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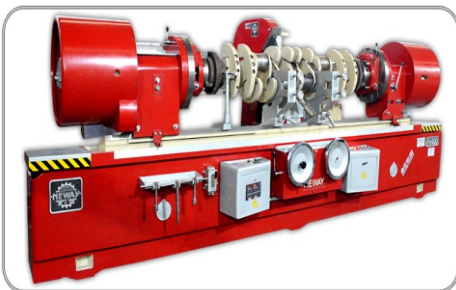
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Tech & Trade Offers

NEW WAY AUTOMOBILE



Forthcoming Tech Events

- International Conference on Innovative Engineering Technologies
- International Conference on Science Technology and Management
- World Congress On Information Technology And Computer Science
- World Congress On Industrial Biotechnology
- International Conference on Science and Technology
- International Conference on Science Engineering and Management
- International Conference on Nursing and COVID
- International Conference on Science & Technology Research

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Aqsa Ajmal from NUST University, Islamabad Invents Sewing Machine for Visually Impaired People

NUST is proud to announce that Aqsa Ajmal – an Industrial Design graduate from NUST School of Art, Design and Architecture (SADA) – has been selected as one of the six finalists for the Lexus Design Award from around the world – and has become the first and only Pakistani to have achieved this milestone, for her phenomenal project titled 'Pursewit'.



Courtesy: <https://nust.edu.pk/news/aqsa-ajmal-success-story>

Lexus announced the six finalists for the Lexus Design Award 2020 in the last week of January, from a record-setting group of 2,042 submissions from 79 countries. The proposals were selected based on their expression of three key principles of the Lexus brand – Anticipate, Innovate, and Captivate – with an emphasis on design that leads to a better tomorrow.

Aqsa's final-year project 'Pursewit' is a sewing machine exclusively designed for visually impaired people with low-income backgrounds. The machine is ergonomically designed and being developed with special embedded features to enable differently abled individuals to operate it without any hassle. After attending an exclusive mentorship workshop in New York, USA, Aqsa worked on her prototype under the supervision of co-inventor Mr Jawwad Zaidi, HoD Industrial Design SADA. Aqsa later on showcased the prototype at the Milan Design Week in Italy, scheduled for April 2020. Through her experimental design, she is aiming to improve the connections between people and products.

Aqsa Jamal has now won the prestigious Lexus Design Award in Italy, for her design of a sewing machine for the visually impaired. Aqsa has won from amongst 2042 entries from 79 entries.

Source:

www.nust.edu.pk/news/aqsa-ajmal-success-story/ and <https://mmnews.tv/pakistani-female-student-aqsa-invents-sewing-machine-visually-impaired>

NutriBiz 2021: Nutrition Innovation Challenge for SMEs

The National Incubation Center is Pakistan's largest technology incubation center; the first purpose built creative space in Pakistan buzzing with innovators, mentors, change-makers and passionate leaders. It's a living example of a successful public-private partnership between the Ministry of IT & Telecom, Ignite – National Technology Fund, Jazz and Teamup. The National Incubation Center in Islamabad is led by two unicorn founders with around decades of combined experience in setting up organizations from scratch and bringing digital revolution in Pakistan. The National Incubation Center connects Pakistani entrepreneurs with industry experts and investors.

Applications are now open for the NutriBiz 2021 Nutrition Innovation Challenge for SMEs.



Courtesy: <https://nicpakistan.pk/the-nutribiz-nutrition-innovation-challenge/>

NIC was chosen from a pool of around 1300 projects submitted by the Government and private sector for WSIS Prizes 2021. This initiative is organized by the NIC in collaboration with the UN World Food Program (WFP), [@GAINalliance](#) and Scaling Up Nutrition (SUN); a global movement in 63 countries that seeks to end malnutrition in all its forms.

The focus of Nutribiz 2021 is on improving the capability and productivity of small and medium enterprises (SMEs) working in the food industry.

