TECHNOLOGY ROUNDUP

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SKY ELECTRIC

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

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DRAP APPROVES PAKISTAN'S 'FIRST ICU VENTILATOR' CREATED BY PAKISTAN ATOMIC ENERGY COMMISSION

PACE's engineers and scientists developed that ventilator and following all the essential quality standard and all the regulatory function's requirement, the body claimed in a statement. Furthermore, they stated that at PACE hospital in Islamabad, the doctors are provided with input as well during the development process.

PAEC (the Pakistan Atomic Energy Commission) recently stated that Pakistan's "first ICU (indigenous intensive care unit) ventilator": i-Live has been developed by them.

The evaluation team from PEC (the Pakistan Engineering Council) and Pakistan Innovation and Technology Centre tested the i-Live ventilator and declared it fine and approved it, said PACE. At Jinnah Hospital in Lahore, the Clinical trials of the ventilator were conducted under the supervision of senior doctors, medical researchers, and biomedical engineers. In short, the ventilator has passed all the stages of medical validation and engineering evaluation successfully.

Moreover, the spokesperson of PAEC, Shahid Riaz Khan stated that today, the Drug Regulatory Authority of Pakistan (DRAP) has also approved the ventilator, and from now onward, the "**i-Live**" will be supplied and manufactured by PAEC to all the hospitals of Pakistan This is indeed a big development in manufacturing and designing the life-saving equipment.

Mohammad Naeem the Chairman of PAEC also congratulated the doctors, scientists, and engineers who are involved in the development of the ventilator and the production is a great quantity of i-Live will immediately meet the increasing demand in the context of the ongoing Corona pandemic. The previous day, Senator Shibli Faraz, Minister for Science and Technology said that the registration of ventilators with DRAP his ministry would expedite to ensure the timely availability of their induction in export and the healthcare system.

Source:

www.pakistantechnews.com/drap-approves-pakistans-first-icu-ventilator-created-by-pakistan-atomic-energy-commission

IAEA AWARDS PAKISTANI NUCLEAR INSTITUTION, SCIENTISTS IN THREE CATEGORIES

The International Atomic Energy Agency (IAEA) and the UN Food and Agriculture Organisation (FAO) have jointly conferred awards on Pakistan's Nuclear Institute for Agriculture and Biology (NIAB) and five of the country's scientists, according to a statement issued by the Ministry of Foreign Affairs. The NIAB and the scientists have been given the awards in recognition of "Pakistan's advancement in the application of nuclear technology for the achievement of Sustainable Development Goals, including food security".

Courtesy: http://www.niab.org.pk/

Among the Pakistani recipients of the awards, the NIAB has bagged the Outstanding Achievement Award, a group of four scientists in the Pakistan Atomic Energy Commission (PAEC) has bagged the Team Achievement Award and another PAEC scientist has been given the Young Scientist Award for his work in plant mutation breeding and related technologies.

Award certificates will be presented to the recipients during the IAEA's 65th General Conference in September 2021.

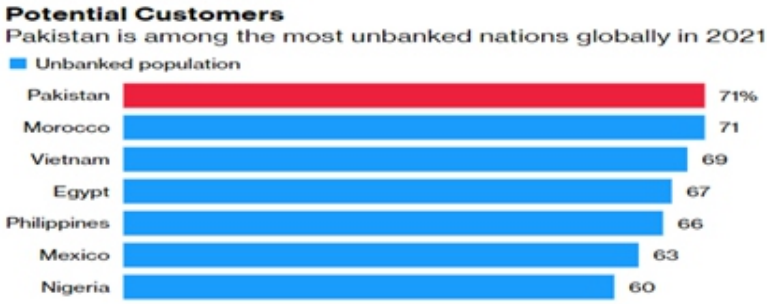
"Extensive civilian nuclear applications in Pakistan are directly contributing to the well-being of the people and national development in the areas of public health, medicine, agriculture, industry and nuclear power generation".

Source:

www.dawn.com/news/1631226/iaea-awards-pakistani-nuclear-institution-scientists & http://mofa.gov.pk/iaea-and-fao-announce-achievement-awards-for-pakistani-institution-and-scientists-in-three-categories

FIRST PAKISTAN DIGITAL BANK TO START IN JUNE AFTER RAISING FUNDS

TAG Innovation Pvt. is set to become Pakistan's first digital bank when it starts operations this month in the world's fifth most populous nation where 70% of adults don't have a bank account. The Islamabad-based fintech startup will launch with a limited number of customers and start commercial operations in two to three months, Chief Executive Officer Talal Gondal said in an interview. It aims to have millions of customers in the first few years, he said.



