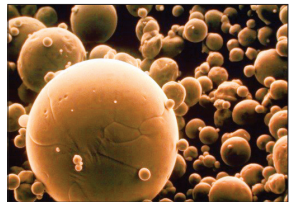


Nitrate Ion Nano-sensor

Researchers of Shiraz University in collaboration with Italian researchers, succeeded in making a sensor using silver nano-particles, capable of detecting nitrate ions in the water. The advantages include affordability, precise detection and less pollution. Maryam Bonyani, researcher of the project, mentioned the importance of improving the functionality of sensors in detecting nitrate ions and said: "Low concentration of nitrate ions in drinking water is not sufficient for direct analysis. Also the applied sensor must be highly selective, meaning that the used sensor must only react to nitrate ions without being distracted by other interfering materials such as calcium, potassium and other similar ions. Due to low levels of selectivity, most of the current sensors are unable to live up to this task." Bonyani referred to the building process and the performances of the sensors and went on: "In order to make a nano-sensor, first the silver nano-particles are placed inside poly methacrylic acid, which is very cheap and also eco-friendly. Next, through ultra violet rays, the nano-composites of AgNPs/PMA were formed. The results of the cyclic voltammetry technique indicate that the functionality of the electrodes modified through silver nano-particles is depended on the amount of the silver used."

POINT OF VIEW



Increasing Efficiency of Thermotherapy

Researchers of Hamedan branch of the Islamic Azad University have been working on increasing the efficiency of thermotherapy through simultaneous simulation in lab and analysis. Dr. Mohammad-Mehdi Atar, head of the project, says: "In this project of precise simulation and evaluation of thermotherapy process, the exact amount of nano-particles, and the using time and intensity of the magnetic field for destroying a cancerous tumor has been determined. In this way we could save both time and money, in addition to conducting the process with higher efficiency and effectiveness." In the process of thermotherapy through magnetic fluid, the exact area of the cancerous tumor is heated, without causing any damage to the surrounding tissues. In this project, super-paramagnetic nano-particles of iron base with 20 nano-meter diameter were used for the process. Atar went on: "Thermotherapy through iron-based super-paramagnetic nano-particles is one of the most effective cancer treatments. The key factor is the Curie temperature of the nano-particles; in case of succeeding in restricting it to the maximum temperature allowed for the tissue, we would be able to suggest this treatment with more certainty. Using nano-particles through targeted delivery to the tissue could be a breakthrough in treating cancer."

CONTACT US

We welcome your views and memos on the related topics. You can contact us through: english@fdn.ir.

Development Projects of IAU

Integration of Central Office to Be Completed in Next 3 Months



Mohsen Hashemi - deputy of Development in the Islamic Azad University

Mohsen Hashemi, deputy of Development in the Islamic Azad University, says that a part of SHAFA complexes will be ready for use by the end of the coming year and 2.5 million sq/ms of development projects of the university will be completed in the next 4 years. Universities in general need a considerable infrastructure and base for their academic and research activities. A university such as IAU, with a clear focus on knowledge projects and economy, needs extra perimeter and buildings for its incubator centers and technology parks. It is the responsibility of the development deputy to assure that this demand is answered in a timely and well-managed manner.

Current Projects

Hashemi says: "Three years ago, when the management of the university was changed, IAU had more than 2.5 million sq/ms of unfinished development projects; from that time on, through the hard work of this deputy and

other managers of the university, 1.8 million of these were completed. For this, the unfinished designs were started again and the problems with the contractors were solved. According to the plans, another 400,000 sq/ms will be completed by the yearend and the rest would be accordingly finished in the coming years."

