Robotics competitions

The 10th National Robotics Competitions will be held at Babol Noshirvani University of Technology in northern Iranian province of Mazandaran during October 7-9.

2014 Borlaug Dialogue extends invitation

Science & Technology Desk

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Dr. Kenneth M. Quinn, president of the World Food Prize Foundation, has invited Iranian researchers to attend the 2014 Borlaug Dialogue symposium, which will be held at Des Moines, Iowa, USA, from October 15-17.

The symposium will conclude the yearlong centennial observance of the birth of Dr. Norman E. Borlaug, draw upon Dr. Borlaug's legacy and address "The Greatest Challenge in Human History: Can We Sustainably Feed the 9 Billion People on our Planet by 2050?"

Iran's Association of Agricultural Sciences and Plant Breeding, and Agricultural Biotechnology Research Institute of Iran held a commemoration ceremony of the 100th anniversary of Dr. Norman Borlaug at the Seed and Plant Improvement Institute in Karaj province on August 26.

Dr. Quinn was the special guest of the commemoration ceremony. During his speech, he declared his intention to invite Iranian researchers to attend the 2014 Borlaug Dialogue.

He sent two official letters to Mahmoud Hojjati, the agricultural Jihad minister, and Dr. Behzad Qareyazi, the head of Agricultural Biotechnology Research Institute of Iran, on September 14 and asked them to introduce an expert on wheat, two university students and two professors for attending the symposium.

India-born Sanjay Rajaram, a citizen of Mexico who has been the head of the wheat-breeding program at the International Center for Wheat and Maize for several decades, has been chosen for the prestigious 2014 World Food Prize.

The $250,000 prize will be presented to Dr. Rajaram in Des Moines when the annual Borlaug Dialogue will be held.

Norman Ernest Borlaug (1914–2009) was an American biologist, humanitarian and Nobel laureate who has been called "The Father of Green Revolution", "agriculture's greatest spokesperson" and "The Man Who Saved A Billion Lives".

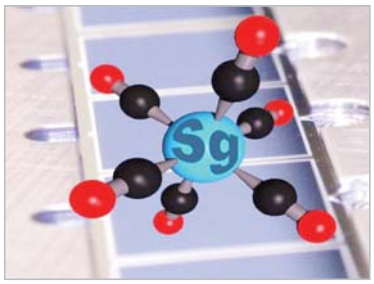
Borlaugh took up an agricultural research position in Mexico, where he developed high-yield, disease-resistant wheat varieties.

Superheavy element, carbon atom bonded for first time

A chemical bond between a superheavy element and a carbon atom has been established for the first time. This research opens new vistas for studying the effects of Einstein's relativity on the structure of the periodic table.

According to newslocker.com, an international collaboration led by research groups from Mainz and Darmstadt, Germany, has achieved the synthesis of a new class of chemical compounds for superheavy elements at the RIKEN Nishina Center for Accelerator-based Research (RNC) in Japan.

For the first time, a chemical bond was established between a superheavy element, seaborgium (element 106) in the present study, and a carbon atom. Eighteen atoms of seaborgium were converted into seaborgium hexacarbonyl complexes, which include six carbon monoxide molecules bound to the seaborgium.



ALEXANDER YAKUSHEV, CHRISTOPH E. DULLMANN/ sciencedaily.com

This is a graphic representation of a seaborgium hexacarbonyl molecule on the silicon dioxide covered detectors of a COMPACT detector array.

Its gaseous properties and adsorption to a silicon dioxide surface were studied, and compared with similar compounds of neighbors of seaborgium in the same group of the periodic table.

The study opens perspectives for much more detailed investigations of the chemical behavior of elements at the end of the periodic table where the influence of effects of relativity on chemical properties is most pronounced.

Chemical experiments with superheavy elements, with atomic number beyond 104, are most challenging: First, the very element to be studied has to be artificially created using a particle accelerator. Maximum production rates are on the order of a few atoms per day at most, and are even less for the heavier ones.

Second, the atoms decay quickly through radioactive processes; in the present case within about 10 seconds, adding to the experiment's complexity.

Iran ranks 19th in int'l chemistry research

Science & Technology Desk

According to Essential Science Indicators (ESI) of 2014, Iran ranked 19th in chemistry research output in the world, an official said.

Jafar Mehrad, the head of Islamic World Science Citation Database, added that Iranian scientists have published 30,701 chemistry papers in the last 10 years and placed 19th among 140 countries.

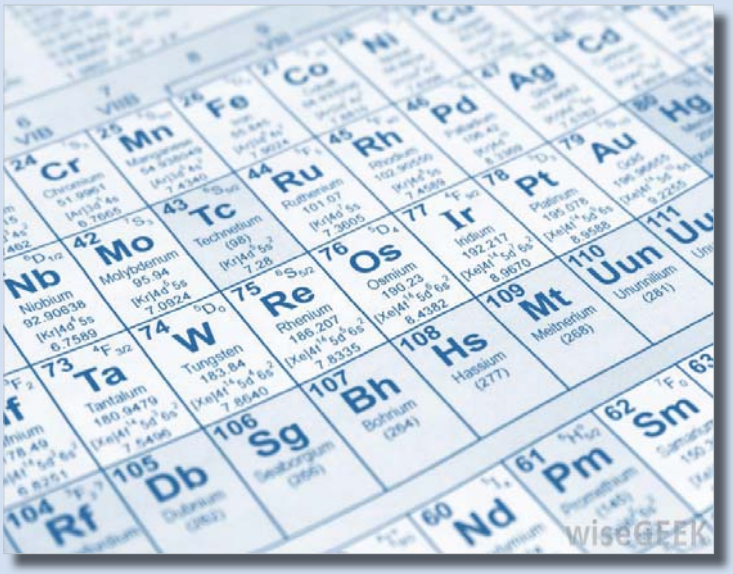
"The articles have been cited 228,235 times in the last 10 years," he said, adding that American scientists have published 237,444 articles in the same period and have been cited 4,635,921 times.