Courtesy: Merchant Machine, Intermarket Securities. https://www.bloomberg.com/news/articles/2021-06-03/world-s-fifth-largest-nation-gets-its-first-digital-bank-in-june

The company has raised about $5.5 million in pre-seed funding, making it one of five biggest deals in the Middle East, Africa and Pakistan region, according to data from Crunchbase. The funding round was led by Quiet Capital Management and Liberty City Ventures. TAG also received strategic angel investments from general partners of Andreessen Horowitz, Khosla Ventures LLC , Canaan Partners and Mercury's Immad Akhund.. TAG joins other digital payment startups in raising funds as digital banks take off in emerging markets where millions lack access to banking services. Razorpay, an Indian startup that facilitates digital payments, said in April it was raising $160 million, while Egyptian digital banking app Telda raised $5million last month.

Pakistan has the third largest unbanked adult population globally with about 100 million adults without a bank account, according to the World Bank. About 70% of the population doesn't have a bank account, according to Raza Jafri, head of equities at Intermarket Securities Ltd. Potential customers complain about the lengthy documentation process and multiple branch visits needed to open an account. “In Pakistan, the system is broken,” said Gondal. “Some banks don't even have a banking app. It's that bad.”TAG plans to make the process simple with potential customers needing just a copy of their national identification card and a selfie. Accounts should be opened within three minutes, Gondal said. Pakistan's central bank governor Reza Baqir said in April that he welcomes digital banks in the country, including full-fledged digital banks and smaller ones to constructively shape up the industry.

Source:

www.bloomberg.com/news/articles/2021-06-03/world-s-fifth-largest-nation-gets-its-first-digital-bank-in-june

A SAFER, GREENER WAY TO MAKE SOLAR CELLS: TOXIC SOLVENT REPLACED

Scientists at SPECIFIC Innovation and Knowledge Centre, Swansea University, have found a way to replace the toxic, unsustainable solvents currently needed to make the next generation of solar technology.

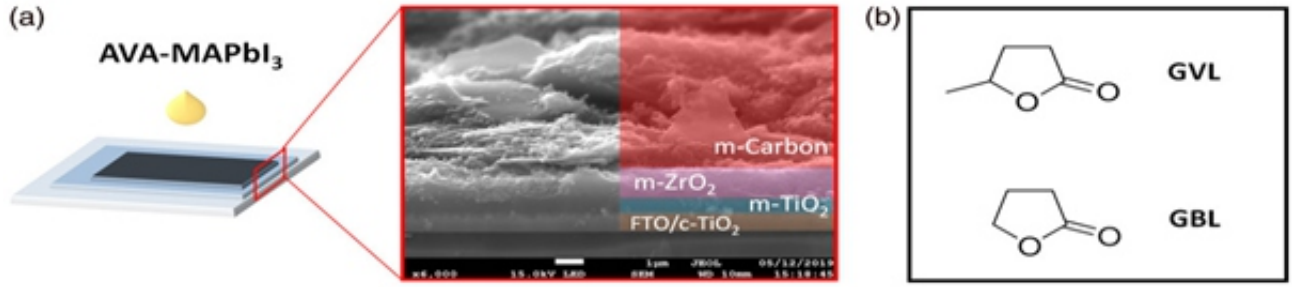


Figure 1. a) Schematic representation of CPSC infiltration procedure with the corresponding cross-sectional SEM of an uninfiltrated stack and labeled layers. b) Chemical structures of GVL and GBL. Courtesy: https://onlinelibrary.wiley.com/doi/10.1002/ente.202100312

Printed carbon perovskite solar cells have been described as a likely front runner to the market because they are extremely efficient at converting light to electricity, cheap and easy to make.
A major barrier to the large-scale manufacture and commercialisation of these cells is the solvents used to control crystallisation of the perovskite during fabrication: this is because they are made from unsustainable materials and are banned in many countries due to their toxicity and psychoactive effects.
SPECIFIC's researchers have discovered that a non-toxic biodegradable solvent called γ-Valerolactone (GVL) could replace these solvents without impacting cell performance.
GVL's list of advantages could improve the commercial viability of carbon perovskite solar devices:

- It is made from sustainable feedstocks
- There are no legal issues in its use around the world
- It is suitable for use in large-scale manufacturing processes
- It is non-toxic and biodegradable

Carys Worsley, who led the research as part of her doctorate, said:

"To be truly environmentally sustainable, the way that solar cells are made must be as green as the energy they produce. As the next generation of solar technologies approaches commercial viability, research to reduce the environmental impact of large-scale production will become increasingly important."
Professor Trystan Watson, research group leader, added:
"Many problems need to be resolved before these technologies become a commercial reality. This solvent problem was a major barrier, not only restricting large-scale manufacture but holding back research in countries where the solvents are banned.
We hope our discovery will enable countries that have previously been unable to participate in this research to become part of the community and accelerate the development of cleaner, greener energy."

