ABSTRACTS of CONTENTS

Water Crisis: a Major Iran's National Issue

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Abstract

In the water year 1397-1396, the amount of rainfall decreased by 25% compared to the long-term average, such a decrease in the water year 1399-1400 is estimated to be about 40% less than the long-term average. This significant reduction has the most significant effect on the agricultural sector, which consumes about 90% of it. Dealing with the Iranian water crisis to avoid such social and economic crises may require changing politically sensitive policies, such as the partial or complete reduction of agricultural self-sufficiency plans and the prevention of growth, and in particular population concentration and technology development.

Keywords: water crisis, drought, climate change, rainfall, agriculture

On the Sidelines of the Standing of Science in the Country-Iran

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Abstract

Iran is among countries tried to share science and technology with the West for at least 150 years, but has not succeeded properly. Though the majority of the Iranian community has not asked the reasons for the failure, and the managers and policymakers of the time did not include the issue as a national goal, people from different classes thought about, each with own way of analysis. For their part, they have reached to right and wrong conclusions along with own expressive and poor solutions. Some of presented views have been heard here and there. What follows are a teacher's impressions for consideration by academic community and thinkers. Every new thought and industry introduced to society has its own consequences, emphasizing that growth and prosperity in any society require coping with these consequences and legitimizing them.

Keywords: science & technology, national progress, academics, policymakers

Interdisciplinary Sciences and Convergent Technologies: Essential Infrastructures for Transition to Fourth Wave of Development

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Abstract

The present century has been characterized as the period wherein the various branches of basic sciences, engineering sciences and medical sciences will be unified in an interdisciplinary structure, leading to the emergence of convergent science and technology. The initial and most important manifestation of this unification is the establishment of an interface between two the important fields of biological and physical sciences, realized at atomic and molecular scales, since it is at these scales that the basic constituents of the physical matter, the living matter and the thinking matter are assembled into nano-structures of various types that in turn develop into organisms that eventually form the building blocks of biological macroscopic structures. There is very little doubt that this unification will be affected, since according to the current advanced research, the structure and function of the living and non-living matters, at atomic and molecular scales, follow a set of identical laws. What distinguishes the living structures from the non-living ones is not the operation of different laws, but the different mechanisms by which these laws are realized in these two different domains. Eventually, we should be able to gain a deep insight into such phenomena as the origin of life and the emergence of consciousness and cognition in biological systems on the basis of the organization and activity of their constituents that are described by advanced physical theories. This paper is composed of two parts. The aim of the first part is to present a general introduction to the field of interdisciplinary science, and the field of convergence of the biological and physical sciences at the atomic and molecular scales. This unification has led to the emergence of the new and exciting field of bio-nanoscience. The second part of the paper deals extensively with the topic of convergent technologies, based on the interdisciplinary sciences. These form the necessary infrastructure for transition to the fourth wave of scientific and technological development.

Keywords: Convergent science and technology; Interdisciplinary science; Nano-science; Nanotechnology; Bio-nanoscience; Nano-neuroscience; Molecular motors; Fourth wave of development

Are There Any Changes Required in the Traditional University?

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Abstract

Today's modern lifestyle and the complexities of social issues, and most importantly, the challenges of industrial society, including health, clean energy, climate change, safe water, food security, transportation, and sustainable development, are based on advanced sciences and technologies, knowledge and trans disciplinary. Indeed, traditional universities with the same shape, individualistic, insular, claim to be versatile, and in the past could not solve society challenges. Therefore, it is necessary to make a fundamental change in the university to become responsive, question- and community-oriented, convergent in activities, and capable of solving challenging problems in the future. To achieve this important requires a change in all elements of the university, such as structure, management, goals and missions, educational and research programs, reform of methods, rules, and regulations for student admission and faculty recruitment, and most important, regulations for the vertical promotion of faculty members. In this article, with pathology and stating the factors and necessity of change, the issue has been studied and analyzed from different aspects. In the end, suggestions have been made to get out of the current situation to achieve the desired conditions.

