

Free physics report example

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Day in, day out, new advancements are being made in the world of physics, and it is becoming increasingly difficult to keep track of all of them. While one reads them every now and then in the newspapers, there is not a single record of the significant achievements made in a single year. Given the change in lifestyle that has occurred in the past two decades, advancements have been made a foregone conclusion in leaps and bounds every year. In order to solve this predicament of keeping track of the most important progressions, Hamish Johnston in his article “ Cosmic neutrinos named Physics World 2013 Breakthrough of the Year” summarizes the top ten breakthroughs in the world of physics in the year of 2013. The winning breakthroughs were announced by the Physics World magazine. A panel of six Physics World editors gathered to judge and awarded the top 10 breakthroughs. From nanotechnology to nuclear physics, the judges covered all the topics to reach upon their conclusions. Not only the achievements themselves but also this collection appears to be the result of extreme hard work and devotion.

The article starts by announcing the winner of the competition. IceCube South Pole Neutrino Observatory attained the top slot for its efforts to successfully observe high-energy cosmic neutrinos. The researchers earned this reward for their painstaking efforts to build a huge detector in the inhospitable conditions at the South Pole. They used this detector to detect cosmic neutrinos that have always proven to be extremely difficult. The most difficult phase of this whole research was the drilling of extremely deep holes in the ice to make space for the components of the detector. Because the drilling could only be accomplished during the brief summer, it took around

four years to complete.

Johnston then reveals the other nine breakthroughs after he discusses the criteria for selection. The criteria gave importance to the importance of research in the world of physics in the first place, then assessed the advancement made in knowledge, then observed the link between theory and experiment, and finally assessed the general interest of the physicists in the particular research.

The article then mentions the existence of pear-shaped nucleus. This phenomenon was confirmed for the atoms radon-220 and radium-224. This research will now help to calculate the properties of large nuclei and examine permanent electric dipole moment further. The third advancement is relevant to photons. MIT members created molecules of light by drawing together two photons. This could have massive implications for communication and computing systems.

The award has been given to the scientists of European Space Agency's Planck space telescope. The proportion of the universe made up of dark energy was previously thought to be much more than that now found.

Moreover, the universe has been found to be eighty million years older than that originally thought. This research led to an extremely precise measurement of cosmic microwave background radiation.

Another breath-taking achievement is that of maintaining quantum state for thirty-nine minutes at room temperature. Previously, it was only possible to maintain it for two seconds. This is undoubtedly a big leap in the world of physics because it paves the way for quantum money. Stanford University made its name by creating the first ever carbon-nanotube computer. This

advancement can lead the way to make faster and even more energy efficient electronic devices. Another achievement was made in the South Pole when astronomers measured B-mode polarization. While it had always been suspected, it was eventually proved by the research of these astronomers. It will eventually lead to further research in an aspect that forms the key part in the Big Bang theory of the universe.

The top ten breakthroughs are an impressive collection. It just indicates that scientists are progressing in every sub-field of physics, and much more significant developments can be expected in the near future. Out of all these achievements, the one involving photons or 'molecules' of light seems to be the one with the best practical application. In today's world, the fastest means of communication and the best and most accurate method is being preferred. Even the developing countries are shifting to optic fibers in order to satisfy their information needs in a fast-moving world. If this research is aptly employed, it could lead to radical changes in the world of communication.

Furthermore, the nano-tube computer, if widely developed, is obviously going to further complicate the security situations. Not only will data become more vulnerable but these computers can also be used by massive terrorist conspiracies. Out of all the advancements, this particular advancement sounds extremely dangerous in this respect. Research needs to be made into the detecting mechanisms of these nano-computers otherwise, the security predicament will be impossible to resolve.

Briefly, the article not only sweeps the reader off his feet by its impressive

array of advancements but it also provides food for thought into what kind of achievements can be expected in the near future.

Works Cited

Johnston, Hamish. “ Cosmic neutrinos named Physics World 2013 Breakthrough of the Year.” Physicsworld. com. Institute of Physics, 13 Dec. 2013. Web. 11 Nov. 2014.