

# The Horizon Newsletter

## December 2019

### **Scientists Discover a Monster Black Hole**

*By: Shrihan Dadi*

Previously, astronomers and scientists predicted that the theoretical maximum limit to the size of a black hole cannot exceed twenty solar masses (twenty suns) in our galaxy, the Milky Way. However, recently, a group of international Chinese scientists discovered a black hole with a mass of seventy solar masses. This black hole was named LB-1, and it is located approximately fifteen thousand light years away from Earth. According to scientists, this violates existing theory based on current models of stellar evolution and black holes that form in the Milky Way. As such, researchers will have to find new theories to explain the rise of black holes as massive as LB-1. In our galaxy, only about two dozen black holes have been studied because it is hard to study black holes that aren't actively consuming stars. Scientists used a new way through China's Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST) to discover LB-1. As mentioned previously, this telescope tracks black holes by looking at stars that orbit them. Stellar black holes rarely exceed one hundred and fifty solar masses, and the giant black holes at the center of galaxies can range from a million solar masses to a billion solar masses. These celestial objects are very mysterious, and not too much is known about them. Einstein himself deemed black holes to not exist. By looking at giant black holes like LB-1, scientists can learn more about stellar evolution (how stars grow and die). As a matter of fact, LB-1 isn't confirmed to be a black hole since there is a chance that the observation could actually be two binary black holes orbiting each other, but that chance is very small.



## **Impeachment: What is Happening?**

*By: Amuktha Dasari*

The House Judiciary Committee has passed two articles of impeachment against President Trump. The first article is to impeach the president on account of abuse of power, due to the remarks he made on the front lawn of the White House earlier this year. The President asked the Ukraine to investigate the



Bidens, of whom Joe Biden is polling highest to run against him for the 2020 election, essentially inviting a foreign nation to interfere in a United States election. The second article is on obstruction of justice, due to the President's refusal to allow administration members to testify in the impeachment investigation. Both amendments were passed with a vote of

23 to 17, directly along party lines: each Democratic committee member voted in favor of the articles, and each Republican voted against. The articles will be presented to the House next Wednesday, December 18th, after which they will vote on whether or not to impeach President Donald Trump.

## **New Zealand's White Island Volcano Leaves Over a Dozen Dead**

*By: Arya Bharti*

The volcanic island, White Island, in New Zealand's northeastern Bay of Plenty region explosively erupted on 9 December 2019. At the time there were a total of 47 people on the island, 16 of which didn't survive the upcoming eruption. The volcano had been showing signs of unrest for several weeks before the 2019 eruption. In October 2019, levels of volcanic tremors and sulphur dioxide gas were at their peak levels since 2016. Two weeks before the explosion, New Zealand reported a 5.9 magnitude earthquake just 6 miles away from the volcano. The question arises, why were tourists allowed on the



island even with these prevalent signs? The answer, like many things, was money. White Island generates an average of 45 million dollars a year and is seen as one of New Zealand's most popular tourist attractions being dubbed "living, breathing, geological giant". Two bodies are still missing and assumed dead, The Royal Caribbean cruise line has suspended all tours visiting active volcanoes after the tragedy.

## Congress Funds Gun Violence Research

By: Sumant Anantha

After Two Decades, Congress makes a deal to fund Gun Violence. The funding costs about \$25 million where the researchers will treat this like a public health problem. The \$25 million is divided between the center for Disease Control and the National Institute of Health. Compared to the Cancer research or Vehicle crashes, 25



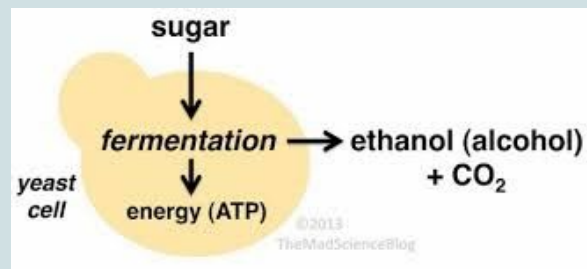
million is a very small cost according to Public Health. The federal government was very close to closing the funding for Gun violence followed by National Rifle Association backed Dickey Amendment, which prevents federal funding to the research being used to maintain gun control. Still Gun Control is a mixed issue and studying this issue would mean studying events related to Gun violence. The 25 million represents the first amount for funding for the researchers. The Research for Gun Violence will quickly

climb the steps to preventing another shooting or any gun violent act.

## Auto Brewery Syndrome

By: Sruthi Anne

Can you automatically make beer in you body? Auto brewery syndrome is a rare medical condition where large quantities of ethanol are produced through endogenous fermentation within the digestive system. This happens when your body turns sugary or starchy food (carbohydrates) into alcohol. Although auto brewery syndrome is hard to be diagnosed with, it may also be mistaken for different conditions. Few cases of this syndrome have been reported in the last few decades, but it has been introduced in the news many times. A lot of these stories involve people who were charged mistakenly for drinking and driving. For example in New York City, one woman was arrested for drunk and driving, because her blood alcohol level was four times the legal limit.



Luckily, she wasn't charged since medical reports showed that auto brewery syndrome raised her blood

alcohol levels. This is definitely a type of condition the media likes talking about, but it's not likely to repeat itself very often. Nonetheless, this is a very real condition.

## **20% Tax Break for Entrepreneurs**

*By: Pranay Koneru*

The qualified business income or QBI deduction was introduced in 2018 as part of the Tax Cuts and Jobs Act, allowing business owners to deduct up to 20% of their qualified business income. In 2018, over 15.6 million tax returns claimed the QBI deduction on their taxes but not everyone is eligible for the deduction. Business owners in any industry can apply for the deduction if their taxable income is \$160,700 if single, or \$321,400 if married. Additionally,



taxpayers in a “specified service trade or business, take for example doctors, lawyers, etc., cannot claim the deduction if their taxable income is \$210,700, if single, or \$421,400, if married. You can also earn a decreased deduction in case your taxable income exceeds the threshold of \$160,700/\$321,400 but is still below the threshold of \$210,700/\$421,400. In

addition to these policies, the IRS released guidelines in September on the exclusion and its applicability to rental property owners. Such guidelines include keeping separate books and records for each rental company, and providing and recording at least 250 hours of rental services in a year if the company has been around for fewer than four years. If a landlord has had their rental business for longer than that then they must document at least 250 hours of rental services in 3 of the last 5 years. Services include maintenance and repair on the properties as well supervising those who work there. Lastly, here's another consideration: the exemption from QBI is only around until the end of 2025, when it will expire if Congress does not act. Until you overhaul your company, keep that in mind.