Keywords: University, Change, Convergent, Community-based, Knowledge-based, Traditional University

Higher Education Social Responsibility

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Abstract

Higher education is an intersection of individual, social and macro-policies interests at the level of societies, and its prevalence in today's world is not comparable with any other period of human life. At the individual level, university education has always been considered in terms of drawing the horizon of better employment and income, as well as its high prestige. Socially, it is the scientific and technical achievements of the university that matters and policymakers also need elites in the management of society who are mainly trained through higher education. The history of the evolution of higher education from universities with dominantly educational task and then the research-based universities finally reaches community-oriented universities. The progress of societies has clearly been formed and evolved in the context of industrial and scientific revolutions, each with unprecedented achievements. The mechanization of work and industry is the first industrial revolution and the development of communication and information technologies and the Internet considered being the last one, the characteristic feature of today's societies. Higher education, like the whole society, has developed in the face of these developments while facing new challenges. The knowledge progress in the new era and the freely accessible data along with the expectation of society from universities to scout to solve the growing problems of society are both challenges of higher education today. Early and classical expectations for public education along with its original task have now been replaced by the need for universities to support sustainable development education and the expansion of educational, research and management programs associated with sustainability. In a world where science, despite the extraordinary development of knowledge and data, is in a very fragmented state, the main challenge for higher education is to develop innovative interdisciplinary attitudes and to educate graduates who see things in new realms, as the narrow sight of each discipline is not complete without the benefit of these integrated approaches, even in persuing issues of their own particular discipline. Moving and practicing within these attitudes requires understanding and questioning the social responsibility of higher education; Understanding the meaning of this responsibility, the university and its graduates can play a useful role in examining and solving the problems of a society whose problems are becoming more complex and widespread. In this article, while reviewing the development and progress of universities and higher education in the context of societal developments, *the social responsibility of universities and higher education* are introduced.

Keywords: Higher education, Social responsibility, Social responsibility of the university, sustainable development, Industrial revolution, internet of things

In search of a suitable method for science and technology futurism in Iran

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Abstract

Futuristic studies are one of the most important policy tools and principles for any country.
Around the world, various countries entered the field of futuristic studies as pioneers of this action, and the results of these studies were used in various organizations that determined and implemented the policies of these countries. In today's world, futuristic studies can help to create strategies that determine the scientific and technological direction of countries. For this reason, countries in the field of science and technology foresight were pioneers who were able to design and implement an appropriate foresight model in accordance with local mechanisms. One of the most important factors for the success of futurism studies and policy-making in any country, its crystallization in the best way in different dimensions of society, is the coordination of these studies with the social and cultural

structure that the implementation of these policies to It greatly affects. Therefore, it is necessary for each country to design and implement science and technology foresight studies in a way that is accompanied by social acceptance and at a high level; In other words, it has been localized according to the appropriate model of the destination community. In this article, an attempt has been made to study the history of science and technology futurism in Iran and the world, as well as the methods used by some leading countries in the field of futurism studies, by examining the appropriate methods of science and technology futurism. Technology in Iran, examine the implementation of the localized model of science and technology futurism of leading countries in the country.

Keywords: futurism, Iranian science and technology, futurism methods, politics, planning, localization

Water Crisis in Khuzestan, Reasons and Lessons Learned

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Abstract

The water problem, which occurred in August 2021 in Dashteh Azadegan located in the west of Khuzestan Province and downstream of Karkheh Basin, intensified the need to pay attention to the basic of the problems related to this issue. It should be noted that protests and turmoil in societies are common and may occur in all societies, including developed countries. In the current situation and after the recent protests of the people against the water problem, the biggest help to the government is that the specialists and experts of the affairs analyze and introduce the causes of the occurrence and the lessons learned of this incident in order to become a tool for those involved in the future can prevent similar crises. In this article, first, the conditions for the onset and occurrence of crisis in Khuzestan province are described in detail, then the lessons learned from the crisis, including political, planning, and science and research aspects are presented.

Keywords: Khuzestan, Water Protests, Hur al-Azim Wetland, Karkheh River, Karun River

The Role of National Laboratories& Mission-Oriented Research Institutes in Advancement of Science and Technology

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Abstract

The history of establishing a network of mission-oriented and leading national laboratories in key areas that are the crossroads of science and technology, the location of large research facilities, the activities of prominent scientists and engineers goes back more than half a century. Such laboratories have a significant synergy with universities in the advancement of science and penetrating technologies and act as a complement to their research activities. The large and unique facilities of these laboratories are defined as national users which support academic and industrial research. While the United States has built a network of 17 comprehensives, mostly multifunctional national laboratories with vast facilities and vast human capital, China's many single-purpose national laboratories have been established both in universities and in industrial companies. In addition to the small national laboratories set up for specific purposes in key areas of science and technology, China is also interested in establishing comprehensive and multi-purpose national laboratories. The US National Laboratories are funded by the federal government under the umbrellas of the Ministry of Energy, while the Chinese National

