



Dr. Rahai emphasized:

## Using the capacities of BRICS and Shanghai agreements In international cooperation

The President of Amirkabir University of Technology stated:

«The BRICS agreement provides a significant opportunity for international cooperation in Iran. Alongside that, the Shanghai Cooperation Organization, as a security, economic, and cultural pact, can be a major asset with the participation of two major international powers like China and Russia, constituting a significant capacity.»

Dr. Alireza Rahai, in the second International Collaboration Development Symposium held at Amirkabir University of Technology, addressed the question of how to utilize the capacity of international projects for national plans that can be implemented in university consortia. He stated, «In the four decades after the revolution, we have had significant growth in various educational areas. However, alongside educational activities, scattered research activities were conducted in the country's universities and research centers.»

He continued, «Unfortunately, none of the research projects had a central axis until around the 90s when a rare and beneficial event occurred under the title <Universities and Industrial Centers Gathering.> This gathering led to the identification of the country's needs, resulting in the approval of 43 national mining projects.»

The President of Amirkabir University of Technology emphasized, «In 90, there was serious determination among the authorities to establish national mining projects based on the country's major needs. These projects entered educational and scientific centers as a university-industry consortium and were implemented.»

Rahai emphasized, «In Amirkabir University of Technology, we have been successful in 16 national mining projects, mostly in the aerospace field, satellite launching, sending a living organism into space, cyber defense systems, strategic oil storage, and more. All these projects were significant collaborations between universities and industry.»

He concluded, «Despite the achievements in this area, we faced challenges in the execution of these ambitious projects.»

In relation to the development of satellite-related technologies, we encountered challenges in technology and launching phases. Efforts were made for international collaboration with countries such as Russia, India, South Africa, China, etc. However, due to the sanctions during that period, successful outcomes were not achieved. In the end, we concluded that national



capabilities must be strengthened.

According to Rahai, the BRICS agreement provides a great opportunity for international collaboration in Iran. In addition to that, the Shanghai Cooperation Organization, as a security, economic, and cultural pact, can be a significant asset with the participation of two major international powers like China and Russia, representing substantial potential. Membership in these two agreements can be a major success for the country.

Rahai emphasized that if we aim to move towards building medium-sized aircraft and high-altitude satellite launchers today, we must utilize the national capabilities and the potential of universities. He noted that the second satellite of the university is currently in the design and construction phases, and with international agreements like BRICS

and Shanghai, we can overcome obstacles in this path.

The president of Amirkabir University of Technology pointed out that if we intend to harness the capacities of these two agreements, we can see that they have potentials in fields such as astronomy, materials, biodiversity, information and communication technology, renewable and non-renewable energy, medical sciences, etc. These potentials can contribute to universities in these areas and help us use them for national mining projects.

Deputy Minister of Science for International Affairs announced that Iran has international collaborations with 80 foreign universities and hosts 19 international organizations. He emphasized the importance of utilizing these opportunities effectively, noting that many of these organizations have their headquarters or are led by Iranians. Dr. Vahid Haddadi Asl, emphasizing the four authorized areas within the international domain of the Ministry of Science, expressed regret over the underutilization of Iran's membership in 70 international organizations. He urged universities to provide solutions on how to benefit from the opportunities offered by membership in these organizations. The goal of the Ministry of Science, according to Haddadi Asl, is for universities to effectively use the resources provided by international organizations, such as UNESCO, of which Iran has been a member for several decades without fully benefiting from the





membership. He highlighted the need for parliamentary approval for the ministry to become a member of certain international organizations and expressed hope for cooperation and assistance from universities and other sectors.

Furthermore, he highlighted that if the Ministry of Science intends to become a member of certain international organizations, it needs approval from the Supreme Council of Cultural Revolution. Dr. Rahaei emphasized the importance of utilizing the capacities of the BRICS and Shanghai Cooperation Organization in international collaborations.

Head of the International Scientific Cooperation Center of the Ministry of Science continued, stating that the law governing the goals, duties, and complaints of the Ministry of Science allows universities to engage in collaborations with international organizations. According to the law, universities and higher education centers can establish scientific, research, and educational relations with relevant foreign organizations by obtaining approval from the Board of Trustees and the confirmation of the relevant minister. They can also apply for membership in the mentioned organizations, and the cost of membership can be covered by the university's Board of Trustees, the Ministry of Science, or the government.

The Deputy Minister of Science for International Affairs emphasized the importance of multidimensional cooperation in the country's universities, noting that currently efforts are being made to isolate Iran. He mentioned that three foreign countries have expressed their willingness to send 40 universities to visit Iran, fostering direct interactions and signing memoranda of understanding.