Source:

www.sciencedaily.com/releases/2021/05/210519163642.htm

UNBROKEN: NEW SOFT ELECTRONICS DON'T BREAK, EVEN WHEN PUNCTURED

Want a smartphone that stretches, takes damage, and still doesn't miss a call?

A team of Virginia Tech researchers from the Department of Mechanical Engineering and the Macromolecules Innovation Institute has created a new type of soft electronics, paving the way for devices that are self-healing, reconfigurable, and recyclable. These skin-like circuits are soft and stretchy, sustain numerous damage events under load without losing electrical conductivity, and can be recycled to generate new circuits at the end of a product's life.

Led by Assistant Professor Michael Bartlett, the team recently published its findings in *Communications Materials*, an open access journal from Nature Research.

Current consumer devices, such as phones and laptops, contain rigid materials that use soldered wires running throughout. The soft circuit developed by Bartlett's team replaces these inflexible materials with soft electronic composites and tiny, electricity-conducting liquid metal droplets. These soft electronics are part of a rapidly emerging field of technology that gives gadgets a level of durability that would have been impossible just a few years ago.

The liquid metal droplets are initially dispersed in an elastomer, a type of rubbery polymer, as electrically insulated, discrete drops.

"To make circuits, we introduced a scalable approach through embossing, which allows us to rapidly create tunable circuits by selectively connecting droplets," postdoctoral researcher and first author Ravi Tutika said. "We can then locally break the droplets apart to remake circuits and can even completely dissolve the circuits to break all the connections to recycle the materials, and then start back at the beginning."

The circuits are soft and flexible, like skin, continuing to work even under extreme damage. If a hole is punched in these circuits, the metal droplets can still transfer power. Instead of cutting the connection completely as in the case of a traditional wire, the droplets make new connections around the hole to continue passing electricity.

The circuits will also stretch without losing their electrical connection, as the team pulled the device to over 10 times its original length without failure during the research.

At the end of a product's life, the metal droplets and the rubbery materials can be reprocessed and returned to a liquid solution, effectively making them recyclable. From that point, they can be remade to start a new life, an approach that offers a pathway to sustainable electronics.

While a stretchy smartphone has not yet been made, rapid development in the field also holds promise for wearable electronics and soft robotics. These emerging technologies require soft, robust circuitry to make the leap into consumer applications. "We're excited about our progress and envision these materials as key components for emerging soft technologies," Bartlett said. "This work gets closer to creating soft circuitry that could survive in a variety of real-world applications."

Source:

www.sciencedaily.com/releases/2021/06/210625173147.htm

AI USED TO PREDICT UNKNOWN LINKS BETWEEN VIRUSES AND MAMMALS

A new University of Liverpool study could help scientists mitigate the future spread of zoonotic and livestock diseases caused by existing viruses.

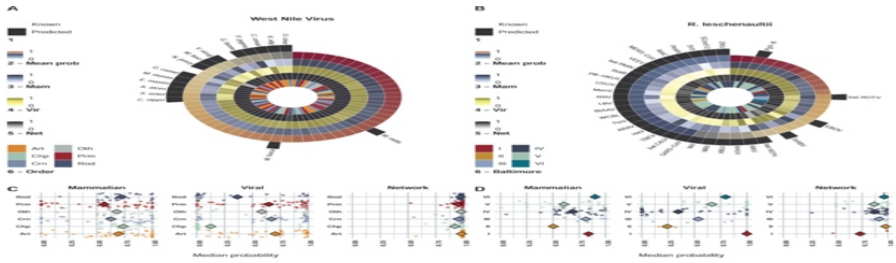


Fig. 1: Example showcasing final and intermediate predictions of West Nile Virus (WNV), and Rousettus leschenaultii. Courtesy: https://www.nature.com/articles/s41467-021-24085-w/figures/1

Researchers have used a form or artificial intelligence (AI) called machine-learning to predict more than 20,000 unknown associations between known viruses and susceptible mammalian species. The findings, which are published in *Nature Communications*, could be used to help target disease surveillance programmes.

Thousands of viruses are known to affect mammals, with recent estimates indicating that less than 1% of mammalian viral diversity has been discovered to date. Some of these viruses such as human and feline immunodeficiency viruses have a very narrow host range, whereas others such as rabies and West Nile viruses have very wide host ranges.

"Host range is an important predictor of whether a virus is zoonotic and therefore poses a risk to humans. Most recently, SARS-CoV-2 has been found to have a relatively broad host range which may have facilitated its spill-over to humans. However, our knowledge of the host range of most viruses remains limited," explains lead researcher Dr Maya Wardeh from the University's Institute of Infection, Veterinary and Ecological Sciences.