Laboratories, receiving government funding, are under the auspices of the Ministry of Finance. France, in parallel with its universities, established three networks of research institutes in the fields of science, agriculture and medicine, which are jointly run by the Ministry of Higher Education, Research and Innovation and other relevant ministries. They are important in contributing of science & technology and overcoming the challenges and meeting the basic needs of the country. We need the national laboratories or leading mission-oriented research institutes that focus on important and fundamental fields of science and technology and cover each other in the form of one or more complementary networks in Iran. It is suggested that the establishment of such research networks, which will have a good synergy in the contribution of science and technology with the universities. These national laboratories or mission-oriented institutes, which are the centers for integration of science, innovation and technology will be more agile and link with universities in solving the current and future challenges and problems in the country.

Keywords: National Laboratories, Laboratory Network, Mission-Oriented Laboratories, National User Facilities, Science, Innovation and Technology, Basic and Fundamental Sciences

On the Nature of the Method of Science

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Abstract

This paper attempts to summarize the investigations by the likes of Latour, Popper, and Kuhn on the method of science and the importance and the shortcomings of such investigations. Afterwards, Michael Strevens' ideas about the irrational nature of science are discussed. According to Strevens, science is akin to a game and following its rules has results in the great scientific achievements throughout history. The irrational nature of these rules also meant that they were not proposed until the age of Newton. Strevens' theory provides a satisfactory explanation regarding the beliefs of the scientists and the manufacturing of objective statements.

Keywords: Scientific method, the knowledge machine, the iron rule of explanation

The place of the nature of science in science education and teacher education system

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Abstract

Todays, nature of science and science literacy achievement is an important aim of education systems in the world. This paper argues that this aim relies on how education and teacher training systems understand science and scientific method. We introduce traditional and modern education systems which define science differently. In the traditional education system, science is equivalent to knowledge and scientific information while the modern education system gives an important role to the nature of science in science education. We study these two education systems and describe that how they affect science understanding of student teachers.

Keywords: science education, nature of science, science literacy, scientific method, teacher training

Four Stages of a Scientific Discipline; Four types of Scientists

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Abstract

The article is about the classification of the science into four types, proposing the evolution of science in four consecutive stages - *creation of a discipline*, its *maturity*, the *expansion* and *consolidation and the prevalence of its applications*. Consequently, we are faced with *four types of scientists* who are, mainly and particularly engaged in one of these stages. The first one involves introducing the components and phenomena of a new discipline of science along with its own language, justifying the new realm. In the second stage, scientists develop tools and methods providing a greater understanding of the new discipline. In the third stage, new knowledge reaches its maximum productivity, and the number of researches and publications also ranges its peak. The characteristics of the fourth stage, without making new discoveries, is the retaining and transfer of the knowledge and findings of all previous stages into a new realm. The view of knowledge developments is not limited to the perspective presented in this article. For instance, in his famous work, *structure of scientific revolutions*, Thomas S. Kuhn sees the structure of scientific revolutions in three stages: *pre-paradigm*, lead to the emergence of a *new paradigm*; The second stage, as he refers to *normal science* involves the *advancement of knowledge in the context of the standing paradigm*; The characteristics of the third stage, considered to be a *scientific crisis* within the context of the extant paradigm, to be challenged by a new one providing novel justifications and a broader perspective for the realities confronting existent state of science. However, according to the author, Kuhn's view, which is to analyze the specific events of a paradigm, does not need to differentiate the stages of the evolution of the ideas from their "birth" to "death", the purpose of the classification of science and scientists in current article. The benefit of the proposed approach goes beyond the addressing of the issue; emphasizing the very subtle and significant conclusion that scientists engaged in this or that stages of scientific progression does not necessarily mean their intellectual superiority, but indicates the special interests and talents of different scientists lead them to work in one of the evolutionary stages of a particular discipline. In addition, the perspective presented, helps the students to choose the field of their study based on own interests and talents; also, it helps scientists to be aware of their own interests and talents requirements, to pursue the field of research who belong to, and writing grant proposals in the context of the proper stage of the defined discipline.

