Year in Review—The most important research of 2015: April

December 15 2015, by Bob Yirka

An artist's impression shows the surroundings of a supermassive black hole at the heart of the active galaxy NGC 3783 in the southern constellation of Centaurus. A new University at Buffalo study finds that -- contrary to what some physicists have argued for the years -- information is not lost once it has entered a black hole. The research presents explicit calculations showing how information is, in fact, preserved. Credit: ESO/M. Kornmesser

(ScienceX)—In this new monthly series, we are offering summary articles featuring links to some of the most interesting, intriguing or popular stories

that appeared on ScienceX throughout 2015. This is the April 2015 edition.

In physics news, a team led by John Anderson wondered why measurements of the gravitational constant vary so much. They found that it appears to be related to the oscillatory period of Earth's rotation rate. Another team of researchers at IBM announced that they had achieved some critical steps to building the first practical quantum computer—an ability to measure and detect the two types of quantum errors at the same time and a demonstration of a new square quantum bit circuit design.

In space research news, a team working with the Mars Reconnaissance Orbiter reported evidence that showed that Mars has belts of glaciers consisting of frozen water. And another team of researchers at the University of Buffalo found evidence that black holes don't erase information—information lost when entities are pulled into a black hole does not just disappear, they reported. Also, another team at TU Wien in Vienna asked, is the universe a hologram? Their results suggested that the holographic principle holds even in a flat spacetime.

In technology news, a team of researchers at Virginia Tech reported that they'd made a new discovery that may be a breakthrough for hydrogen cars—a biological approach that costs less than other methods and can be done faster was well. A team at Ohio State University announced that they had developed a mesh that captures oil—but lets water through. The new material could prove helpful in cleaning up oil spills. And another team at Stanford University announced that they had developed an ultra-fast charging aluminum battery that offers a safe alternative to conventional batteries—they are just as good, but won't burst into flames.

In medical news, a team working at the Sanford-Burnham Medical Research Institute announced a breakthrough in pancreas cancer

treatment—they found a way to turn cancer cells into normal cells by introducing a protein called E47. And a team at Toronto General Hospital Research Institute found that two compounds targeted the gut to lower blood sugar in obese or diabetic rats. They found that metformin and resveratrol triggered signaling pathways in the small intestine to lower blood sugar.

The January 2015 edition of our Year in Review series can be read here.
The February 2015 edition of our Year in Review series can be read here.
The March 2015 edition of our Year in Review series can be read here.