Regarding international collaborations, he stated that more than 200 memoranda of understanding have been signed with Iraqi universities in Mashhad. The Ministry of Science will monitor the implementation of

these agreements, and if any university fails to fulfill its commitments within six months, other universities will be invited to replace them. He highlighted the plan for Iran and Iraq to visit each other's universities every six months.

The Deputy Minister of Science for International Affairs emphasized that many countries are eager to collaborate with Iranian universities. He urged universities to disclose their collaboration plans, inviting them to submit their cooperation programs to the Ministry of Science. He affirmed that participation in international collaborations

**«We collaborate internationally with 80 foreign universities and host 19 international organizations. Many of these organizations either have centers in our country, or their leaders are Iranian.»**

Dr. Haddadi Asl

is lucrative, as many international organizations, of which Iran is a member, allocate substantial budgets for research and cooperation, unfortunately, not fully utilized by Iran.

He further highlighted that the doors for initiating international collaborations among universities are now open. Mentioning that Iran collaborates with 80 foreign universities and hosts 19 international organizations, he emphasized the need to capitalize on these opportunities, especially given that many of these organizations either have centers in the country or are led by Iranian officials.

Haddadi Asl pointed out that many universities focus solely on attracting



international students in their efforts to engage in international activities and do not consider bilateral collaborations. He noted Iran's membership in organizations such as BRICS and Shanghai Cooperation Organization, stating that BRICS is expected to become a major global player, as China is actively working to change the dominance of the dollar empire.

Following this, the Director of Scientific and International Cooperation at Amirkabir University emphasized the noticeable gap in participatory collaborations in the country and stated that such events can provide a platform for creating collaborations.

Dr. Rouhollah Bagherzadeh mentioned the significant presence of over 140 universities and research institutes at the event, representing a substantial opportunity for joint efforts in advancing science and technology in the country.

Dr. Bagherzadeh continued by expressing hope that the discussions in specialized panels during the event could foster effective collaborations between universities and organizations. He underlined the importance of the past national and international collaborations at Amirkabir University and expressed optimism that ongoing initiatives, especially those led by the Ministry of Science's International Scientific Cooperation Center, could contribute to more impactful and effective participatory collaborations in scientific and technological endeavors.

## The project of reconstruction, renovation, and equipping of the dormitories for female martyrs, Farzaneh and Sadeh, at Amirkabir University were inaugurated in the presence of benefactors and university officials

The dormitories for female students, named after martyrs Farzaneh and Sadeh, have undergone complete reconstruction and equipment, including the provision of all furnishings such as wardrobes, beds, carpets, gas coolers, refrigerators, study rooms, etc. The complete reconstruction includes renovating the entire building structure, increasing the capacity of the study hall, upgrading sanitary facilities and bathrooms, and centralizing the kitchen in accordance with modern standards. Additionally, an elevator has been installed, and all windows have been replaced with PVC. The foundational structure and utility facilities have undergone substantial reconstruction and have now been put into operation.

During the ceremony, Dr. Saeedi, Mr. Khodaverdi, and Mr. Gholamchi, representatives of the dormitory construction benefactors, were present. It is worth mentioning that, on the sidelines of this ceremony and after the inauguration of these reconstructed and equipped



dormitories, Dr. Alireza Rahaei, the president, along with several university officials, emphasized the continued support and valuable contributions of benefactors in meeting the needs of the «Student Welfare and Services» sector based on priority and importance.

At the end of this session, commendations were presented to the benefactors who supported the reconstruction and equipping of these dormitories. Additionally, some dedicated staff from the Dormitory Affairs Office were recognized through the presentation of plaques. This ceremony was organized by the Student Affairs Office and the Dormitory Affairs Office.



## Visit to the Comprehensive Coastal Campus of the University in Hormozgan Province

The university president, during a one-day trip, visited the Comprehensive Coastal Campus of the university in Bandar Abbas.

According to Amirkabir's report, in this visit, Dr. Rahaei inspected the educational, laboratory, and logistic infrastructure of the university in Bandar Abbas. He emphasized the need for revitalizing and improving the infrastructure, attracting faculty members stationed in Bandar Abbas, and addressing the concerns of staff and faculty members residing in the region.

The president of Amirkabir University is actively establishing connections with various industries in the southern part of the country through the Comprehensive Coastal Campus. This includes shipbuilding, ports, multimodal transport, steel, aluminum, refineries, desalination, and water transfer, power plants,

and the oil and tourism sectors.

In a short time, the university president, during his visit to Hormozgan Province, inspected one of the most technologically advanced marine industries in the country, focusing on the construction and maintenance of submarines. He emphasized the importance of expanding relationships and bilateral collaborations.

