Tech Insider Stories 20 January 2023

Story 1: NASA Just Announced Funding for 14 Futuristic Space Exploration Concepts

Source: Extremetech.com Story by Ryan Whitwam

Link: https://www.extremetech.com/extreme/342213-nasa-funds-14-futuristic-space-exploration-concepts-including-a-titan-seaplane

Artist's depiction of TitanAir: Leading-Edge Liquid Collection to Enable Cutting-Edge Science (James Vaughan Photo-Illustration)

- On the 12th of this month NASA announced the latest round of NASA Innovative Advanced Concepts awards.

- The 14 newly designated Phase 1 projects envision technologies that don't currently exist but are reasonably plausible.

- Here are two examples:

- University of California researchers have proposed a Pellet-Beam Propulsion system that would use a stream of microscopic hypervelocity particles propelled by laser ablation to push a spacecraft to incredible speeds.

- The proposal says such a system could reach the edge of the solar system in just three or four years.

- Another project award winner is aimed at exploring Saturn's largest moon Titan.

- Washington-based Planet Enterprises has developed a concept for a seaplane they call TitanAir. The seaplane would have the ability to fly through the moon's nitrogen atmosphere or sail across its seas of liquid hydrocarbons.

- The plane would be able to collect atmospheric samples as it flies using vents on the wing's leading edge.

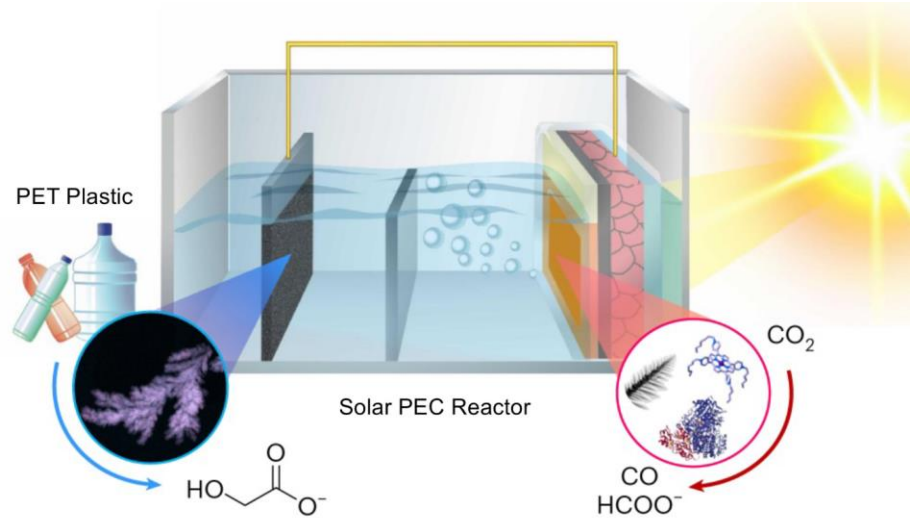
Story 2: New solar-powered machine turns carbon dioxide and waste plastic into valuable products

Source: Futurism.com Story by: Maggie Harrison

Link: https://futurism.com/solar-machine-co2-plastic-fuel

Source: TechXplore [University of Cambridge press release]

Link: https://techxplore.com/news/2023-01-solar-powered-plastic-greenhouse-gases-sustainable.html



- A team of researchers at the University of Cambridge say they've built a machine that transforms both carbon dioxide and plastic waste into sustainable fuel and other valuable materials, using only energy from the Sun to do so.

- Their new "photoelectrochemical" system is unique not only in its ability to turn Earth-destroying byproducts like CO2 and plastics into useful and sustainable materials, but also its ability to work with multiple materials at once.

- The photoelectrochemical reactor converts the carbon dioxide (CO2) and plastics into different products that are useful in a range of industries.

- In tests, CO2 was converted into syngas, a key building block for sustainable liquid fuels, and plastic bottles were converted into glycolic acid, which is widely used in the cosmetics industry.

- The system can easily be tuned to produce different products by changing the type of catalyst used in the reactor.

Story 3: Apple expected to launch a mixed reality headset this year

Source: AIBusiness.com Story by Ben Wodecki

Link: https://aibusiness.com/verticals/here-comes-apple-s-mixed-reality-headset

- First, let's set the stage.

- Most of us by now are familiar with the large goggle-like headsets with a built-in screen for each eye used for immersive gaming where you can move your head to look around a computer-generated environment, and use your arms to, for example, throw a football, you name it.

- And then there's the emerging use of headsets to experience the so-called metaverse -- which is a virtual-reality space in which users can interact with a computer-generated environment and other users.

- Apple reportedly is set to unveil its long anticipated mixed reality high-resolution headset that blends the physical and digital worlds. And that mixing of the two worlds is called “Augmented Reality”.

- According to Bloomberg News, Apple plans to unveil its own mixed or augmented reality headset in the spring ahead of its Worldwide Developers Conference in June.

- For Apple CEO Tom Cook Augmented Reality is the better path to pursue as opposed to jumping on the metaverse bandwagon.

- The Apple headset is expected to retail between $2,000 and $3,000 and will feature its M2 chip, Apple's Arm-based system on a chip built for Mac and iPad.

Story 4: Researchers develop a blood test that can reliably detect Alzheimer's disease

Source: Engadget.com Story by Igor Bonifacic

Link: https://www.engadget.com/researchers-develop-blood-test-detects-alzheimers-disease-224320271.html

TEK IMAGE/SCIENCE PHOTO LIBRARY via Getty Images

- When doctors need to confirm an Alzheimer's diagnosis, they often turn to a combination of brain imaging and cell analysis.

- Both have their downsides.

    - Cell analysis involves a lumbar puncture, an invasive and painful procedure that's more commonly known as a spinal tap.

- MRI scans are less invasive but they’re often expensive and accessibility is an issue; not every community has access to the technology.

- The next best tool for diagnosing Alzheimer’s disease is a blood test.

- Today we have blood tests to detect abnormal tau protein counts.

    - Tau is a protein that helps stabilize the internal skeleton of nerve cells (neurons) in the brain.

- But, and here’s the problem, current tau protein blood tests are less effective at spotting the telltale signs of neurodegeneration.

- But that could soon change.

- A multinational team made up of researchers from Sweden, Italy, the UK, and US recently disclosed a new antibody-based blood test.

- The new test can detect brain-derived tau proteins, which are specific to Alzheimer’s disease.

- Following a study of 600 patients, the team found their test could reliably distinguish the illness from other neurodegenerative diseases.