Our problem statements have been gathered directly from those who operate in **NutriBiz** space. Based on the problem statements collected by our stakeholders, **over 7 thematic areas** within the **NutriBiz 2021 Nutrition Innovation Challenge** have been identified. But feel free to apply regardless of the thematic statement as long as your idea is innovative. If you are working in one or more of the thematic areas listed below:

1. Product Innovation and Marketing
2. Market Connectivity
3. Minimizing Food Waste
4. Cutting Edge Farming Tech
5. Food Safety
6. Promoting a Healthy Diet through Education
7. Supply Chain Management

The focus of Nutribiz 2021 is on improving the capability and productivity of SMEs working in the food industry

The last date to apply is **30th May 2021**.

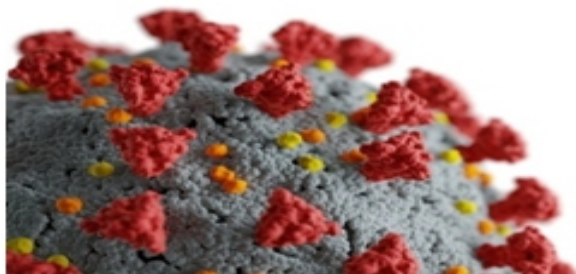
Please visit here to apply: <https://forms.office.com/r/LEpZDn1RNT>

Source:

www.nicpakistan.pk and https://twitter.com/NIC_Pakistan/status/1394696667614560259/photo/1

COVID-19: Scientists Identify human Genes that fight Infection

Scientists at Sanford Burnham Prebys have identified a set of human genes that fight SARS-CoV-2 infection, the virus that causes COVID-19. Knowing which genes help control viral infection can greatly assist researchers' understanding of factors that affect disease severity and also suggest possible therapeutic options. The genes in question are related to interferons, the body's frontline virus fighters.



Credit: © eMirage / stock.adobe.com

The scientists gained new insights into how the virus exploits the human cells it invades, but they are still searching for its Achilles' heel so that they can develop optimal antivirals. Soon after the start of the pandemic, clinicians found that a weak interferon response to SARS-CoV-2 infection resulted in some of the more severe cases of COVID-19. This knowledge led Chanda and his collaborators to search for the human genes that are triggered by interferons, known as interferon-stimulated genes (ISGs), which act to limit SARS-CoV-2 infection.

Based on knowledge gleaned from SARS-CoV-1, the virus that caused a deadly, but relatively brief, outbreak of disease from 2002 to 2004, and knowing that it was similar to SARS-CoV-2, the investigators were able to develop laboratory experiments to identify the ISGs that control viral replication in COVID-19.

They found that 65 ISGs controlled SARS-CoV-2 infection, including some that inhibited the virus' ability to enter cells, some that suppressed manufacture of the RNA that is the virus's lifeblood, and a cluster of genes that inhibited assembly of the virus. Some of the ISGs exhibited control across unrelated viruses, such as seasonal flu, West Nile and HIV, which leads to AIDS.

They identified eight ISGs that inhibited both SARS-CoV-1 and CoV-2 replication in the subcellular compartment responsible for protein packaging, suggesting this vulnerable site could be exploited to clear viral infection; but they still need to learn more about the biology of the virus and investigate if genetic variability within these ISGs correlates with COVID-19 severity.

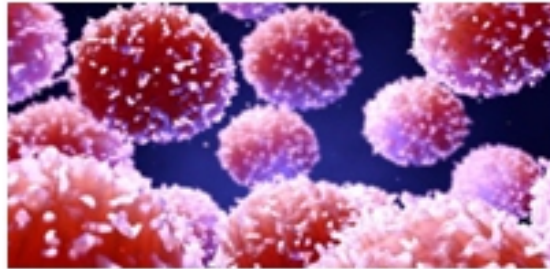
As a next step, the researchers will look at the biology of SARS-CoV-2 variants that continue to evolve and threaten vaccine efficacy.

Source:

www.sciencedaily.com/releases/2021/04/210416145832.htm

New research optimizes Body's own Immune System to fight Cancer

A groundbreaking study led by engineering and medical researchers at the University of Minnesota Twin Cities shows how engineered immune cells used in new cancer therapies can overcome physical barriers to allow a patient's own immune system to fight tumors. The research could improve cancer therapies in the future for millions of people worldwide.