During this visit, Dr. Rahaei also met with Engineer Mehdi Dusti, the governor of Hormozgan, discussing the university's future plans in the Comprehensive Coastal Campus in Bandar head of this campus, elaborated on various aspects of these plans, which were discussed and scrutinized by the participants.

The university president highlighted the university's commitment to expanding effective educational and industrial activities in line with the needs of the province. He proposed the establishment and



activation of the High Council for the Strategic Development of the Comprehensive Coastal Campus of Amirkabir University and invited the governor of Hormozgan to join this council, which was positively received.

It is worth mentioning that the governor of Hormozgan has previously emphasized, during his presence at Amirkabir University in Tehran, the importance of benefiting more from the university's capacities and capabilities in serving the southern regions of the country. In the end, discussions were held regarding two industrial projects in Hormozgan Province related to the production of mining support equipment and metal recycling, both proposed

by the university. In this visit, an overview of the university's policies in the southern region was presented, emphasizing the key role of the Bandar Abbas Comprehensive Campus in contributing to the development of the country's maritime axis.

The Bandar Abbas Comprehensive Coastal Campus of Amirkabir University, initially established in 1986 as the Shipbuilding and Maritime Engineering Faculty, was upgraded to the Comprehensive Coastal Campus in 2022. It currently collaborates with various faculties of the university to provide educational and research services to the southern coasts of the country.



Head of the Textile Engineering Department at Amirkabir University announces admission of 100 textile engineering students

Dr. Mohammad Amani, the head of the Textile Engineering Department at Amirkabir University of Technology, announced the acceptance of 100 annual students in the field of textile engineering at the university. He stated, «Fortunately, the job market for graduates in the field of textile engineering is promising, providing ample opportunities for employment in the industry.»

Dr. Amani made these remarks during a ceremony introducing

## Head of Textile Engineering Department Announces: Textile Engineering and Apparel is a Highly Technological and Practical Field

the Textile Engineering Department for the academic year 1402. He emphasized the importance of students gaining a comprehensive understanding of their field of study, the physical facilities of the department, and familiarity with the academic staff.

He outlined three dimensions for students to consider: first, understanding the nature of textile engineering as a field of study; second, becoming acquainted with the physical features and facilities of the department, including laboratories; and third, recognizing the academic faculty members of the university.

Dr. Amani highlighted the need for students to start their research and exploration from the beginning of their university journey. He encouraged students to actively engage with their professors, fostering a collaborative relationship that goes beyond merely seeking good grades.

Emphasizing the significance of textile engineering, Dr. Amani asserted that this field requires the highest level of knowledge and technology compared to other engineering disciplines such as mechanical and chemical engineering. He urged students to grasp the diverse scope of the textile industry, spanning from

traditional practices like cotton cultivation and silkworm farming to modern petrochemical applications in synthetic fibers and fabric production.

Regarding employment opportunities, Dr. Amani acknowledged the challenges in the textile industry, noting that some graduates may face difficulties in meeting the industry's required standards. Nevertheless, he advised students to be proactive from the outset of their studies, maximizing the resources and expertise provided by the university.

In conclusion, Dr. Amani praised the Textile Engineering Department at Amirkabir University as a pivotal institution in the country's academic landscape. He commended the quality of students entering the field and highlighted the department's role in producing skilled graduates.

The ceremony concluded with the recognition of 21 outstanding students from the 2022-2019 admissions as a testament to their academic achievements.







**Utilizing the Center for Studies and Research of Shahid Shahriari Basij with the presence of officials from Amirkabir University of Technology, the center was put into operation.**

Dr. Ahmadreza Rahimi karijani, the head of the Basij Professors at the university, congratulated the anniversary of the formation of the Basij of the oppressed and highlighted the role of university Basij in advancing the country's goals. The center aims to conduct studies, activities, and research by Basij professors to address the country's issues and challenges.

Emphasizing the importance of human resources as a fundamental factor for a country's development and the training of revolutionary individuals, Dr. Rahimi karijani invited Basij professors to actively participate in addressing the current challenges of the country. He acknowledged the significant role that the Basij has played in various periods in solving the problems of the Iranian system.

The head of the Basij Professors at Amirkabir University of Technology stressed that the center's goal is to accelerate and support the production and supply of domestic products, utilizing the scientific capacity, experience, and skills of Basij professors. This, in turn, contributes to the development, deepening, and discourse-building towards achieving indigenous knowledge.

Dr. Rahimi karijani stated that the seven-story building, covering an area of 1792 square meters, is under construction. Two floors of this building, with an area of 512 square meters, have been dedicated to operational use.