Keywords: science, scientific revolution, scientific paradigm, four kinds of sciences, four kinds of scientists

History of Mining in Iran

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Abstract

Our country Iran, during its several millennium civilizations has advanced in exploring minerals, using minerals and mining skills. Hundreds of ancient mines containing gold, copper, iron, lead, zinc, silver and so on has been discovered up to now. Some of them were active for hundreds of years. Many mineralogical workshops, mining tools, melting shops, and housing sites have been discovered in Iran that date around 4000 BC. From the beginning of the third millennium BC, Iranians prowess in mining and use of metals is mentioned in Sumerian, Babylonian, and Elamite documents. In all historical eras of Iran from prehistoric, to ancient history and Islamic periods mining, its exploration skills and extraction methods were present and remarkable. Huge amount of mining Relics in museums are testimonials to this fact. Lack of dense vegetation, and interaction between multiethnic societies

who lived in Iranian plateau made them expert in mining and the usage of the minerals way before the industrial revolution in Europe. Their mastery in mining has been so advanced that even today's miners find it inspiring and are in awe regarding their knowledge and prowess. Surprisingly, we cannot find too many new metallic deposits that our ancestors didn't knew about them. For instance most of our gold, copper, lead & zinc and iron mines that are active today are the same ones that were exploited during Achaemenid, Arsacid and Sassanid Empires. Being rich in metals and ores along with the ancient civilization the people can claim that they have a country with the oldest history of metalworking. Due to the all mentioned above, it's not incorrect to say that Iranians were the pioneers of mining in the world.

Keywords: mining history, ancient mining, prehistoric mining, Islamic periods mining

An Overview of the Views Presented in the "Climate Change Webinar" (November the 30th): A Geological Perspective

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Abstract

The article is based on the topics discussed in the webinar of the Geology Branch of the Academy of Sciences on November 30, 2021, based on the most important scientific challenges discussed in this webinar by the author. Issues discussed include: What is climate change? Climate change and extinctions in the history of geological evolution; changes have been identified; • Iran and climate change; Iran Challenges and Climate Change; and How natural is climate change?

Keywords: climate changes, global warming, fossil fuels, Greenhouse effect

Unseen patterns: a glance at occasions of biological ideations for Persian carpet art

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Abstract

The art and biological sciences are extensively intertwined to each other and rewarded by mutual benefits. The growth and maturity of the both disciplines require increasing interaction between them, but it seems more likely that they have been set apart in this interaction, as evidently the philosophers of art and biology, along the lines of their ideas, sense less demand for such interaction. This paper looks for expressing a novel type of the interaction between the science of biology and the art of carpet weaving by borrowing from a wealth of past findings and future prospects. This shows that interdisciplinary interactions between biology and art are able to uncover new insights toward the development of the both fields; work in the prosperity of carpet art businesses, which are known worldwide own to Persians, and create a new look on the horizon of science and art. Microorganisms, which cannot be seen with the naked eye, show the way.

Keywords: Art, bacteria, biology, carpet, designing, fungi

Virtual Education, University and Society - Report of a Speech

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Abstract

Major crises usually have two aspects, one is the obvious catastrophic part, and one is the mobilization aspect due to the change of mental environment, or the awakening of dormant potentials that are not normally felt due to the lack of apparent needs. The purpose here is not to talk about e-learning problems and solutions. Most of these problems stem from unpreparedness, which all are solvable. The aim here is to draw attention to the rich and powerful possibilities that e-learning and its tools have created to solve the problems of higher education (independent of the adding of the corona problem). These facilities have been growing rapidly for about a quarter of a century, and despite the fact that many of these innovations have originated in universities, the academic world has benefited less from the commercial, industrial, and military sectors. In order to show how higher education in our country can better use this tool to improve the quality and solve some of its traditional problems, we first examine the national expectations of higher education to determine the goals; Then, by reviewing the methods have been used so far to achieve the desired goals, we examine the solutions of using the Internet and related technologies to resolve problems.

Keywords: higher education, Internet, digital world, university and society, virtual learning

Review of the Behzad book
With looking at the challenges of intergenerational relationships

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Abstract

In this note, while reviewing a recently published book of biography “Behzad”, we look at the backgrounds of this attention, that is, reflection on intergenerational relations and connections, and some of the challenges that are always raised.

Keywords: Mehdi Behzad, Iranian Mathematical Society, intergenerational relations.