Credit: © Design Cells / stock.adobe.com

Instead of using chemicals or radiation, immunotherapy is a type of cancer treatment that helps the patient's immune system fight cancer. T cells are a type of white blood cell that is of key importance to the immune system. Cytotoxic T cells are like soldiers who search out and destroy the targeted invader cells.

While there has been success in using immunotherapy for some types of cancer in the blood or blood-producing organs, a T cell's job is much more difficult in solid tumors.

The tumor is sort of like an obstacle course, and the T cell has to run the gauntlet to reach the cancer cells. These T cells get into tumors, but they just can't move around well, and they can't go where they need to go before they run out of gas and are exhausted. In this first-of-its-kind study, the researchers are working to engineer the T cells and develop engineering design criteria to mechanically optimize the cells or make them more "fit" to overcome the barriers. If these immune cells can recognize and get to the cancer cells, then they can destroy the tumor.

In a fibrous mass of a tumor, the stiffness of the tumor causes immune cells to slow down about two-fold -- almost like they are running in quicksand.

The scientists have identified some structural and signaling elements where they can tune these T cells to make them more effective cancer fighters. Every 'obstacle course' within a tumor is slightly different, but there are some similarities. After engineering these immune cells, they found that they moved through the tumor almost twice as fast no matter what obstacles were in their way.

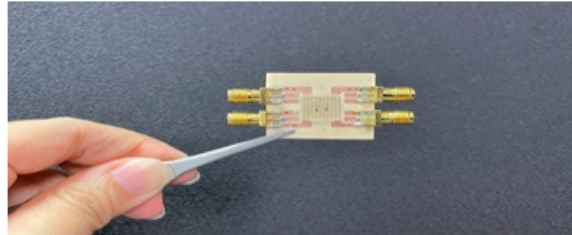
To engineer cytotoxic T cells, the authors used advanced gene editing technologies (also called genome editing) to change the DNA of the T cells so they are better able to overcome the tumor's barriers. The ultimate goal is to slow down the cancer cells and speed up the engineered immune cells. The researchers are working to create cells that are good at overcoming different kinds of barriers. When these cells are mixed together, the goal is for groups of immune cells to overcome all the different types of barriers to reach the cancer cells.

Source:

www.sciencedaily.com/releases/2021/05/210514134222.htm

Engineers Harvest WiFi signals to Power small Electronics

With the rise of the digital age, the amount of WiFi sources to transmit information wirelessly between devices has grown exponentially. This results in the widespread use of the 2.4GHz radio frequency that WiFi uses, with excess signals available to be tapped for alternative uses.



A chip embedded with about 50 spin-torque oscillators. Credit: National University of Singapore

To harness this under-utilised source of energy, a research team from the National University of Singapore (NUS) and Japan's Tohoku University (TU) has developed a technology that uses tiny smart devices known as spin-torque oscillators (STOs) to harvest and convert wireless radio frequencies into energy to power small electronics. The researchers had successfully harvested energy using WiFi-band signals to power a light-emitting diode (LED) wirelessly, and without using any battery. They are surrounded by WiFi signals, but when they are not using them to access the Internet, they are inactive, and this is a huge waste. Their latest result is a step towards turning readily-available 2.4GHz radio waves into a green source of energy, hence reducing the need for batteries to power electronics that we use regularly. In this way, small electric gadgets and sensors can be powered wirelessly by using radio frequency waves as part of the Internet of Things. With the advent of smart homes and cities, their work could give rise to energy-efficient applications in communication, computing, and neuromorphic systems.

Spin-torque oscillators are a class of emerging devices that generate microwaves, and have applications in wireless communication systems. However, the application of STOs is hindered due to a low output power and broad linewidth. While mutual synchronisation of multiple STOs is a way to overcome this problem; current schemes, such as short-range magnetic coupling between multiple STOs, have spatial restrictions. On the other hand, long-range electrical synchronisation using vortex oscillators is limited in frequency responses of only a few hundred MHz. It also requires dedicated current sources for the individual STOs, which can complicate the overall on-chip implementation.