**Meeting of the Head of the Office of the Representative of the Supreme Leader with the Central Council of the University Employees' Basij**

On the occasion of the Basij Week, the Head of the Office of the Representative of the Supreme Leader, along with the staff of that



office, met with a group of Basij members and the Central Council of the University Employees' Basij.

During this cordial meeting held at the office of the University Employees' Basij, Hojatoleslam Rajabi, while expressing gratitude and appreciation for the Basij activities, especially during the past year, provided recommendations in line with the duties and responsibilities entrusted to the Basij. He also conveyed the directives of the Supreme Leader.

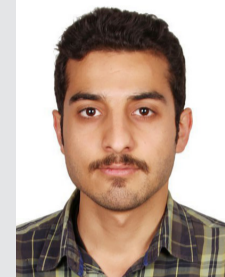
At the end of this meeting, a commendation plaque was presented in memory to Dr. Kouhkeheil, the head of the University Employees' Basij at Amirkabir University of Technology.



**The news of science**



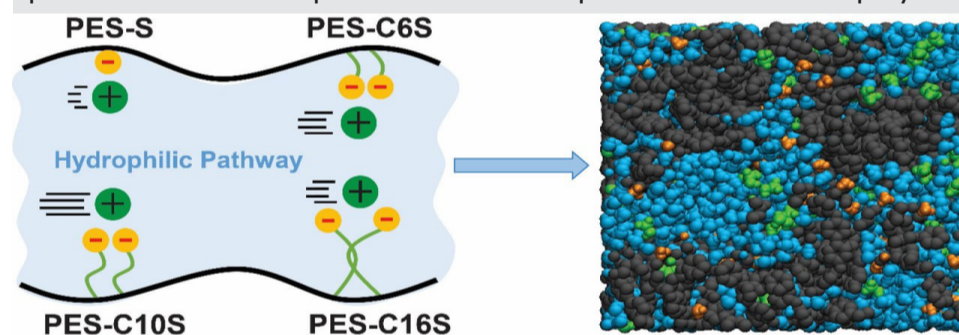
**Investigation of Water, Ion, and Fuel Permeation Mechanisms within Polymeric Ion-Exchange Membranes for Optimal Electrolyte Membrane Performance**



Researchers at Amirkabir University of Technology have successfully examined the permeation mechanisms of water, ions, and fuel within polymeric ion-exchange membrane networks. The study aimed at optimizing polymer electrolyte membranes (PEMs) using molecular dynamics simulation tools.

Mohammad Jafar Rezayani, a Ph.D. graduate and the project executor of «Molecular Dynamics Simulation of Water Infiltration in Polymeric Ion-Exchange Networks: Effect of Hydrophobic and Hydrophilic Groups,» highlighted the significance of a comprehensive investigation into the primary processes of small molecule permeation, such as water, ions, and fuels (usually methanol), within polymeric electrolyte systems, specifically ion-exchange membranes used in fuel cells and water purification membranes.

Jafar Rezayani emphasized the limitations of laboratory experimental devices in observing the details of the permeation process and the impact of structural parameters of the polymer



network on the permeation process at the molecular scale. To address this, molecular dynamics simulation tools were employed to explore influential parameters, including the effect of structural parameters of the polymeric ion-exchange membrane network on the permeation process, with molecular precision.

The researcher pointed out that molecular dynamics simulation tools provide a cost-effective means to study molecular-scale processes compared to laboratory methods. Additionally, these tools enable the observation of processes at the molecular level that are not observable by any laboratory apparatus. This study represents a significant and novel step in investigating permeation behavior within ion-exchange membranes.

Jafar Rezayani further explained that due to the novelty of the research topic and the lack of similar simulation studies on these specific polymeric electrolytes, extensive computations were required to parameterize the structures, constituting the primary complexity of this research, which consumed a considerable amount of time. Regarding the applications of the project, the optimization of polymeric membranes, especially ion-exchange membranes, for enhanced permeability without compromising selectivity is crucial. For instance, in fuel cells, the primary goal is to allow the passage of ions while preventing fuel crossover, typically methanol in the case of methanol fuel cells.

It's worth noting that the project was supervised by Dr. Farhad Sharif, Dr. [Additional Supervisor], and conducted at Amirkabir University of Technology. The findings contribute significantly to understanding and predicting the behavior of permeation within polymeric ion-exchange membranes, opening avenues for further research in this domain.

It should be noted that the project was supervised by Dr. Farhad Sharif, Dr. Hesam Maki, and the advisory mentor, Dr. Roland Nates.