Biography and Career of Ghiyath al-Din Jamshid Kashani

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Abstract

Ghiyath al-Din Jamshid Kashani is one of the last prominent scholars of the Islamic period, whose work in computational mathematics has been unrivaled in the world for at least two centuries. But in the field of theoretical and practical astronomy, although Iranian scholars considered him a very prominent astronomer, his works do not have an important place in the history of astronomy. Calculating the ratio of the circumference of a circle to its radius (2π) in Al-Risala al-Muhitiyah (Treatise on the Circumference of the Circle) with remarkable accuracy, which was unrivaled in the world until 172 years after Kashani, and calculating the sine(1^o) in the Vatar Va Jayb

(Treatise on the sine of one degree) with remarkable accuracy by solving a cubic equation by numerical analysis methods, which for a long time seemed to be unattainable for Europeans, both in terms of accuracy and method, are two important achievements of Kashani.

Keywords: π, sine(1°), numerical analysis, Treatise on the Circumference of the Circle, Treatise on the sine of one degree

The Role of Biomimetic Knowledge in Human Life

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Abstract

Nature is full of mystery. Man and everything around him/her are the result of a perfect divine creation. In nature, a complex intelligent system is designed to create the ideal structure-function relationship. Biomimetics is the advanced sciences and methods for understanding the structure and function of the natural phenomena and observing as well as evaluating the nature. Biomimetics has an interdisciplinary scientific approach which mostly studies and research to achieve the biomolecular and biological mechanisms governing natural processes. From the point of view, every phenomenon in nature is the source of modeling and inspiring to improve the quality of life. Nature-inspired technology is now an integral part of our daily lives. To have a bright future, one must know and learn from nature, understand its plans and strategies using precise scientific equipments, and then model it to build natural technologies.

Keywords: Nature, Biomimetics and bioinspiration, Lifestyle, Interdisciplinary knowledge, Natural technology

An Introduction to Dynamic Energy Budget (DEB) Theory (1): Philosophy and Concepts

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Abstract

Dynamic Energy Budget (DEB) is a metabolic theory providing a particular quantitative framework for describing the metabolic aspects at the individual and demographic levels based on assumptions on energy uptake, storage, and use of substances. The theory, developed in 2000 by Kooijman, links the physiological process of organisms such as ingestion, assimilation, development, growth and reproduction. DEB theory assumes the energy obtained from the environment is immediately stored in the reserve pool and then used for maintenance, growth, development and reproduction. DEB theory is used to predict animal growth, toxicological studies, and even the dynamics of animal populations. So far, numerous studies have been conducted on DEB theory and its application in animal physiology and ecology, but no study has been published in Persian previously. Therefore, the present review is an attempt to provide some information about the concepts and philosophy of DEB theory in order to acquaint interested readers with the generalities of this important and applied theory.

Keywords: Dynamic Energy Budget (DEB) Theory; Metabolic Models; Growth; Reproduction

Investigating the role of COVID-19 on knowledge, employment, and skills in society

Chapter 4 of : THE COVID DECADE Understanding the long-term societal impacts of COVID-19

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Abstract

One year ago, when the United Kingdom entered its first lockdown, little was known about the COVID-19 virus, but suddenly the nation was facing a pandemic that has taken thousands of lives and threatened to overwhelm the National Health Service. In the United Kingdom as around the globe, this pandemic is not just a health crisis that may one day end, but a social, economic and cultural crisis that will last much longer. COVID-19 has significant and unequal effects on access to education, employment prospects and experiences, personal and household income, which vary depending on where people in the UK live, their qualifications, socioeconomic status and health status. In the short term, poverty affects the likelihood of survival against COVID-19, and in the long term, it makes it more difficult to eliminate the economic effects of pandemics and lockdown, with health and social consequences. The effects of COVID-19 on incomes have widened the gap across the UK and disproportionately affected black, Asian and minority groups and women. The economic downturn has raised unemployment and reduced GDP. The education system has undergone rapid change and socio-economic background has affected the access and education of children during the lockdown. Through its COVID-19 – Shape the Future program, the British Academy brought together scholars from around the world to help us see our way forward in these dark and difficult, and demanding times.

Keywords: COVID-19, Pandemics, Lockdown, Socio-economic and cultural crisis, Educational inequality, Employment and income

The COVID Lab-leak Hypothesis: What Scientists Do and Don't Know

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Abstract

Nature examines arguments that the coronavirus SARS-Cov2 escaped from a lab in China, and the science behind them. Scientists don't have enough evidence about the origins of SARS CoV2 to rule out the lab leak hypothesis, or to prove the alternative- that the virus has a natural origin. Still, the possibility remains that SARS CoV2 escaped from a lab. Although lab leaks have never caused an epidemic, they have resulted in small outbreaks involving well documented viruses. To solve the issue, one way or another we may have to keep piecing bits of evidence together as weeks and months and years move forward.