Scientists from China, Japan, Germany and India ranked second to fifth by publishing 287,718, 112,012, 101,378 and 89,118 articles, respectively.

Essential Science IndicatorsSM from Thomson Reuters is a compilation of statistical information (publication, citation and cites-per-paper counts) for scientists, institutions, countries and journals. It is based on 10 years of Thomson Reuters data.

Essential Science Indicators, accessible by subscribers through a web interface, is updated every two months. During the course of a year, the data series presented covers 10 years plus a successive number of recent two-month periods, eventually reaching an 11-year time-span.

At the end of the year, the compilation reverts to a 10-year data set, dropping off the oldest year of the series.



wisegeek.org

Iranians discover direct MS-diet link

Iranian scientists in Lund University in Sweden have discovered a direct link between MS and food.

Multiple sclerosis (MS) is an autoimmune disease that affects the central nervous system and renders the brain ineffective in sending messages to the rest of the body.

Though we know relatively little about multiple sclerosis, recently it was discovered that MS not only affects the brain tissue but also the intestinal system. This significant discovery by an Iranian scientist can be a new clue toward discovering methods to treat this disease.

In an exclusive interview with Mehr News Agency, Dr. Shahram Lavasani, associate professor in the university's Department of Biology, explained about this recent discovery. Excerpts follow:

When did you begin your studies on MS and the intestinal system, and what led you to focus on the intestines of patients with MS?

It has been 10 years since we started this project. From the very beginning, we have been conscious of the fact that one should not be totally focused on tissues attacked by the immune system.

What we have learned from MS so far is that the immune system is attacked, which causes the loss of the insulating myelin sheath. Thus, the transmission of signals from the brain to the various organs is impaired.

In the past, there have always been speculations about MS affecting the intestinal system, but now we have been able to present evidence for it.

Until now, it was thought that genetics is mostly responsible for MS.

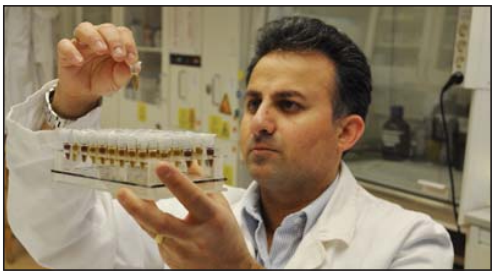
Yes, for a long time, genetics was held solely responsible for causing MS, and much research has been done into it. Yet, no one has been able to prove that gene is the only deciding factor. It is now known, however, that environmental factors are also effective.

Does the intestinal system have anything to do with diet?

Definitely. That's where the intestinal system comes into focus, since the food that we consume ends up there. Therefore, we should accept this conclusion that diet is closely associated with MS and its development, as it is obvious that food after getting into the intestinal system disrupts its bacterial composition.

What was the scientific communities' attitude toward this discovery and at what stage is your project now?

Ten years ago, when the project was first started, no one believed that there could be a relationship between MS and the destruction of the nerve sheath, and the intestinal system and the bacteria residing in it.



Dr. Shahram Lavasani

MEHR NEWS AGENCY

For this purpose, we carried out a significant experiment in 2010 in which certain probiotics were injected into mice with MS-like symptoms. During this experiment, we found out that the course of the disease kept changing. The moment we infected the mice with MS, the intestinal system underwent severe reactions before showing the crippling effects of MS.

The results showed that when dealing with MS, one must consider various tissues, as MS may not only attack the immune system. Perhaps, one of the main reasons that so far no permanent treatment has been found for this disease is that there hasn't been an overall checkup of the patient's body and only certain tissues have been examined.

In this regard, our research team is examining other factors causing inflammation to the intestines. Together with Mehrnaz Nouri, an Iranian PhD student in Lund University, we are trying to find new ways to make the restoration of the intestine's mucous membrane in MS patients possible.

Kashan University synthesizes controlled nanostructures

Iranian researchers from Kashan University, in association with their colleagues from Isfahan's University of Technology, have succeeded in synthesizing hydroxyapatite nanostructure through a very simple and new method.

In this method, the shape and size of synthesized nanostructured particles can be easily controlled. Energy and time-saving are among the advantages of this method, Fars News Agency reported.

Numerous methods have so far been reported for the production of hydroxyapatite due to the wide applications of this material. However, this research tries to present a simple method that can control the shape and size of hydroxyapatite particles at nanometric scale.

In addition, the temperature and time of reaction are relatively low in comparison with those of other reported methods.

Dr. Fatemeh Mohandes, one of the researchers, said the main purpose of the research was to control the shape and size of hydroxyapatite nanostructures, for which various methods and surfactants have been used.

"We succeeded in producing hydroxyapatite nanostructures, including nanorods and nanoparticles, through this method by using Schiff-base organic compounds. The use of Schiff-base compounds had not been reported for controlling the shape and size of hydroxyapatite nanostructures," she said.

"Our research team successfully used these compounds under the supervision of Prof. Mas'oud Salavati Niyasari."

Results obtained from the characterization of the product showed that the synthesized materials have high purity and efficiency.

Studying the bioactivity of hydroxyapatite nanostructures synthesized through this method shows that one-dimensional nanostructures (nanorods) have higher biological activity compared to zero-dimensional nanostructures (nanoparticles).