BYTE QUEST

Vasavi College Of Engineering

Department Of Computer Science and Engineering

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Contents:

Byte Quest is the article published by the CSE dept of Vasavi College of Engineering regarding the latest innovative Technologies and Software that have been emerged in the competitive world. The motto of this article is to update the people regarding the improvement in technology. The article is designed by the active participation of students under the guidance of faculty coordinators.

- Good ,bad or indifferent if you are not investing in new technology , you are going to be left behind.

  -Philip Green

- Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road.

  -Stewart Brand.

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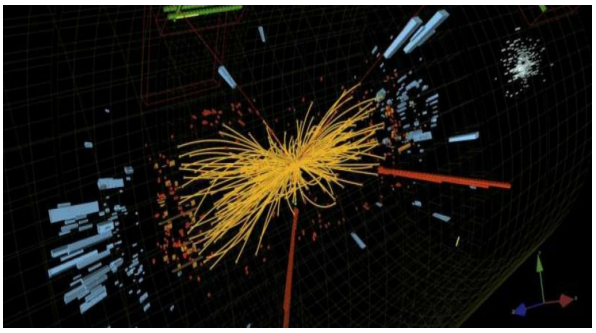
PHYSICISTS HAVE CAUGHT SIGNS OF A NEW PARTICLE: THE MADALA BOSON

Physicists have discovered signals of a new particle in the swathes of data used to confirm the existence of the Higgs boson back in 2012, and have tentatively named it the Madala boson. The signal was first detected in data from the 2012 Large Hadron Collider (LHC) experiments at CERN, and has now been supported by repeat experiments in 2015 and 2016., Estimated to make up around 27 percent of all the mass and energy in the observable Universe, we know dark matter exists because we can detect its gravitational force, but it doesn't appear to emit any form of light or radiation that we can observe. And despite years of searching, no one actually knows what dark matter actually is - the closest we've gotten to figuring that out is crossing off each potential candidate one by one. Classical physics failed to explain a number of phenomena and, as a result, it needed to be revolutionised with new concepts, such as relativity and quantum physics, leading to



the creation of what we know now as modern physics. When the existence of the Higgs boson was confirmed in 2012, it finally completed the Standard Model of Physics. But as complete as it now is, the Standard Model can't explain the existence or behaviour of dark matter- which is where the heavier Madala boson.

KAUSHIK(CSE-A 2/4)

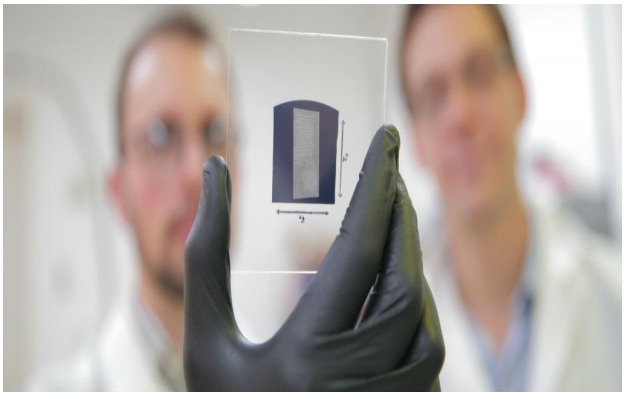
NASA MIGHT HAVE JUST SPOTTED THE SLOWEST SPINNING MAGNETAR

Astronomers working with NASA's Chandra X-ray Observatory have found evidence of an extremely dense, magnetised neutron star - or magnetar - at the centre of RCW 103, a dense cloud of dust left over from a supernova lying roughly 10,700 light-years away. While the discovery of a magnetar is always awesome, the new evidence indicates that the star might rotate thousands of times slower than other magnetars, making it an incredibly unique find.

Based on their data, which included the relative amount of X-rays produced by the star and how it cooled down after the previously mentioned bursts, the team has concluded that 1E 1613 is likely a magnetar. If their findings hold up after more scrutiny, this would make 1E 1613 the 30th magnetar ever found.The source is rotating once every 24,000 seconds (6.67 hours), much slower than the slowest magnetars known until now, which spin around once every 10 seconds. This would make it the slowest spinning neutron star ever detected. Normally, magnetars are thought to slow down as they age, but 1E 1613 is estimated to be only 2,000 years old - a mere newborn by astronomical standards .

P.HONEY(CSE-B 3/4)

CARBON NANOTUBE TRANSISTORS HAVE OUTPERFORMED SILICON



For the first time, scientists have built a transistor out of carbon nanotubes that can run almost twice as fast as its silicon counterparts.

This is big, because for decades, scientists have been trying to figure out how to build the next generation of computers using carbon nanotube components, because their unique properties could form the basis of faster devices that consume way less power.

"Making carbon nanotube transistors that are better than silicon transistors is a big milestone," ."This achievement has been a dream of nanotechnology for the last 20 years."

First developed back in 1991, carbon nanotubes are basically minuscule carbon straws that measure just 1 atom thick.

Imagine a tiny, cylindrical tube that's approximately 50,000 times smaller than the width of a human hair, and made from carbon atoms arranged in hexagonal arrays. That's what a carbon nanotube wire would look like if you could see it at an atomic level.

Because of their size, carbon nanotubes can be packed by the millions onto wafers that can act just like a silicon transistor - the electrical switches that together form a computer's central processing unit (CPU).

Despite being incredibly tiny, carbon nanotubes have some unique properties that make them an engineer's dream.

They're more than 100 times stronger than steel, but only one-sixth as heavy. They're stretchy and flexible like a thread of fabric, and can maintain their 1-atom-thick walls while growing up to hundreds of microns long.

And here's the best part: just like that other 1-atom-thick wonder-material, graphene, carbon nanotubes are one of the most conductive materials ever discovered.

With ultra-strong bonds holding the carbon atoms together in a hexagonal pattern, carbon nanotubes are able to produce a phenomenon known as electron delocalisation, which allows an electrical charge to move freely through it.

The arrangement of the carbon atoms also allows heat to move steadily through the tube, which gives it around 15 times the thermal conductivity and 1,000 times the current capacity of copper, while maintaining a density that's just half that of aluminium.

D.SWAPNA(CSE-A 3/4)