To address this knowledge gap, the researchers developed a novel machine learning framework to predict unknown associations between known viruses and susceptible mammalian species by consolidating three distinct perspectives -- that of each virus, each mammal, and the network connecting them, respectively.

Their results suggests that there are more than five times as many associations between known zoonotic viruses and wild and semi-domesticated mammals than previously thought. In particular, bats and rodents, which have been associated with recent outbreaks of emerging viruses such as coronaviruses and hantaviruses, were linked with increased risk of zoonotic viruses.

The model also predicts a five-fold increase in associations between wild and semi-domesticated mammals and viruses of economically important domestic species such as livestock and pets.

Dr Wardeh said: "As viruses continue to move across the globe, our model provides a powerful way to assess potential hosts they have yet to encounter. Having this foresight could help to identify and mitigate zoonotic and animal-disease risks, such as spill-over from animal reservoirs into human populations." Dr Wardeh is currently expanding the approach to predict the ability of ticks and insects to transmit viruses to birds and mammals, which will enable prioritisation of laboratory-based vector-competence studies worldwide to help mitigate future outbreaks of vector-borne diseases.

Source:

www.sciencedaily.com/releases/2021/06/210625100511.htm

TRANSPARENT NANOLAYERS FOR MORE SOLAR POWER

There is no cheaper way to generate electricity today than with the sun. Power plants are currently being built in sunny locations that will supply solar electricity for less than two cents per kilowatt hour. Solar cells available on the market based on crystalline silicon make this possible with efficiencies of up to 23 percent. Therefore they hold a global market share of around 95 percent. With even higher efficiencies of more than 26 percent, costs could fall further. An international working group led by photovoltaics researchers from Forschungszentrum Jülich now plan to reach this goal with a nanostructured, transparent material for the front of solar cells and a sophisticated design.

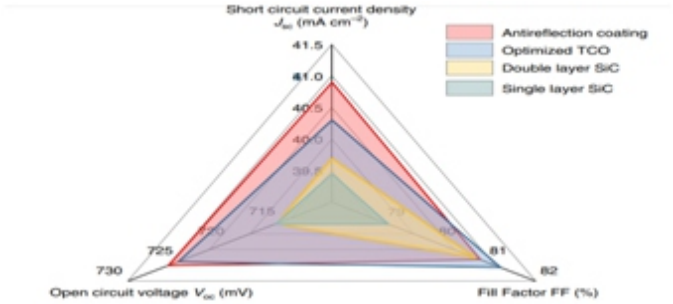


Fig. 4 | Illustration of the evolution of TPC solar cells. Evolution of the TPC IV parameters from single layer to the double layer, the optimized ITO deposition, and the improvement due to MgF2 antireflection coating. The optimization of the TPC solar cells is along these triangle points. All solar cells have been measured with isolated back contacts of the surrounding cells (more details about the measurement are in Supplementary Discussion 4). Courtesy https://www.nature.com/articles/s41560-021-00806-9.pdf

Silicon solar cells have been steadily improved over the past decades and have already reached a very high level of development. However, the disturbing effect of recombination still occurs after the absorption of sunlight and the photovoltaic generation of electrical charge carriers. In this process, negative and positive charge carriers that have already been generated combine and cancel each other out before they could be used for the flow of solar electricity. This effect can be countered by special materials that have a special property -- passivation. The scientists report that their nanostructured layers offer precisely this desired passivation. In addition, the ultra-thin layers are transparent -- so the incidence of light is hardly reduced -- and exhibit high electrical conductivity.

No other approach so far combines these three properties -- passivation, transparency, conductivity -- as well as their new design. Kaining Ding's research group plans to further optimize the power yield of its TPC solar cells

Source:

www.sciencedaily.com/releases/2021/04/210415114125.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 Engineering and Management
26-27 August, 2021
Colombo, Srilanka
www.icsem.net/

International Conference on Science & Technology
7-8 September, 2021
Yogyakarta, Indonesia
www.icst.ugm.ac.id

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

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SKY ELECTRIC

Overview

Sky Electric Smart Solar System is the World's Smartest Solar System with in-built Artificial Intelligence-based software, Battery management software and 24/7 customer care services. So far, Sky Electric Pvt Ltd is the fastest-growing company in Pakistan and has been successful in creating a footprint all over Pakistan with clients from residential, commercial and industrial segments.

Commercial and Industrial Projects

Sky Electric provides customized Smart Solar Systems according to the needs of different commercial and industrial sectors. Business owners are switching to Sky Electric Smart Solar System to maximize their work efficiency and productivity with lowest energy costs. Our clients include.

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