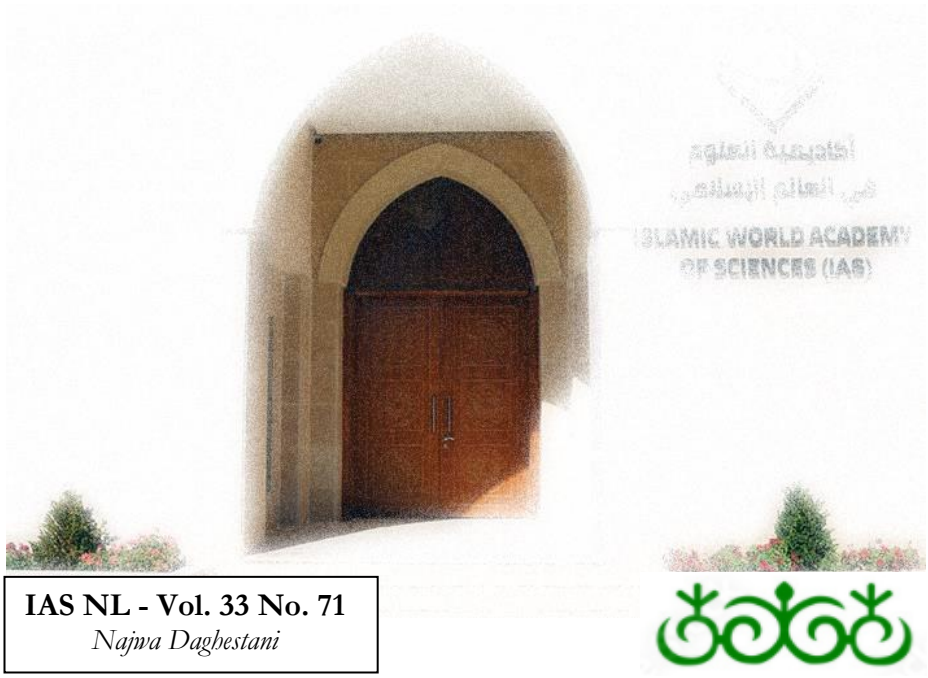

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