To overcome the spatial and low frequency limitations, the research team came up with an array in which eight STOs are connected in series. Using this array, the 2.4 GHz electromagnetic radio waves that WiFi uses was converted into a direct voltage signal, which was then transmitted to a capacitor to light up a 1.6-volt LED. When the capacitor was charged for five seconds, it was able to light up the same LED for one minute after the wireless power was switched off.

The researchers also highlighted the importance of electrical topology for designing on-chip STO systems, and compared the series design with the parallel one.

Source:

www.scitechdaily.com/engineers-harvest-energy-from-wifi-signals-to-power-small-electronics

Towards 2D Memory Technology by Magnetic Graphene

In spintronics, the magnetic moment of electrons (spin) is used to transfer and manipulate information. An ultra-compact 2D spin-logic circuitry could be built from 2D materials that can transport the spin information over long distances and also provide strong spin-polarization of charge current. Experiments by physicists at the University of Groningen (The Netherlands) and Colombia University (USA) suggest that magnetic graphene can be the ultimate choice for these 2D spin-logic devices as it efficiently converts charge to spin current and can transfer this strong spin-polarization over long distances.

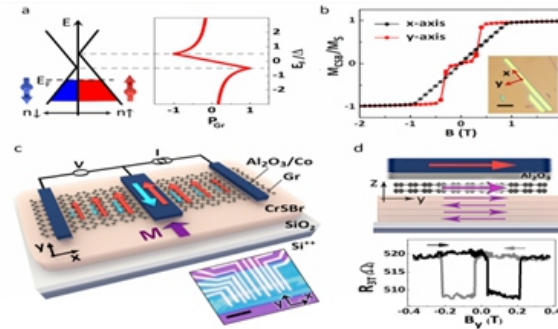


FIG. 4. Anomalous Hall effect (AHE) in a Gr/CrSBr vdW heterostructure. (a) An optical micrograph and schematic of device D2 consisting of a graphene Hall bar on SiO₂, partially covered with a CrSBr flake (thickness ≈ 50 nm) with Ti(5 nm)/Au(100 nm) electrodes. Scale bar: 5 μ m. The red and blue arrows represent the out-of-plane spins. (b) Left axis: Transverse resistance $R_{xy} = V_{xy}/I$ as a function of an out-of-plane magnetic field (B_z), measured at $V_g = +35$ V, with $I = 0.5$ μ A. The dashed blue line determines the linear background attributed to ordinary Hall effect. Right axis: The nonlinear component of the R_{xy} , attributed to the AHE (RAHE). (c) Left axis: The magnitude of the AHE signal (defined as an average of the maximum and minimum values of the RAHE at $B_z > +4$ T and < -4 T) at the various V_g , shown by the red dots. Right axis: Longitudinal resistance (R_{xx}) versus back-gate voltage (V_g), shown by the black line. The measurements are performed at $T = 30$ K. Courtesy: <https://arxiv.org/pdf/2007.15597.pdf>

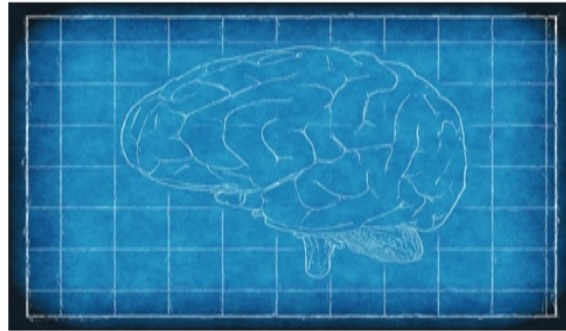
Spintronic devices are promising high-speed and energy-saving alternatives for the current electronics. These devices use the magnetic moment of electrons so-called spins ('up' or 'down') to transfer and store information. The ongoing scaling down of memory technology requires ever smaller spintronic devices and thus it seeks for atomically thin materials that can actively generate large spin signals and transfer the spin information over micrometre-long distances.