SHAFA Project

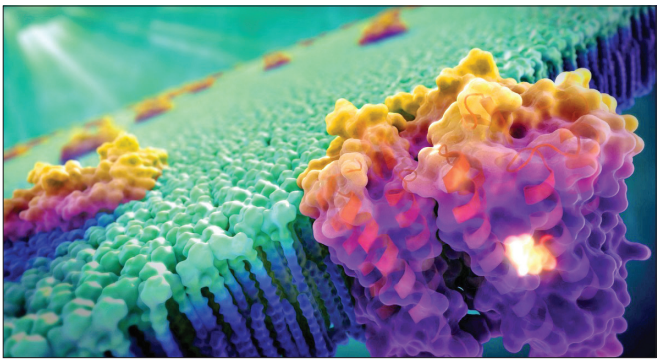
He went on: "All the provinces in the country should have at least one SHAFA complex, preferably in the center of the province. Currently, SHAFA projects of 15 provinces have been initiated and in some regions such as Pardis of Tehran, Gorgan of Golestan, and North Khorasan, the projects have reached the administration phase. Based on our plans, the infrastructure for the complexes in this phase will be completed by the end of the next year to be ready for the official use. Also, the construction phase of Farheekhtegan Hospital is finished and it is being equipped for inauguration."

Integration of Tehran Branch

Hashemi added: "IAU in Tehran has around 230 buildings and sites which are outspread throughout the city. This has caused certain problems for the students and is also incompatible with the urban structures, itself causing several issues. For this reason, IAU decided to cooperate with Tehran's municipality and accumulate all 230 buildings in just 6 areas, with standard campuses and sustainable designs. As a part of this project, integration of central office of IAU was initiated last year and would be finished in the next 3 months, coinciding with inauguration of the administrative complex." He said: "The same project is being pursued in North Tehran branch; in South Tehran branch, the place for integration has been selected and its plan is being designed. In Central Tehran branch, the placement is not yet finalized and the research is still going on. Also, medical branch is at the stage of placement selection and its work would be initiated in the near future."

Iran's News

Treating Cancerous Cells through Nano-technology



omid Bavi, doctoral candidate in Science and Technology Institute of Sharif University, in collaboration with 13 researchers and biophysics experts of Australia's UNSW and ANU universities, and Universities of Chicago, Kaiserslautern, and California, have presented new ideas for cancer treatment. Bavi says: "Sensing and transduction processes are key factors in the interactions between all the living entities and their environment. Ion channels sensitive to mechanical stimulation transfer the mechanical signals to the intracellular matrix which plays a role in sensing pressure and vibration, in addition to intracellular controlling processes and biological responses." He con-

tinued: "The outside force is lead to the proteins of the canal through 2-layer lipid base. The changes in the surface and thickness of the hydrophilic or hydrophobic area in the width of the 2-layers induce the strain to the canal's wall and cause its opening and closing." He added: "Another examined issue is the mechanical responses and elasticity of the proteins against external forces. One of the main differences between cancerous and healthy tissue, is the hardness of the extracellular matrix. Effects of the mechanical properties of the parts involved in open/closed models, have offered valuable ideas concerning treating cancerous tissues.

First Training Course in Pharmaceutical Industries



Pharmaceuticals branch of the Islamic Azad University has started a training course for the first time which is specialized for the students of this field. The main goal that this branch is following is the creation of an effective link between graduates of pharmaceuticals and university fields that are related to Pharmaceutical Sciences. After the coordination meeting for the training course, the registration on the training course started on July 3. The approach taken in this course is the attraction of the graduates for the industry, or to improve the skill of those who are already active in industries in this

field. It is worth mentioning that Dr. Seyed Mehdi Rezayad, director of Pharmaceuticals branch, Dr. Sepideh Arbabi, deputy of Research and Technology in the branch, Dr. Solmaz Ghaffari, course's deputy of Science, and the members of the course's executive party attended this meeting. Further information on this course will later be announced by Dr. Solmaz Ghaffari, course's deputy of Science and assistant professor in Pharmaceuticals branch. Those interested in registering could visit <http://fa.iaups.ac.ir> for further information, or call on the course's executive manager through 22002044.



