

The Horizon Newsletter

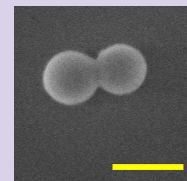
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Happy New Year!

The World's Fastest Spinning Object

By: Shrihan Dadi

Scientists and researchers at Purdue University managed to create the world's fastest spinning object, with an angular speed of three hundred billion revolutions per minute, which is five times faster than the previous record. The object they used is a silica nanoparticle that is shaped like a dumbbell. In order to spin the particle, the scientists targeted two lasers at it. One laser started it spinning while the other set it in place. This might be a world record, but this kind of technology could be used to measure quantum effects such as nanoscale magnetism and vacuum friction.



Soybean Oil Causes Changes in Brain

By: Shrihan Dadi

Soybean oil is the world's most widely used oil. However, recent research at the University of California Riverside showed that soybean oil could affect conditions like Alzheimer's disease, anxiety, depression, and autism. It is known that this oil



also leads to obesity and diabetes, making it a very unhealthy oil. The researchers used mice to test the effects of soybean oil. They realized that the oil produced significant effects on the hypothalamus, a central region in the brain that regulates metabolism, maintains body temperature, and manages responses to stress. In mice fed with a soybean oil diet, the level of oxytocin went down. Oxytocin is important for maternal health and mother-child bonding. They discovered that around one hundred other genes were also affected by soybean oil. However, this test was done on mice, so the results won't directly translate to humans. In general, soybean oil is unhealthy, and it is best to avoid it whenever possible.

Altruism in Healing

By: Arya Bharti

A recent paper published in PNAS (Proceedings of the national academy of sciences) reveals that more altruistic behavior leads to a decreased sensation of pain. These findings suggest that when patients were given certain chores to help others, their pain levels subside not only in acute but also in chronic disorders and cancer patients too. With the help of MRI researchers found out that patients who performed these volunteer actions to help others have reduced brain activity in certain brain centers such as dorsal anterior cingulate cortex responsible for pain sensations. Other similar studies also suggest that volunteering can reduce stress, depression and improve cognitive function. These studies indicate that health is not limited to mere good diet and exercise regime but our compassionate and altruistic behavior autonomously help us to achieve a healthy, happy and satisfied good life.

Possible Cure for Diabetes?

By: Harvik Kolla

A new “cure” for diabetes has been discovered. MIT students have found out a way to combat diabetes.

Diabetes is when the body does not produce insulin or the insulin does not work properly. Insulin is important to the body because it is the “key” which allows glucose to get into cells. Without insulin, one’s blood sugar levels increase causing nerve damage, loss of feeling, and fatigue.

MIT students have created technology to help combat this. These nanoparticles/nanobots would consist of two things: a gel-like substance, and a modified polysaccharide called "Dextran". The gel is sensitive to acidity. Each nanoparticle will contain dextran loaded with an enzyme that converts glucose to gluconic acid. Glucose can diffuse through the gel, so when sugar levels are high, the enzyme produces acid, making the environment more acidic. The environment then causes the dextran to disintegrate and release insulin. Since the particles are composed of polysaccharides, they will eventually



degrade in the body. The gel contains a mixture of oppositely charged nanoparticles that attract each other, keeping the gel intact and preventing the particles from drifting away once inside the body.

This solution is very efficient has a good scope. Existing solutions to this problem include insulin pumps that are bulky and have to be worn around the body. They also cost around 12,000 dollars. This solution by MIT is very cost-effective and inventive. With this, treating diabetes will become not only easier but also cheaper.

The Top 5 Apps To Download On Your Phone

By: Sumanth Anantha

These Apps seem to be popular within youtube and around schools.

5. Call of Duty: Mobile



This App is very similar to Pubg and Fortnite. You use weapons and try to eliminate the other players. Call of Duty was very famous on the Xbox and PS4. I have seen many people play this game at my school all the time. The game makes them feel competitive and work together on team missions.

4. Clash of Clans



Clash of Clans is a strategy game where the player sets up a base and levels up his character troops. With those leveled up troops, the player will attack other bases. This game is fun and

competitive because players can play against other's bases and gain rewards. It also increases a player's intelligence on a strategy to use.

1. Brawl Stars



From the Creators of Clash of Clans, Brawl Stars is a multiplayer game where players fight other players in multiple modes. You can also collect brawler skins and gain a lot of currency like gems. Brawl stars is fun because players can work together to complete levels and defeat the boss. The animation and sound effects are marvelous.

2. Marvel Contest of Champions



If you're a huge marvel fan then this is the right game for you. Marvel Contest Champions is about collecting # starred champions. You can collect your favorite champions by spinning crystals. Go through quests and obtain rewards. You can battle in arenas to get rewards and test out new champions. Also, work with other players in your alliance to win quests/wars.

1. Minecraft Pocket Edition



Minecraft is a popular sandbox game where players can create, destroy, and modify objects out of textured cubes. The game has two modes, Creative where players can act gods and Survival where players are normal. Minecraft has over 33 million users and places players in random worlds where they can start playing around with other objects. Players can also spawn normal and mysterious creatures like endermann or creepers. You can also collect skins in Minecraft if you do not want to use your default skin. There is also an inventory in both modes where you can customize your armor and weapon as different types of steel/metal. Minecraft also has servers where players can join other players' worlds.

Health: Coronavirus

By: Pavitra Madala

Coronaviruses are infections that cause diseases in mammals and humans, primarily respiratory infections that are typically mild, like the common cold. Coronaviruses have become recognized infections, with the number of known cases of the new virus rising by nearly a third overnight. Japan has evacuated some of its citizens and the United Airlines suspended some of its flights from the United States to China, primarily because of the spread of this condition. With this big of a jump, the United States is expanding the screenings for this condition in airports and borders. Fortunately, there is no spread of this virus in communities in the United States. However, the infection is spreading so fast that it will bring many more cases in the next couple of days or weeks, likely through person-to-person contact. Many companies are working to develop a vaccine

against coronavirus, but little progress has been made. Therefore, the best and current strategy to avoid the spread of this condition is a global effort to contain the infection.