Source:

<https://www.sciencedaily.com/releases/2021/05/210506142123.html>

The Cerebellum may have played an important role in the Evolution of the Human Brain

Study compares epigenetic modifications to DNA in the cerebellum of humans, chimpanzees and monkeys. The cerebellum -- a part of the brain once recognized mainly for its role in coordinating movement -- underwent evolutionary changes that may have contributed to human culture, language and tool use. This new finding appears in a study by Elaine Guevara of Duke University and colleagues.



Compared to chimpanzees and rhesus macaques, humans showed greater epigenetic differences in the cerebellum than the prefrontal cortex, highlighting the importance of the cerebellum in human brain evolution. Image is in the public domain. Courtesy: <https://neurosciencenews.com/cerebellum-evolution-18362>

Scientists studying how humans evolved their remarkable capacity to think and learn have frequently focused on the prefrontal cortex, a part of the brain vital for executive functions, like moral reasoning and decision making. But recently, the cerebellum has begun receiving more attention for its role in human cognition. Guevara and her team investigated the evolution of the cerebellum and the prefrontal cortex by looking for molecular differences between humans, chimpanzees, and rhesus macaque monkeys. Specifically, they examined genomes from the two types of brain tissue in the three species to find epigenetic differences. These are modifications that do not change the DNA sequence but can affect which genes are turned on and off and can be inherited by future generations.

Compared to chimpanzees and rhesus macaques, humans showed greater epigenetic differences in the cerebellum than the prefrontal cortex, highlighting the importance of the cerebellum in human brain evolution. The epigenetic differences were especially apparent on genes involved in brain development, brain inflammation, fat metabolism and synaptic plasticity -- the strengthening or weakening of connections between neurons depending on how often they are used. The results support an important role for the cerebellum in human brain evolution and suggest that previously identified epigenetic features distinguishing the human neocortex are not unique to the neocortex."

Source:

www.sciencedaily.com/releases/2021/05/210506142039.htm

Forthcoming Tech Events

Pakistan

International Conference on Innovative Engineering Technologies

18-19 July 2021

Karachi

www.conferencealerts.co.in/events/eventdetail.php?id=1404092

International Conference on Science Technology and Management

28-29 July, 2021

Rawalpindi

www.astem.org/Conference2021/Pakistan/1/ICSTM/

World Congress On Information Technology And Computer Science

1st-2nd August, 2021

Peshawar

www.conferencealerts.net/event_detail.php?ev_id=413333

World Congress On Industrial Biotechnology

12-13 August, 2021

Multan

www.conferencealerts.net/event_detail.php?ev_id=400837

International

International Conference on Science and Technology

8-9 July, 2021

Pathum Thani, Thailand

<https://10times.com/science-and-technology-bangkok>

international Conference on Science Engineering and Management

26-27 August, 2021

Colombo, Srilanka

www.icsem.net/

International Conference on Nursing and COVID

29-30, September 2021

Singapore

www.larixconferences.com/nursing

International Conference on Science & Technology Research

7-8, October 2021

Istanbul, Turkey

www.10times.com/icrst-istanbul

Tech & Trade Offers

NEWWAY AUTOMOBILE

Neway has become renowned in its local and foreign circles due to the workmanship and services provided by the company. Neway is the only firm in Pakistan producing the highest numbers of Auto-Engine-Repairing as well as general machine tools. Ever since its beginning, Neway added at least one new model of machine in its production line every year to offer a complete solution for engine overhauling.

The production includes Crankshaft Grinder, Surface Grinder, Honing Machine, Hydraulic Presses, Line Boring, Cylinder Boring and many other machines to meet the needs of auto repairing workshops of all sizes for local and foreign market. These machines are also exported to the South America, Fiji Island, Middle East, Africa, South & South East Asia such as U.A.E., Turkey, Iran, Korea, Saudi Arabia and England.

Neway was nominated for International Trophy for Technology and Quality, Geneva and “Europe Award For Quality” Paris, several times in the last decade. Neway is the only ISO-9001 : 2015 certified company in Pakistan in its field, with CE Mark for its Products.



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About PASTIC

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