MRL TEAM OF IAU'S QAZVIN BRANCH RETURNED FROM ROBOCUP 2016 AS THE MOST HONORED TEAM OF THE COMPETITIONS.

IANA

IRAN UPDATES

Iran to Merkel: Missile Work to Continue

Iran rejects Germany's accusations that it has been contravening United Nations Security Council regimes in its missile activities, saying the Islamic Republic will keep up bolstering its missile defense as it sees fit. German Chancellor, Angela Merkel, had said on Thursday that, "Iran continued unabated to develop its rocket program in conflict with the relevant provisions of the UN Security Council." She also said NATO's anti-missile mechanism was targeted against Iran's missile program and had been "developed purely for defense." Reacting on Saturday, spokesperson of Iran's Foreign Ministry, Bahram Qasemi, rejected the allegations, calling them "unconstructive". "The Islamic Republic has, time and again, declared that its missile program has a completely defensive nature. Iran declares once again that it will continue its missile program with full force based on its defense doctrines and national security calculations," he added.

Iran's Petchem Complex to Resume Operation within Weeks

Iran's minister of Petroleum says country's Bu-Ali Sina Petrochemical Complex in the southwestern province of Khuzestan, which was hit by a raging fire earlier this week, will resume its operation within the next few weeks. Bijan Zangeneh told reporters that the complex will return to normal condition in two or three weeks, though it will take longer for its paraxylene tower to be repaired and start over regular activities. He expressed his gratitude to firefighting teams for their efforts to extinguish the blaze at the petrochemical complex, describing the cooling of liquefied petroleum gas (LPG), benzene and petroleum naphtha tanks as the most important part of the battle to contain the fire.

Iran Steel Industry Hits Hostile EU Terrain

Iran's steel industry is reportedly the latest target of a rising tide of protectionism in the EU, highlighting the bloc's determination to further regionalize the market. Iran is among a number of the countries which the European Union has threatened to hit with tariffs to check their exports of hot-rolled flat iron to the continent, media reports say. Other countries facing EU's preventive measures are Russia, Ukraine, Serbia and Brazil which are accused of selling their steel products at prices below cost in Europe. According to the Official Journal of the European Union (OJ), the European Commission has opened a probe to decide whether hot-rolled coil from those countries "is being dumped and whether the dumped imports have caused injury to the union industry."

SPECIAL REPORTS

Inside IAU

Khuzestan Branch: Garden of Industry and Date Research Center



Khuzestan branch of the Islamic Azad University and Khuzestan Industrial Estates Company had a joint meeting in which several issues were raised and discussed. Among the issues were the production of Shadgan Date in cooperation with Ahvaz branch and running SHAFA project of Ahvaz branch in the fields of Khuzestan Industrial Estates Company.

Dr. Sharam Lak, director of the branch and head of IAU's board of trustees in the province, emphasized the importance of relation between university and industry and mentioned the topics that were to be discussed. Akhlagh Mohammadian, general manager of Khuzestan Industrial Estates Company, named the services that the company can provide for the university and in turn, emphasized the importance of developing relations between this company and Khuzestan branch of IAU. He later declared that his company is fully prepared to cooperate with the province's IAU branches. Dr. Ali Gholami, deputy of Knowledge Economy and Investment in Khuzestan branch, later explained the details of the meeting's issues including the production of Shadgan Date, SHAFA project of Ahvaz branch, and university's willingness to invest in the already-active or half-active units in the estates of the company. Next, Dr. Soroush Zarin-Abadi, secretariat to the board of trustees in Khuzestan, further explained the aforementioned topics. An agreement was also signed between the university and the company and it was decided that Dr. Malek Mohammadi be in charge of Ahvaz branch's incubator center. Also, the issue of creating an industrial garden and a research center of Date by the Islamic Azad University and in the fields of the company was raised and discussed. It was decided that this issue be further researched by the province's workgroup of agriculture.