Keywords: Coronavirus, COVID-19, Epidemiology, Pandemic, Public health, SARS-CoV-2, Rhinolophus affinis, COVID Lab-Leak, Wuhan Institute of Virology

Dissecting the Unusual Biology of the SARS-CoV-2 Delta Variant

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Abstract

An ability to build up higher concentrations of viral particles in people's airways and mutations that might boost its ability to infect human cells could be what gives the Delta variant its evolutionary edge. emerging data suggest that when vaccinated people become infected with the Delta variant and develop symptoms—which, although increasing in frequency, remains exceedingly rare, officials report—they might be as contagious as unvaccinated infected people. Those findings motivated the Centers for Disease Control and Prevention (CDC) to *recommend* in late July (2021) that in places with high transmission of the virus, even fully vaccinated people should wear masks indoors.

Keywords: Coronavirus, COVID reinfection, COVID-19, Epidemiology, Long COVID, Microbiology news feature, Pandemic, Public health, Delta variant

How Dangerous is Omicron, The New Variant of SARS-CoV-2

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Abstract

All viruses, including SARS-CoV-2, change over time. Most changes exert little effect on the characteristics of the virus. However, some changes can affect the characteristics of the virus, such as the spreading rate, the severity of the disease, or counteract the effectiveness of vaccines, therapeutics, diagnostic tools, or other public and social health measures. The *B.1.1.529* variant of SARS-CoV-2 was first reported to the World Health Organization (WHO) on November 24, 2021 from South Africa. On November 26, the WHO, on the advice of scientists from the Technical Advisory Group, identified the variant as a concern variant and called it Omicron. Omicron, along with Alpha, Beta, Delta and Gamma variants, is currently on the WHO list of concern variants. This variant harbor many mutations, some worrisome. Preliminary evidence suggests an increased risk of re-infection with this variant compared to others. Researchers around the world are competing to understand the danger this variant could pose to the world. However, it may take weeks for scientists to get a more complete picture of the Omicron and gain an understanding of its ability to transmit and the severity of the disease, as well as its potential to escape the immunity provided by current vaccines.

Keywords: Coronaviruses, New Coronaviruses Nomenclature, Omicron, Covid-19 epidemics, Spike mutations

Nearly every person in Iran seems to have had covid-19

Catherine Shaffer, New Scientists, 3357,19 October 2021

Translated by: Bahro Olom H., Noraee S., Aminzadeh S*.

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Abstract

The results of a new research study show that the prevalence of Covid-19 in Iran has been so widespread that almost the entire population of the country has been infected with Covid-19 at least once so far. Despite numerous waves of infection, high viral attack rates in many provinces of the country, and widespread population exposure to the corona virus in general, collective immunity from natural disasters in Iran has not yet been achieved. According to experts, the most realistic way to achieve herd immunity is through large-scale vaccination.

Keywords: Corona epidemic, herd immunity, vaccination, Covid-19 in Iran

The World of Chemistry:
An Overview on Ongoing Researches, Today's and Future Technologies

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Recently, the growth and development of scientific research has become so rapid that it is hard to know what is happening. Here we have compiled the latest scientific developments, imperative both in terms of application and their scientific content, for the benefit of research community in chemistry and basic sciences. It should be noted that most recent scientific and technological research is done in interdisciplinary realms, such as energy, environment, etc. demonstrating the need to ignore hypothetical boundaries between disciplines. We hope that this series, which focuses on new scientific events in chemistry, will be useful for young researchers in chemistry and the basic sciences. Inconsistency with modern scientific advances and disregarding science and knowledge frontiers of may bring losses cannot be compensated.

Keywords: chemistry world, news and views in chemistry, research in chemistry, applied research

On its Fortieth Anniversary
Introducing the World Academy of Sciences (TWAS)

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Abstract

The idea to create an academy of scientists from the developing world first discussed among a small group of internationally renowned researchers in October 1981 during a meeting in Rome, Italy. Under the leadership of Abdus Salam, the Pakistani physicist and Nobel laureate, the world academy of sciences for the developing country (TWAS) was founded in Trieste, Italy, in 1983. Along with some useful information about TWAS, the question of "why we need such a non-governmental organization" is discussed.

Keywords: TWAS, Basic Sciences, Abdus Salam, Academy of Scientists